
Nortel Communication Server 1000

Nortel Communication Server 1000 Release 4.5

Features and Services

Book 2 of 3 (D to M)

Document Number: 553-3001-306

Document Release: Standard 18.01

Date: March 2008

Copyright © 1994–2008 Nortel Networks. All Rights Reserved.

Sourced in Canada

The information in this document is subject to change without notice. The statements, configurations, technical data, and recommendations in this document are believed to be accurate and reliable, but are presented without express or implied warranty. Users must take full responsibility for their applications of any products specified in this document. The information in this document is proprietary to Nortel Networks.

Nortel, the Nortel Logo, the Globemark, SL-1, Meridian 1, and Succession are trademarks of Nortel Networks.

All other trademarks are the property of their respective owners.

Contents

How to get help	17
About this document	19
Features and Software options	25
Departmental Listed Directory Number	73
D-channel Expansion	81
Dial Access to Group Calls	83
Dial Intercom	87
Dial Pulse/Dual-tone Multifrequency Conversion	97
Dialed Number Identification Service	99
Digit Display	101
Digital Private Network Signaling System	111
Digital Trunk Interface – Commonwealth of Independent States	113
Digitone Receiver Enhancements	135

Direct Inward Dialing Call Forward No Answer Timer	139
Direct Inward Dialing Recall Features on DTI2 for Italy	143
Direct Inward Dialing to TIE Connection	149
Direct Inward System Access	153
Direct Inward System Access on Unsupervised Trunks	163
Direct Private Network Access	165
Directory Number	175
Directory Number Delayed Ringing	177
Directory Number Expansion	183
Distinctive Ringing by DN	189
Distinctive/New Distinctive Ringing	197
Do Not Disturb	205
Dual Signaling on Analog Trunks	219
Electronic Brandlining	223
Electronic Switched Network	239
Emergency Services Access	251
End of Selection	253
End of Selection Busy	255

End-of-Dialing on Direct Inward/Outward Dialing	257
End-to-End Signaling	259
End-to-End Signaling Display Enhancement	267
Equal Access Compliance	271
Extended DID/DOD Software Support – Europe	281
Extended Flexible Central Office Trunk Software Support	293
Extended Multifrequency Compelled Sender/Receiver	305
Extended Tone Detector Global Parameters Download	311
Fast Tone Digit Switch	319
FCC Compliance for DID Answer Supervision	321
FCC Compliance for Equal Access	329
First-second Degree Busy Indication	335
Flexible Attendant Call Waiting Thresholds ...	337
Flexible Attendant Directory Number	343
Flexible Busy Tone Timer	345
Flexible Dial Tone Detection	347

Flexible Direct Inward Dialing	351
Flexible Feature Code Boss Secretarial Filtering	353
Flexible Feature Codes	359
Flexible Orbiting Prevention Timer	377
Flexible Tone and Digit Switch Control	379
Flexible Trunk to Trunk Connections	385
Flexible Voice/Data Terminal Number	409
Forced Camp-On and Priority Override	417
Forward No Answer Call Waiting Direct Inward Dialing	423
Generic XFCOT Software Support	425
Group Call	433
Group Hunt	441
Group Hunting Queuing Limitation	473
Group Hunting Queuing Limitation Enhancement	477
Handset Volume Reset	481
Handsfree Transmission Parameter Download	483
Held Call Clearing	489
History File	493

Hong Kong Digital Trunk Interface	495
Hot Line, Enhanced	499
Hot Line, Flexible	511
Hunting	517
Hunting by Call Type	533
Hunting, Data Port	537
Hunting, Trunk	545
ICP Network Screen Activation, Flexible DN, Meridian Mail Interactions	551
In-Band Automatic Number Identification	559
Incoming Call Indicator Enhancement	567
Incoming DID Digit Conversion	571
Incoming Digit Conversion Enhancement	581
Incremental Software Management	585
Information Notification Service for Japan	587
Instant ISM	595
Instant License	597
Nortel Integrated DECT	613
Integrated Messaging System Link	617
Integrated Services Digital Network	625

Intelligent Peripheral Equipment Completion	627
Intelligent Peripheral Equipment Software Support Enhancements	637
Intercept Computer Dial from Directory	643
Intercept Computer Enhancements	655
Intercept Computer Interface	659
Intercept Treatment	667
Intercept Treatment Enhancements	673
International Meridian 1	675
Inventory Reporting	681
IP Network-wide Virtual Office	701
IPE blocking	717
Italian Central Office Special Services	721
Italian Periodic Pulse Metering	725
KD3 Direct Inward Dialing/Direct Outward Dialing for Spain	729
Last Number Redial	731
Limited Access to Overlays	739
Limited Access to Overlays Password Enhancement	749
Line and Trunk Cards	753

Line Load Control	757
Line Lockout	763
Listed Directory Numbers	769
Listed Directory Numbers, Network Wide	773
Lockout, DID Second Degree Busy, and MFE Signaling Treatments	779
LOGIVOX Telephone	783
Loop Start Supervisory Trunks	787
Loop Start Supervisory Trunks (Incoming Calls)	791
Loopback on Public Exchange/ Central Office Trunks	795
M3900 Full Icon Support	797
M3900 Set-to-Set Messaging	801
M3900 (Single Site) Virtual Office	807
Make Set Busy	817
Make Set Busy and Voice Call Override	825
Make Set Busy Improvement	829
Malicious Call Trace	835
Malicious Call Trace DN/TN Print	853
Malicious Call Trace Idle	857

Malicious Call Trace on Direct Inward Dialing	863
Manual Line Service	867
Manual Service Recall to Attendant	871
Manual Signaling (Buzz)	873
Manual Trunk Service	877
Meridian 1 Attendant Console Enhancements	883
Meridian 1 Initialization Prevention and Recovery	915
Meridian 911	919
Meridian Hospitality Voice Services	951
Meridian Mail Trunk Access Restriction	957
Meridian Mail Voice Mailbox Administration ..	967
Message Intercept	993
Message Registration	999
Message Waiting Indicator by Directory Number	1007
Message Waiting Lamp Maintenance	1025
Message Waiting Unconditional	1029
Mixed disk drive sizes with CP PII	1035
Multi-language Messaging	1037

Multi-Party Operations	1041
Multi-Party Operations Enhancements	1081
Multiple Appearance Directory Number	1087
Multiple Appearance Directory Number Redirection Prime	1101
Multiple Console Operation	1119
Multiple Customer Operation	1125
Multi-Site Mobility Networking	1127
Multi-Tenant Service	1137
Music	1163
Music, Enhanced	1171
Music Broadcast	1177

Revision history

March 2008

Standard 18.01. This document is up-issued to add information to Trunk Hunting on pages 546-548 (Book 2).

October 2007

Standard 18.00. This document is up-issued to reflect the following changes:

- Added description for DNDR feature.
- Addition of missing value for Last Number Redial Size on pages 737, 738 (Book 2).
- Deletion of Dial Tone Detection (DTD) chapter (Book 2); deletion of DTD reference in LD 13 table of International Meridian 1 chapter on page 676 (Book2); addition of DTD descriptive information to Extended Tone Detector Global Parameters Download chapter on pages 312 and 313 (Book 2).

July 2006

Standard 17.00. This document is up-issued to reflect the following changes:

- Addition of M3900 Full Icon Support feature on pages 797 to 800 (Book 2).
- Addition of M3900 Set-to-Set Messaging feature on pages 801 to 806 (Book 2).
- Addition of M3900 series digital telephone feature reference on pages 341, 342 of the Personal Directory chapter (Book 3).
- Addition of Flexible Feature Codes to list on pages 371 to 376 of Flexible Feature Codes chapter (Book 2).

April 2006

Standard 16.00. This document is up-issued to reflect the following changes in content:

- Addition of keycode commands for CP PIV on pages 595 to 610 (Book 2).
- Addition of IPMG on CS1000E to the following: operating parameters on page 364 (Book 3); and LD 97 on page 379 (Book 3).
- Additions to the following: Call Redirection by Day on page 848 (Book 1); the CRDAY prompt on page 852 (Book 1); and Call Redirection by Time of Day on page 858 (Book 1).
- Correction to Message Intercept for Set Status Lockout on pages 982-983 (Book 2).
- Correction to SECA001 alarm message on page 402 (Book 1).

January 2006

Standard 15.00. This document is up-issued to reflect the following changes in content:

- Addition of Converged Office feature on page 1247 (Book 1); changes to interactions with Call Forward All Calls on pages 647, 648, 721, 725 (Book 1), and 521 (Book 2).
- Addition of IP Phones to supported sets referenced in Selectable Conferee Display and Disconnect on pages 667 to 700 (Book 3).

August 2005

Standard 14.00. This document is up-issued to support Communication Server 1000 Release 4.5.

September 2004

Standard 13.00. This document is up-issued for Communication Server 1000 Release 4.0.

October 2003

Standard 12.00. This document is issued for Succession 3.0.

November 2002

Standard 11.00. This document is up-issued to support Meridian 1 Release 25.40 and Succession Communication Server for Enterprise (CSE) 1000, Release 2.0. This is book 2 of a 3 book set.

January 2002

Standard 10.00. Up-issued to include content for Meridian 1 Release 25.40 and Succession Communication Server for Enterprise 1000, Release 1.1.

April 2000

Standard 9.00. This is a global document and is up-issued for Release 25.0x. Document changes include removal of: redundant content; references to equipment types except Options 11C, 51C, 61C, and 81C; and references to previous software releases.

June 1999

Issue 8.00 released as Standard for Generic Release 24.2x.

October 1997

Issue 7.00. This is the Release 23.0x standard version of this document. Certain application-specific features have been removed from this document and have been placed in their appropriate Nortel Networks technical publications (NTPs). Automatic Call Distribution features can be found in Automatic Call Distribution Feature description 553-2671-110; Call Detail Recording features can be found in Call Detail Recording Description and formats 553-2631-100; Primary Rate Interface features can be found in International ISDN PRI Feature description and administration 553-2901-301; R2MFC and MFC features can be found in Multifrequency Compelled Signaling 553-2861-100; and DPNSS1 features can be found in DPNSS1 Features and Services 553-3921-300.

August 1996

Issue 6.00. This is the Release 22.0x standard version of this document. The features Automatic Number Identification, Automatic Trunk Maintenance, Multi Tenant Service, Radio Paging and X08/11 Gateway have been incorporated into this document. Accordingly, the following Nortel Networks technical publications have been retired to reflect this change: 553-2611-200, 553-2751-104, 553-2831-100, 553-2721-111 and 553-2941-100.

December 1995

Issue 5.00. This is the Release 21.1x standard version of this document.

July 1995

Issue 4.00. This is the Release 21 standard version of this document.

October 1994

Issue 2.0. This is the Release 20.1x soak version of the document.

July 1994

Issue 1.0. This is the Release 20.0x standard version of this document.

How to get help

This chapter explains how to get help for Nortel products and services.

Getting help from the Nortel web site

The best way to get technical support for Nortel products is from the Nortel Technical Support web site:

www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting help over the telephone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support web site, and you have a Nortel support contract, you can also get help over the telephone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following web site to obtain the telephone number for your region:

www.nortel.com/callus

Getting help from a specialist by using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

www.nortel.com/erc

Getting help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

About this document

This document is a global document. Contact your system supplier or your Nortel representative to verify that the hardware and software described are supported in your area.

Subject

Features and Services (553-3001-306) describes the software features available with CS 1000 and Meridian 1 systems.

Note on legacy products and releases

This NTP contains information about systems, components, and features that are compatible with Nortel Communication Server 1000 Release 4.5 software. For more information on legacy products and releases, click the **Technical Documentation** link under **Support** on the Nortel home page:

www.nortel.com/

Applicable systems

This document applies to the following systems:

- Communication Server 1000S (CS 1000S)
- Communication Server 1000M Chassis (CS 1000M Chassis)
- Communication Server 1000M Cabinet (CS 1000M Cabinet)
- Communication Server 1000M Half Group (CS 1000M HG)
- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M Multi Group (CS 1000M MG)

- Communication Server 1000E (CS 1000E)
- Meridian 1 PBX 11C Chassis
- Meridian 1 PBX 11C Cabinet
- Meridian 1 PBX 51C
- Meridian 1 PBX 61C
- Meridian 1 PBX 81
- Meridian 1 PBX 81C

Note: When upgrading software, memory upgrades may be required on the Signaling Server, the Call Server, or both.

System migration

When particular Meridian 1 systems are upgraded to run CS 1000 Release 4.5 software and configured to include a Signaling Server, they become CS 1000M systems. Table 1 lists each Meridian 1 system that supports an upgrade path to a CS 1000M system.

Table 1
Meridian 1 systems to CS 1000M systems

This Meridian 1 system...	Maps to this CS 1000M system
Meridian 1 PBX 11C Chassis	CS 1000M Chassis
Meridian 1 PBX 11C Cabinet	CS 1000M Cabinet
Meridian 1 PBX 51C	CS 1000M Half Group
Meridian 1 PBX 61C	CS 1000M Single Group
Meridian 1 PBX 81	CS 1000M Multi Group
Meridian 1 PBX 81C	CS 1000M Multi Group

For more information, see one or more of the following NTPs:

- *Communication Server 1000M and Meridian 1: Small System Upgrade Procedures (553-3011-258)*
- *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures (553-3021-258)*
- *Communication Server 1000S: Upgrade Procedures (553-3031-258)*
- *Communication Server 1000E: Upgrade Procedures (553-3041-258)*

Intended audience

This document is intended for individuals responsible for configuring CS 1000 and Meridian 1 software features.

Conventions

Terminology

In this document, the following systems are referred to generically as “system”:

- Communication Server 1000S (CS 1000S)
- Communication Server 1000M (CS 1000M)
- Communication Server 1000E (CS 1000E)
- Meridian 1

The following systems are referred to generically as “Small System”:

- Communication Server 1000M Chassis (CS 1000M Chassis)
- Communication Server 1000M Cabinet (CS 1000M Cabinet)
- Meridian 1 PBX 11C Chassis
- Meridian 1 PBX 11C Cabinet

The following systems are referred to generically as “Large System”:

- Communication Server 1000M Half Group (CS 1000M HG)

- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M Multi Group (CS 1000M MG)
- Meridian 1 PBX 51C
- Meridian 1 PBX 61C
- Meridian 1 PBX 81
- Meridian 1 PBX 81C

Format

The features contained in this document are described in feature modules that are arranged alphabetically by feature name. Each feature module contains some or all of the following information:

- Feature description
- Operating parameters
- Feature interactions
- Feature packaging
- Feature implementation
- Feature operation

Feature description

The feature description, immediately following the title, provides an overview of the feature's functionality.

Operating parameters

The operating parameters section explains hardware and software requirements, in addition to any limitations or parameters that may exist when operating the feature.

Feature interactions

The feature interactions section explains how the feature is affected by or affects other features. When two features are mutually exclusive, they cannot be active in the system at the same time.

Feature packaging

The feature packaging section provides the packaging information (package name, package number, and package mnemonic) for the feature, as well as any package dependencies.

Feature implementation

The feature implementation section provides Overlay (LD) tables for those overlays that must be used to activate the feature. The overlay tables list only the prompts required for the feature. Prompts in parenthesis are defaults. For a complete discussion of prompts, refer to *Software Input/Output: Administration* (553-3001-311).

Feature operation

The feature operation section outlines the procedures the end user must perform from their telephone in order for the feature to function.

Related information

This section lists information sources that relate to this document.

NTPs

The following NTPs are referenced in this document:

- *Attendant Administration User Guide*
- *M1250/M2250 Attendant Console User Guide*
- *Electronic Switched Network description* (309-3001-100)
- *Circuit Card: Description and Installation* (553-3001-211)
- *ISDN Basic Rate Interface: Installation and Configuration* (553-3001-218)
- *Software Input/Output: Administration* (553-3001-311)
- *Call Detail Recording: Description and Formats* (553-3001-350)
- *Automatic Call Distribution: Description* (553-3001-351)
- *Hospitality Features: Description and Operation* (553-3001-353)

- *Telephones and Consoles: Description, Installation, and Operation* (553-3001-367)
- *ISDN Primary Rate Interface: Features* (553-3001-369)
- *ISDN Basic Rate Interface: Features* (553-3001-380)
- *Software Input/Output: Maintenance* (553-3001-511)
- *Communication Server 1000M and Meridian 1: Large System Maintenance* (553-3021-500)

For information on branch offices, refer to *Branch Office: Installation and Configuration* (553-3001-214).

For an alphabetical list of packages, refer to the Features and Software options module in this document. This list provides the package name and the features available with the package, the package number, the package mnemonic, and the earliest software release for which the package is available.

For a complete list of features available, as well as where information on these features can be found, refer to the *Feature Listing* (553-3001-011).

Online

To access Nortel documentation online, click the **Technical Documentation** link under **Support** on the Nortel home page:

www.nortel.com/

CD-ROM

To obtain Nortel documentation on CD-ROM, contact your Nortel customer representative.

Features and Software options

Package Name	Number	Mnemonic	Release
1.5 Mbit Digital Trunk Interface	75	PBXI	5
— Hong Kong Digital Trunk Interface			
— Reference Clock Switching (See also packages 129, 131, and 154)			
16-Button Digitone/Multifrequency Telephone	144	ABCD	14
— 16-Button Digitone/Multifrequency Operation			
2 Mbit Digital Trunk Interface	129	DTI2	10
— DID Recall features on DTI2 for Italy – DID Offering			
— DID Recall features on DTI2 for Italy – DID Recall			
— Italian Central Office Special Services (see also packages 131, and 157)			
— Italian Periodic Pulse Metering			
— Pulsed E&M DTI2 Signaling			
— Reference Clock Switching (see also packages 75, 131, and 154)			
— R2MFC 1.5 Mbps DTI			
Continued...			

Package Name	Number	Mnemonic	Release
2 Mbit Digital Trunk Interface (continued)			
— 2 Mbps Digital Trunk Interface			
— 2 Mbps Digital Trunk Interface Enhancements:			
• Alarm Handling on DID Channels			
• Alarm Handling on Incoming COT/DID Calls			
• Call Clearance			
• Clock Synchronization			
• DID Call Offering			
• Disable Out-of-Service Alarm State			
• Fault Signal			
• Incoming Seizure			
• Outpulsing Delay			
• Release Control			
• Signal Recognition			
• Trunk Entering Alarm Status/Trunk Pack Exiting Alarm Status			
• 64 Kbps Alarm Indication Signal (AIS) Handling			
2.0 Mb/s Primary Rate Interface	154	PRI2	14
— Reference Clock Switching (see also packages 75, 129, and 131)			
2500 Set Features	18	SS25	1
— Call Hold, Permanent			
— 2500 Set Features			
500 Set Dial Access to Features	73	SS5	4
— 500 Set Features			
— 500/2500 Line Disconnect			

Package Name	Number	Mnemonic	Release
AC15 Recall	236	ACRL	20
— AC15 Recall: Timed Reminder Recall			
— AC15 Recall: Transfer from Norstar			
— AC15 Recall: Transfer from Meridian 1			
— Access Restrictions			
ACD/CDN Expansion	388	ACDE	25.40
— ACD/CDN Expansion			
Administration Set	256	ADMINSET	21
— Set-based Administration Enhancements			
Advanced ISDN Network Services	148	NTWK	13
— Advice of Charge – Charging Information and End of Call for NUMERIS Connectivity (see also package 101)			
— Advice of Charge Real-time Supplementary Services for NUMERIS and SWISSNET (see also package 101)			
— Alternative Conference PAD Levels			
— Alternative Loss Plan			
— Alternative Loss Plan for China			
Analog Calling Line Identification	349	ACLI	25
— CLID on Analog Trunks for Hong Kong (A-CLID)			
Aries Digital Sets	170	ARIE	14
— Meridian Communications Adapter			
— Meridian Modular Telephones			
Attendant Administration	54	AA	1
— Attendant Administration			

Package Name	Number	Mnemonic	Release
Attendant Alternative Answering	174	AAA	15
— Attendant Alternative Answering			
— Attendant Barge-In			
Attendant Announcement	384	AANN	25.40
— Attendant Announcement			
Attendant Break-In/Trunk Offer	127	BKI	1
— Attendant Break-In			
— Break-In busy Indication and Prevention			
— Break-In to Inquiry Calls			
— Break-In to Lockout Set Denied			
— Break-In with Secrecy			
— China Number 1 Signaling – Toll Operator Break-In (see also Package 131)			
— Network Individual Do Not Disturb (see also packages 9, and 159)			
— Attendant Busy Verify			
— Attendant Call Selection			
— Attendant Calls Waiting Indication			
— Attendant Consoles			
— Attendant Delay on Hold			
— Attendant Display of Speed Dial or Autodial			
Attendant Forward No Answer	134	AFNA	14
— Attendant Forward No Answer			
— Attendant Forward No Answer Expansion			
— Attendant Incoming Call Indicators			
— Attendant Interpositional Transfer			
— Attendant Lockout			

Package Name	Number	Mnemonic	Release
Attendant Overflow Position	56	AOP	1
— Attendant Overflow Position			
— Attendant Position Busy			
— Attendant Recall			
— Attendant Recall with Splitting			
Attendant Remote Call Forward	253	ARFW	20
— Call Forward, Remote (Network and Attendant Wide)			
— Attendant Secrecy			
— Attendant Splitting			
— Attendant Trunk Group Busy Indication			
— Audible Reminder of Held Calls			
Autodial Tandem Transfer	258	ATX	20
— Autodial Tandem Transfer			
Automated Modem Pooling	78	AMP	5
Automatic Answerback	47	AAB	1
— Automatic Answerback			
— Automatic Call Distribution Answer Time in Night Service			
— Automatic Call Distribution Call Delays (see also package 40)			
— Automatic Call Distribution Call Priority (see also package 40)			
— Automatic Call Distribution Call Waiting Thresholds (see also packages 40 and 41)			

Continued...

Package Name	Number	Mnemonic	Release
Automatic Answerback (continued)			
— Automatic Call Distribution Calls on Hold (see also package 40)			
— Automatic Call Distribution Dynamic Queue Threshold (see also package 40)			
Automatic Call Distribution Enhanced Overflow	178	EOVF	15
— Automatic Call Distribution Enhanced Overflow			
Automatic Call Distribution Load Management	43	LMAN	1
— Automatic Call Distribution Load Management Reports			
Automatic Call Distribution Night Call Forward without Disconnect Supervision	289	ADSP	23
— Call Processor Input/Output)			
Automatic Call Distribution Package C	42	ACDC	1
— Automatic Call Distribution Report Control (see also package 50)			
— 500/2500 Line Disconnect			
Automatic Call Distribution Package D, Auxiliary Link Processor	51	LNK	2
— ACD Package D Auxiliary Processor Link			
Automatic Call Distribution Package D, Auxiliary Security	114	AUXS	12
— ACD-D Auxiliary Security			
Automatic Call Distribution Package D	50	ACDD	2
— Automatic Call Distribution Report Control (see also package 42)			
— Automatic Call Distribution Threshold Visual Indication (see also packages 40 and 41)			
Automatic Call Distribution, Account Code	155	ACNT	13
— Automatic Call Distribution Activity Code			

Package Name	Number	Mnemonic	Release
Automatic Call Distribution, Package A	45	ACDA	1
— Automatic Call Distribution			
Automatic Call Distribution, Package B	41	ACDB	1
— Automatic Call Distribution Call Waiting Thresholds (see also packages 40, and 131)			
— Automatic Call Distribution Least Call Queuing			
— Automatic Call Distribution Threshold Visual Indication (see also packages 40, and 131)			
Automatic Call Distribution, Priority Agent	116	PAGT	12
— Automatic Call Distribution Priority Agent			
Automatic Call Distribution, Timed Overflow Queuing	111	TOF	10
— ACD Timed Overflow			
— Automatic Gain Control Inhibit			
— Automatic Guard Detection			
— Automatic Hold			
Automatic ID of Outward Dialing	3	AIOD	1
Automatic Installation (Option 11 only)	200	AINS	16
— Automatic Installation			
Automatic Line Selection	72	LSEL	4
— Automatic Line Selection			
Automatic Number Identification Route Selection	13	ANIR	1
— Automatic Number Identification Route Selection			
Automatic Number Identification	12	ANI	1
— Automatic Number Identification			
— Automatic Number Identification on DTI			
— Automatic Preselection of Prime Directory Number			

Package Name	Number	Mnemonic	Release
Automatic Redial	304	ARDL	22
— Automatic Redial			
— Automatic Timed Reminders			
Automatic Wake-Up	102	AWU	10
— Automatic Wake Up			
Auxiliary Processor Link	109	APL	10
— Auxiliary Processor Link			
— Auxiliary Signaling			
— B34 Dynamic Loss Switching (see also packages 164 and 203)			
Background Terminal	99	BGD	10
— Background Terminal Facility			
Basic Alternate Route Selection	57	BARS	1
— Network Alternate Route Selection/Basic Alternate Route Selection Enhancement – Local Termination (see also package 58)			
Basic Authorization Code	25	BAUT	1
— Basic Authorization Code			
Basic Automatic Call Distribution	40	BACD	1
— Automatic Call Distribution Alternate Call Answer			
— Automatic Call Distribution Call Delays (see also package 131)			
— Automatic Call Distribution Call Priority (see also package 131)			
— Automatic Call Distribution Call Waiting Thresholds (see also packages 41, and 131)			
— Automatic Call Distribution Calls on Hold (see also package 131)			

Continued...

Package Name	Number	Mnemonic	Release
Basic Automatic Call Distribution (continued)			
— Automatic Call Distribution Dynamic Queue Threshold (see also package 131)			
— Automatic Call Distribution Enhancements			
— Automatic Call Distribution in Night Service			
— Automatic Call Distribution Threshold Visual Indication (see also packages 41, and 131)			
— INIT Automatic Call Distribution (ACD) Queue Call Restore			
Basic Call Processing	0	BASIC	1
Basic Queuing	28	BQUE	1
— Basic Queuing			
Basic Rate Interface	216	BRI	18
— Integrated Services Digital Network Basic Rate Interface (see also packages 216, and 235)			
Basic Routing	14	BRTE	1
— Basic Routing			
Boss Secretary Filtering (FFC activation)	198	FTCSF	15
— Flexible Feature Code Boss Secretarial Filtering			
BRI line application	235	BRIL	18
— Integrated Services Digital Network Basic Rate Interface (see also packages 216, and 233)			
— ISDN Basic Rate Interface Connected Line Presentation/Restriction			
— Bridging			
— Busy Lamp Field Array			

Package Name	Number	Mnemonic	Release
Business Network Express	367	BNE	25
— Business Network Express/EuroISDN Call Diversion			
— Business Network Express/EuroISDN Explicit Call Transfer			
— Business Network Express/Name and Private Number Display			
Busy Tone Detection	294	BTD	21
— China Phase II – Busy Tone Detection			
— Busy Tone Detection for Asia Pacific and CALA			
— Call Capacity Report			
Call Center Transfer Connect	393	UUI	3.0
— Call Center Transfer Connect			
Call Detail Recording Enhancement	259	CDRX	20
— Call Detail Recording Enhancement			
Call Detail Recording Expansion (7 digit)	151	CDRE	13
— Call Detail Recording Expansion			
Call Detail Recording on Teletype Terminal	5	CTY	1
— CDR on TTY			
Call Detail Recording Queue Record	83	CDRQ	3
— ACD CDR Queue Record			
Call Detail Recording, Data Link	6	CLNK	1

Package Name	Number	Mnemonic	Release
Call Detail Recording	4	CDR	1
— Call Detail Recording			
— Call Detail Recording Enhancement			
— Call Detail Recording on Redirected Incoming Calls			
— Call Detail Recording with Optional Digit Suppression			
— Call Detail Recording 100 Hour Call			
— NPI and TON in CDR Tickets			
— Call Forward and Busy Status			
— Call Forward Busy			
— Call Forward by Call Type			
— Call Forward External Deny			
— Call Forward No Answer, Second Level			
— Call Forward No Answer/Flexible Call Forward No Answer			
— Call Forward Save on SYSLOAD			
— Call Forward Save on SYSLOAD			
— Call Forward to Trunk Restriction			
— Call Forward, Break-In & Hunt Internal/External Network Wide			
— Call Forward, Internal Calls			
Call ID (for AML applications)	247	CALL ID	19
— Call Identification			
Call Page Networkwide	307	PAGENET	22
— Call Page Network Wide			

Package Name	Number	Mnemonic	Release
Call Park Networkwide	306	CPRKNET	22
— Call Park Network Wide			
Call Park	33	CPRK	2
— Call Park			
— Recall after Parking			
— Call Pickup			
Call Processor Input/Output (Option 81)	298	CPIO	21
— Call Processor Input/Output)			
— Call Redirection by Time of Day			
— Call Transfer			
Call Waiting Notification (Meridian 911)	225	CWNT	19
— Call Waiting Notification (Meridian 911)			
— Call Waiting/Internal Call Waiting			
Call-by-Call Service	117	CBC	13
— Call-by-Call Service			
Called Party Control on Internal Calls	310	CPCI	22
— China Phase III - Called Party Control on Internal Calls			
— Called Party Disconnect Control			
Calling line Identification in Call Detail Recording	118	CCDR	13
— Calling Line Identification in Call Detail Recording			
Calling Party Name Display	95	CPND	10
— Call Party Name Display			
— DNIS Name Display (see also packages 98, and 113)			
— Calling Party Name Display Denied			

Package Name	Number	Mnemonic	Release
Calling Party Privacy	301	CPP	21
— Calling Party Privacy			
— Camp-On			
— Camp-On			
— Camp-on to Multiple Appearance Directory Number			
— Capacity Expansion			
— Card LED Status			
Centralized Attendant Services (Main)	26	CASM	1
— Centralized Attendant Services - Main			
Centralized Attendant Services (Remote)	27	CASR	1
— Centralized Attendant Services – Remote			
— Centralized Multiple Line Emulation			
Charge Account for CDR	23	CHG	1
— Charge Account and Calling Party Number			
Charge Account/Authorization Code	24	CAB	1
— Charge Account/Authorization Code Base			
— Charge Display at End of Call (see also package 101)			
China Attendant Monitor Package	285	CHINA	21
— China – Attendant Monitor			
— China Number 1 Signaling – Toll Operator Break-In (see also Package 127)			
— China Number 1 Signaling Enhancements			
— China Number 1 Signaling Trunk Enhancements (see also packages 49, 113, and 128)			

Package Name	Number	Mnemonic	Release
China Toll Package	292	CHTL	21
— China Phase II – Toll Call Loss Plan			
CLASS Calling Name Delivery	333	CNAME	23
— CLASS			
CLASS Calling Number Delivery	332	CNUMB	23
— CLASS			
Collect Call Blocking	290	CCB	21
— Collect Call Blocking			
Command Status Link	77	CSL	8
— Command Status Link			
Commonwealth of Independent States Multifrequency Shuttle Signaling	326	CISMFS	23
— CIS Multifrequency Shuttle Signaling			
Commonwealth of Independent States Trunks	221	CIST	21
— Commonwealth of Independent States Digital Trunk Interface			
— Three-Wire Analog Trunk – CIS			
— Commonwealth of Independent States Automatic Number Identification (ANI) Digits Manipulation and Gateways Enhancements			24
— Commonwealth of Independent States Automatic Number Identification (ANI) Reception			24
— Commonwealth of Independent States Toll Dial Tone Detection			24
— Conference			
— Conference Warning Tone Enhancement for Italy			
Console Operations	169	COOP	14
— Console Operations			

Package Name	Number	Mnemonic	Release
Console Presentation Group	172	CPGS	15
— Console Presentation Group Level Services			
Controlled Class Of Service	81	CCOS	7
— Controlled Class of Service			
Coordinated Dialing Plan	59	CDP	1
— Coordinated Dialing Plan			
Core Network Module	299	CORENET	21
— Core Network Module			
— CP3			
Corporate Directory	381	CDIR	25
— Corporate Directory			
CSL with Alpha Signalling	85	CSLA	8
Customer Controlled Routing	215	CCR	17
— Customer Controlled Routing			
— MFC Interworking with AML Based Applications (see also packages 128, and 214)			
— Dataport Hunting			
CP Pentium® Backplane for Intel® Machine	368	CPP_CNI	25
Deluxe Hold	71	DHLD	4
— Call Hold, Deluxe			
— Call Hold, Individual Hold Enhancement			
Departmental Listed Directory Number	76	DLDN	5
Dial Intercom	21	DI	1
— Dial Intercom			
— Distinctive Ringing for Dial Intercom			
— Dial Pulse/Dual-tone Multifrequency Conversion			

Package Name	Number	Mnemonic	Release
Dial Tone Detector	138	DTD	10
— Dial Tone Detection			
— Flexible Dial Tone Detection			
Dialed Number Identification System	98	DNIS	10
— Dialed Number Identification Services			
— Dialed Number Identification Services Length Flexibility			
— Dialed Number Identification Services Name Display (see also packages 95, and 131)			
— 7 Digit DNIS for MAX			
— N Digit DNIS			24
Digit Display	19	DDSP	1
— Digit Display			
Digit Key Signaling	180	DKS	1
Digital Access Signaling System 2	124	DASS2	16
— Analog Private Network Signaling System (APNSS) (see also packages 190, 122, and 123)			
— DASS2/DPNSS1 – Integrated Digital Access (see also packages 122, and 123)			
Digital Private Network Signaling Network Services (DPNSS1)	231	DNWK	16
— Attendant Call Offer			
— Attendant Timed Reminder Recall and Attendant Third Party Service			
— Call Back when Free and Next Used			
— D-channel Handler Interface Expansion			
— Extension Three-Party Service			
Continued...			

Package Name	Number	Mnemonic	Release
Digital Private Network Signaling Network Services (DPNSS1) (continued)			
— Loop Avoidance			
— Redirection			
— Route Optimization			
— Step Back on Congestion			
— Diversion			
— Night Service			
— Route Optimisation/MCDN Trunk Anti-Tromboning Interworking			
Digital Private Network Signaling System 1 Message Waiting Indication	325	DMWI	23
— DPNSS1 Message Waiting Indication			
Digital Private Network Signaling System 1	123	DPNSS	16
— Analog Private Network Signaling System (APNSS) (see also packages 190, 122, and 124)			
— DASS2/DPNSS1 – Integrated Digital Access (see also packages 122, and 124)			
— Digital Trunk Interface Enhancements			
— Digitone Receiver Enhancements: – Digitone Receiver Time-out Enhancement			
— Digitone Receiver Enhancements: – Quad Density Digitone Receiver Card			
Direct Inward Dialing to TIE (Japan only)	176	DTOT	16
— Direct Inward Dialing to TIE			
— Direct Inward Dialing to TIE Connection			

Package Name	Number	Mnemonic	Release
Direct Inward System Access	22	DISA	1
— Call Park on Unsupervised Trunks			
— Direct Inward System Access			
— Direct Inward System Access on Unsupervised Trunks			
Direct Private Network Access	250	DPNA	21
— Direct Private Network Access			
Directed Call Pickup	115	DCP	12
— Call Pickup, Directed			
— Directory Number Delayed Ringing			
Directory Number Expansion (7 Digit)	150	DNXP	13
— Directory Number Expansion			
— Directory Number			
• Flexible Attendant Directory Number			
• Listed Directory Numbers			
• Single Appearance Directory Number			
• Multiple Appearance Directory Number			
• Prime Directory Number			
— Diskette Overflow Warning			
— Display of Calling Party Denied			
Distinctive Ringing	74	DRNG	4/9
— Distinctive/New Distinctive Ringing			
Do Not Disturb, Group	16	DNDG	1
— Do Not Disturb Group			

Package Name	Number	Mnemonic	Release
Do Not Disturb, Individual	9	DNDI	1
— Do Not Disturb			
— Network Individual Do Not Disturb (see also packages 127, and 159)			
— Electronic Brandlining			
Emergency Services Access Calling Number Mapping	331	ESA_CLMP	23
— Emergency Services Access (See also packages 329 and 330)			
Emergency Services Access Supplementary	330	ESA_SUPP	23
— Emergency Services Access (See also packages 329 and 331)			
Emergency Services Access	329	ESA	23
— Emergency Services Access (See also packages 330 and 331)			
— End of Selection			
— End of Selection Busy			
— End-of-Dialing on Direct Inward/Outward Dialing Incoming Call Indicator Enhancement			
End-To-End Signaling	10	EES	1
— Attendant End-to-End Signaling			
— End-to-End Signaling			
Enhanced ACD Routing	214	EAR	17
— Enhanced Automatic Call Distribution Routing			
— MFC Interworking with AML Based Applications (see also packages 128, and 215)			
Enhanced Call Trace	215	ECT	18
— Customer Controlled Routing			
— MFC Interworking with AML Based Applications (see also packages 128, and 214)			

Package Name	Number	Mnemonic	Release
Enhanced Controlled Class of Service	173	ECCS	15
Enhanced DPNSS Services	288	DPNSS_ES	21
— DPNSS1 Executive Intrusion			
Enhanced DPNSS1 Gateway	284	DPNSS189I	20
— Enhanced DPNSS1 Gateway			
Enhanced Hot Line	70	HOT	4/10
— Hot Line			
— Network Intercom			
— Enhanced input/output buffering			
— Enhanced Maintenance (Patching)			
Enhanced Music	119	EMUS	12
— Music, Enhanced			
Enhanced Night Service	133	ENS	20
— Enhanced Night Service			
— Enhanced package printout			
— Equal Access Compliance			
Euro ISDN Trunk - Network Side	309	MASTER	22
— EuroISDN Trunk - Network Side			
Euro ISDN	261	EURO	20
— ISDN – Advice of Charge for EuroISDN			
— ISDN BRI and PRI Trunk Access for Europe (EuroISDN)			
— EUROISDN Continuation			
Euro Supplementary Service	323	ETSI_SS	22
— EuroISDN Call Completion Supplementary Service			

Package Name	Number	Mnemonic	Release
Executive Distinctive Ringing	185	EDRG	16
— Executive Distinctive Ringing			
Fast Tone and Digit Switch	87	FTDS	7
— Fast Tone Digit Switch			
FCC Compliance for DID Answer Supervision	223	FCC68	17
— Federal Communications Commission Compliance for DID Answer Supervision			
Feature Group D	158	FGD	17
— Feature Group D (Inbound to Meridian 1)			
— Federal Communications Commission Compliance for Equal Access			
— First-Second Degree Busy Indication			
— First-Second Degree Busy Indication, ISDN			
— Flexible Attendant Call Waiting Thresholds			
— Flexible Busy Tone Timer			
Fiber Network	365	FIBN	25
Flexible Call Back Queuing	61	FCBQ	1
— Flexible Call Back Queuing			
Flexible Direct Inward Dialing	362	FDID	24
— Flexible Direct Inward Dialing			
Flexible Feature Codes	139	FFC	15
— Call Forward/Hunt Override Via Flexible Feature Code			
— China Number 1 Signaling – Flexible Feature Codes			
— Dial Access to Group Calls (see also package 48).			
Continued...			

Package Name	Number	Mnemonic	Release
Flexible Feature Codes (continued)			
— Direct Inward Dialing Call Forward No Answer Timer			
— Electronic Lock Network Wide/Electronic Lock on Private Lines			
— Flexible Feature Codes			
— Automatic Wake FFC Delimiter			
— Call Forward Destination Deactivation			
Flexible Numbering Plan	160	FNP	14
— Alternative Routing for DID/DOD			
— Flexible Numbering Plan			
— Special Dial Tones after Dialed Numbers			
— Flexible Numbering Plan Enhancement			
— Flexible Orbiting Prevention Timer			
Flexible Tones and Cadences	125	FTC	16
— Flexible Tone and Digit Switch Control			
— Reverse Dial on Routes and Telephones			
— Tones and Cadences			
Forced Charge Account	52	FCA	1
— Charge Account, Forced			
French Type Approval	197	FRTA	15
— Camp-on to a Set in Ringback or Dialing			
— Forward No Answer Call Waiting Direct Inward Dialing			
— Group Hunt Queuing (see also package 120)			
— Group Hunt Queuing Limitation Enhancement (see also package 120)			
— Loopback on Central Office Trunks			
Geographic Redundancy Primary system	404	GRPRIM	4.0

Package Name	Number	Mnemonic	Release
Geographic Redundancy Secondary system	405	GRSEC	4.0
Group Call	48	GRP	1
— Dial Access to Group Calls (see also package 139).			
— Group Call			
— Group Hunt Queuing Limitation (see also package 120)			
Group Hunt/DN Access to SCL	120	PLDN	15
— Group Hunt Queuing (see also package 197)			
— Group Hunt Queuing Limitation (see also package 131)			
— Group Hunt Queuing Limitation Enhancement (see also package 197)			
— Group Hunt			
— Speed Call Directory Number Access			
— Handset Volume Reset			
— Handsfree Download (Meridian Digital Telephones)			
— Held Call Clearing			
H323 Virtual Trunk	399	H323_VTRK	3.0
— IP Peer Networking Phase 2			
— Branch Office			
HiMail Fax Server	195	FAXS	18
History File	55	HIST	1
— History File			
Hold in Queue for IVR	218	IVR	18
Hospitality Management	166	HOSP	16

Package Name	Number	Mnemonic	Release
Hospitality Screen Enhancement	208	HSE	17
— Hospitality Enhancements: Display Enhancements			
— Hunting By Call Type			
— Hunting			
• Circular Hunting			
• Linear Hunting			
• Secretarial Hunting			
• Short Hunting			
• Data Port Hunting			
• Trunk Hunting			
— Incoming Call Indicator Enhancement			
Incoming DID Digit Conversion	113	IDC	12
— China Number 1 Signaling Trunk Enhancements (see also packages 49, 128, and 131)			
— DNIS Name Display (see also packages 95, and 98)			
— Incoming DID Digit Conversion			
— Incoming Trunk Programmable Calling Line Identification			
— Incremental Software Management			
— Input/Output Access and System Limits			
Integrated Digital Access	122	IDA	16
— Analog Private Network Signaling System (APNSS) (see also packages 190, 123, and 124)			
— DASS2/DPNSS1 – Integrated Digital Access (see also packages 123 and 124)			
— DPNSS1 Satellite			
— DASS2/DPNSS INIT Call Cutoff			

Package Name	Number	Mnemonic	Release
Integrated Message System UST and UMG are part of IMS Package.	35	IMS	2
— Integrated Messaging System Link			
Integrated Services Digital Network Application Module Link for Third Party Vendors	153	IAP3P	13
— Application Module Link			
— Network Application Protocol Link Enhancement			
Integrated Services Digital Network BRI Trunk Access	233	BRIT	18
— Integrated Services Digital Network Basic Rate Interface (see also packages 216, and 235)			
Integrated Services Digital Network Supplementary Features	161	ISDN INTL- SUP	14
— Call Connection Restriction (see also packages 146 and 147)			
— Direct Inward Dialing to Network Calling			
— Incoming Digit Conversion Enhancement			
— Network Time Synchronization			
— X08 to X11 Gateway			
Integrated Services Digital Network Signaling Link	147	ISL	13
— Call Connection Restriction (see also packages 146 and 161)			
Integrated Services Digital Network	145	ISDN	13
— Backup D-Channel to DMS-100/250 and AT&T 4ESS			
— Call Pickup Network Wide			
— D-Channel Error Reporting and Monitoring			
— Integrated Services Digital Network (ISDN) Primary Rate Interface			
Continued...			

Package Name	Number	Mnemonic	Release
Integrated Services Digital Network (continued)			
— Network Name Display (Meridian 1 to DMS-100/250)			
— Total Redirection Count			
— T309 Time			
— Integrated Voice and Data			
Intercept Computer Interface	143	ICP	10
— Intercept Computer Dial from Directory			
— Intercept Computer Enhancements			
— Intercept Computer Flexible DN Length			
— Intercept Computer Interface			
— Intercept Computer Meridian Mail Interactions			
— Intercept Computer Network Screen Activation, Flexible DN, Meridian Mail Interactions			
— Intercept Treatment Enhancements			
Intercept Treatment	11	INTR	1
— Intercept Treatment			
Inter-Exchange Carrier	149	IEC	13
— Inter Exchange Carrier			
Internal CDR	108	ICDR	10
— Internal Call Detail Recording			
International 1.5/2.0 Mb/s Gateway	167	GPRI	18
— Radio Paging			
— International Meridian 1			
International nB+D	255	INBD	20
— ISDN PRI D70 Trunk Access for Japan (nB+D)			

Package Name	Number	Mnemonic	Release
International Primary Rate Access (CO)	146	PRA	13
— Call Connection Restriction (see also packages 147 and 161)			
— Integrated Services Digital Network Primary Rate Access			
— Integrated Services Digital Network Primary Rate Access Central Office Connectivity to Japan D70			
International Primary Rate Access	202	IPRA	15
— Integrated Services Access/Call by Call Service Selection Enhancements			
— Integrated Services Digital Network Primary Rate Access to 1TR6 Connectivity			
— Integrated Services Digital Network Primary Rate Access to NUMERIS Connectivity			
— Integrated Services Digital Network Primary Rate Access to SwissNet 2 Connectivity			
— Integrated Services Digital Network Primary Rate Access to SYS-12 Connectivity			
International Supplementary Features	131	SUPP	9
— IODU/C			
IP Expansion	295	IPEX	25.40
— IP Expansion			
IP Media Gateway	403	IPMG	4.0
ISDN Semi-Permanent Connection	313	ISPC	22
— ISDN Semi-Permanent Connections for Australia			
— Italian Central Office Special Services (see also packages 129, and 157)			
Japan Central Office Trunks	97	JPN	9
— Japan Central Office Trunk			

Package Name	Number	Mnemonic	Release
Japan Digital Multiplex Interface	136	JDMI	14
— Japan Digital Multiplex Interface			
Japan Telecommunication Technology Committee	335	JTTC	23
— Japan TTC Common Channel Signaling			
Japan Tone and Digit Switch	171	JTDS	14
— Japan Tone and Digit Switch			
Last Number Redial	90	LNR	8
— Last Number Redial			
Latin American Spanish	279	MLMS_SPL	20
— Latin American Spanish			
Limited Access to Overlays	164	LAPW	16
— B34 Dynamic Loss Switching (see also packages 131 and 203)			
— Faster I/O			
— Limited Access to Overlays			
— Limited Access to Overlays Password Enhancement			
— Teletype Terminal Access Control in Multi-Customer Environment (see also package 131)			
Line Load Control	105	LLC	10
— Line Load Control			
— Line Lockout			
Local Steering Code Modifications	137	LSCM	10
— Local Steering Code Modifications			
— Lockout, DID Second Degree Busy and MFE Signaling Treatments			
— LOGIVOX Telephone			
Continued...			

Package Name	Number	Mnemonic	Release
Local Steering Code Modifications (continued)			
— Loop Start Answer Supervision XUT			
— Loop Start Supervisory Trunks			
— Loop Start Supervisory Trunks (Incoming Calls)			
Location Code Expansion	400	LOCX	4.0
M2000 Digital Sets	88	DSET	7
— Distinctive Ringing for Digital Telephones			
— M2317 Telephones			
— Flexible Voice/Data Terminal Number			
M2250 Attendant Console	140	DCON	15
— Digital Attendant Console			
M2317 Digital Sets	91	DLT2	9
— M2317 Digital Sets			
M3000 Digital Sets	89	TSET	7
— M3000 Telephones			
M3900 Full Icon Support	397	ICON_ PACKAGE	3.0
— M3900 Full Icon Support			
M3900 Phase III Virtual Office Enhancement	387	VIR_OFF_ ENH	25.40
— Virtual Office Enhancement			
M3900 Ring Again	396	M3900_RGA_ PROG	3.0
M911 Enhancement Display	249	M911 ENH	25
— 10/20 Digit ANI on 911 Calls			
Maid Identification	210	MAID	17
— Maid Identification			
— Make Set Busy and Voice Call Override			

Package Name	Number	Mnemonic	Release
Make Set Busy	17	MSB	1
— Make Set Busy			
— Make Set Busy Improvement			
— Malicious Call Trace on Direct Inward Dialing			
Malicious Call Trace	107	MCT	10
— Enhanced Malicious Call Trace			
— Malicious Call Trace			
— Malicious Call Trace DN/TN Print			
— Malicious Call Trace Idle			
— Manual Line Service			
— Manual Service Recall to Attendant			
— Manual Signaling (Buzz)			
— Manual Trunk Service			
MAT 5.0	296	MAT	22
— Meridian 1 Attendant Console Enhancements (see also package 76)			
Meridian 1 Companion Option	240	MCMO	19
— Nortel Networks Integrated DECT			
MCDN End to End Transparency	348	MEET	24
Meridian 1 Enhanced Conference, TDS and MFS	204	XCT0	15
— Meridian 1 Enhanced Conference, TDS and MFS			
Meridian 1 Fault Management	243	ALRM_FILTER	19
— Alarm Management			
— Meridian 1 Initialization Prevention and Recovery			
Meridian 1 Microcellular Option	303	MMO	22
Meridian 1 Mobility Multi-Site Networking	314	MMSN	22

Package Name	Number	Mnemonic	Release
Meridian 1 Packet Handler	248	MPH	19
— Meridian 1 Packet Handler			
Meridian 1 Superloop Administration (LD 97)	205	XCT1	15
— Extended DID/DOD Software Support – Europe			
— Extended Flexible Central Office Trunk Software Support			
— Extended Tone Detector and Global Parameters Download (see also package 203)			
— Generic XFCOT Software Support			
Meridian 1 XPE	203	XPE	15
— B34 Codec Static Loss Plan Downloading			
— B34 Dynamic Loss Switching (see also packages 131, and 164)			
— Extended Multifrequency Compelled Sender/ Receiver			
— Extended Tone Detector and Global Parameters Download (see also package 205)			
— Intelligent Peripheral Equipment Software Support Enhancements			
Meridian 911	224	M911	19
— Meridian 911 Enhancements – Call Abandon			
— Meridian 911 Enhancements – MADN Display Coordination			
Meridian Hospitality Voice Service	179	HVS	16
— Meridian Hospitality Voice Services			
Meridian Link Modular Server	209	MLM	16
— Meridian Link Enhancements			
Meridian SL-1 ST Package	96	SLST	9
— Meridian SL-1 ST Package			

Package Name	Number	Mnemonic	Release
Message Intercept	163	MINT	15
— Message Intercept			
Message Waiting Center	46	MWC	1
— Message Waiting Lamp Maintenance			
— Message Waiting Unconditional			
— Meridian Mail Trunk Access Restriction			
Message Waiting Indication Interworking with DMS	219	MWI	19
— Message Waiting Indication (MWI) Interworking			
Mini CDR	31	MCDR	1
Mobility Server	302	MOSR	22
— Modular Telephone Relocation			
Multifrequency Compelled Signaling	128	MFC	9
— China Number 1 Signaling Trunk Enhancements (see also packages 49, 113, and 131)			
— China Number 1 Signaling – Active Feature Dial Tone (see also package 126)			
— China Number 1 Signaling – Audible Alarm (see also package 126)			
— China Number 1 Signaling – Vacant Number Announcement (see also package 126)			
— India Phase 2			
— R2 Multifrequency Compelled Signaling (MFC) DID/DTMF DOD			
— R2 Multifrequency Compelled Signaling (MFC) Selective Route To Attendant			

Continued...

Package Name	Number	Mnemonic	Release
Multifrequency Compelled Signaling (continued)			
— MFC Interworking with AML Based Applications (see also packages 214 and 215)			
— R2Multifrequency Compelled Signaling Timer Control			
— Semi-Compelled MFC and Calling Name Identification Charges			
Multifrequency Signaling for Socotel	135	MFE	10
— Multifrequency Signaling for Socotel			
Multi-Language I/O Package	211	MLIO	16
— Multi-language TTY Input/Output			
Multi-Language Wake Up	206	MLWU	16
— Multi-language Wake Up			
— Multi-Party Operation Enhancements			
Multi-Party Operations	141	MPO	20
— Attendant Clearing during Night Service			
— Multi-Party Operations			
— Multiple Appearance DN Redirection Prime			
— Multiple Console Operation			
Multiple Queue Assignment	297	MQA	21
— Multiple Queue Assignment			
Multiple-Customer Operation	2	CUST	1
— Multiple Customer Operation			
Multiple-Tenant Service	86	TENS	7
— Multi-Tenant Service			

Package Name	Number	Mnemonic	Release
Multi-purpose Serial Data Link Serial Data Interface	227	MSDL SDI	19
— Multi-purpose Serial Data Link Serial Data Interface			
Multi-purpose Serial Data Link Single Terminal Access	228	MSDL STA	19
— Single Terminal Access			
Multi-purpose Serial Data Link	222	MSDL	18
— Multi-purpose Serial Data Link			
Multi-Site Mobility Networking	370	MSMN	25
Multi-User Login	242	MULTI_USER	19
— Multi-User Login			
Music Broadcast	328	MUSBRD	23
— Music Broadcast			
Music	44	MUS	1
— Music			
N/W Communications Management Center	30	CMAC	1
Network Alternate Route Selection	58	NARS	1
— Equi-distribution Network Attendant Service Routing (see also package 159)			
— Network Alternate Route Selection/Basic Alternate Route Selection Enhancement – Local Termination (see also package 57)			
— Network Anti-tromboning			
— Virtual Network Services/Virtual Directory Number Expansion (see also package 183)			

Package Name	Number	Mnemonic	Release
Network Attendant Service	159	NAS	20
— Equi-distribution Network Attendant Service Routing (see also package 58)			
— Network Individual Do Not Disturb (See also packages 9 and 127).			
Network Authorization Code	63	NAUT	1
— Network Authorization Code			
Network Automatic Call Distribution	207	NACD	15
— Network Automatic Call Distribution			
Network Call Back Queuing	38	MCBQ	2
— Network Call Back Queuing			
Network Call Transfer	67	NXFR	3
Network Class Of Service	32	NCOS	1
— Network Class of Service			
Network Message Services	175	NMS	16
Network Priority Queuing	60	PQUE	1
— Network Priority Queuing			
Network Signaling	37	NSIG	2
— Network Signaling			
Network Speed Call	39	NSC	2
— Network Speed Call			
Network Traffic Measurements	29	NTRF	1
— Network Traffic Measurement			
New Flexible Code Restriction	49	NFCR	2
— China Number 1 Signaling Trunk Enhancements (see also packages 113, 128, and 131)			
— New Flexible Code Restriction			

Package Name	Number	Mnemonic	Release
New Format CDR	234	FCDR	18
— Call Detail Recording Time to Answer			
— CDR on Busy Tone			
Next Generation Connectivity	324	NGEN	22
NI-2 Call By Call Service Selection	334	NI-2 CBC	23
— Night Restriction Classes of Service			
— Night Service			
— Night Service Enhancements – All Calls Remain Queued for Night Service			
— Night Service Enhancements – Recall to Night DN			
— Night Service Enhancements – Requeuing of Attendant Present Calls			
— Night Service Enhancements – Requeuing of Attendant Present Calls			
NI-2 Name Display Service	385	NDS	25.40
— NI-2 Name Display Supplementary Service			
Nortel Symposium Call Center	311	NGCC	22
North America National ISDN Class II Equipment	291	NI2	21
— North American Numbering Plan			
— Off-Hook Alarm Security			
Observe Agent Security	394	OAS	3.0
— Observe Agent Security			
Off-Hook Queuing	62	OHQ	1
— Network Drop Back Busy and Off-hook Queuing (see also package 192)			

Package Name	Number	Mnemonic	Release
Office Data Administration System	20	ODAS	1
— Office Data Administration System			
— Off-Premise Extension			
On Hold On Loudspeaker	196	OHOL	20
— On-Hook Dialing			
Open Alarms	315	OPEN ALARM	22
Operator Call Back (China #1)	126	OPCB	14
— Busy Verify on Calling Party Control Calls			
— China Number 1 Signaling – Active Feature Dial Tone (see also package 128)			
— China Number 1 Signaling – Audible Alarm (see also package 128)			
— China Number 1 Signaling – Called Party Control			
— China Number 1 Signaling – Calling Number Identification on Outgoing Multifrequency Compelled Signaling			
— China Number 1 Signaling – Calling Party Control			
— China Number 1 Signaling – Flexible Timers			
— China Number 1 Signaling – KE Multifrequency Compelled Tandem Signaling			
— China Number 1 Signaling – Malicious Call Trace Enhancement			
— China Number 1 Signaling – Off-hook Tone			
— China Number 1 Signaling – Toll Call Identification			
— China Number 1 Signaling – Toll Operator Call Back			
— China Number 1 Signaling – Toll Operator Call Back Enhancement			
— China Number 1 Signaling – Vacant Number Announcement (see also Package 128)			

Package Name	Number	Mnemonic	Release
Optional Features	1	OPTF	1
— Autodial			
— Call Forward All Calls			
— Ring Again			
— Speed Call			
— Speed Call on Private Lines (see also package 0)			
— Speed Call/Autodial with Authorization Codes (see also package 34)			
— Speed Call Delimiter (see also package 34)			
Optional Outpulsing Delay	79	OOD	5
— Optional Outpulsing Delay			
Originator Routing Control	192	ORC_RVQ	18
— Network Drop Back Busy and Off-hook Queuing (see also package 62)			
— Remote Virtual Queuing			
— Out-of-Service Unit			
Outpulsing, asterisk (*) and octothorpe (#)	104	OPAO	
— Outpulsing of Asterisk "*" and Octothorpe "#"			
Overlap Signaling (M1 to M1 and M1 to 1TR6 CO)	184	OVL P	15
— Overlap Signaling			
— Overlay 45 Limited Repeats			
— Overlay Cache Memory			
— Override			
— Paging			
— Partial Dial Timing			
— PBX (500/2500) Telephones			
Continued...			

Package Name	Number	Mnemonic	Release
Overlap Signaling (M1 to M1 and M1 to 1TR6 CO) (continued)			
— Periodic Camp-on Tone			
— Periodic Clearing			
— Periodic Clearing Enhancement			
— Periodic Clearing on RAN, Meridian Mail, ACD, and Music			
Personal Call Assistant	398	PCA	3.0
— Personal Call Assistant			
Phantom TN	254	PHTN	20
— Phantom TNs			
— Position Busy with Call on Hold			
PPM/Message Registration	101	MR	10
— Advice of Charge Real-time Supplementary Services for NUMERIS and SWISSNET (see also package 131)			
— Advice of Charge – Charging Information and End of Call for NUMERIS Connectivity (see also package 131)			
— Message Registration			
— Periodic Pulse Metering			
— Predictive Dialing			
Pretranslation	92	PXLT	8
— Pretranslation			
— Preventing Reciprocal Call Forward			
Priority Network Override	389	PONW	25.40
— Network Breakin and Force Disconnect			

Package Name	Number	Mnemonic	Release
Priority Override/Forced Camp-On	186	POVR	20
— Forced Camp-on and Priority Override			
— Privacy			
— Privacy Override			
— Privacy Release			
— Private Line Service			
Proactive Voice Quality Management	401	PVQM	4.0
Property Management System Interface	103	PMSI	10
— Property Management System Interface			
— Public Switched Data Service			
Pulsed E&M (Indonesia, French Colisée)	232	PEMD	18
— Pulsed E&M DTI2 Signaling			
Q Reference Signaling Point Interface	263	QSIG	20
— Integrated Services Digital Network QSIG Basic Call			
QSIG Generic Functional protocol	305	QSIG GF	22
— ISDN QSIG Generic Functional Transport			
QSIG Supplementary Service	316	QSIG-SS	22
— ISDN QSIG Call Completion			
— ISDN QSIG Call Diversion Notification			
— ISDN QSIG Path Replacement			
Radio Paging	187	RPA	15
— Radio Paging			
— Radio Paging Product Improvements			
Continued...			

Package Name	Number	Mnemonic	Release
Radio Paging (continued)			
— Recall to Same Attendant			
— Recall with Priority during Night Service			
— Recall With Priority during Night Service			
— Recall With Priority during Night Service Network Wide			
Recorded Announcement Broadcast	327	RANBRD	23
— Recorded Announcement Broadcast			
Recorded Announcement	7	RAN	1
— Recorded Announcement			
Recorded Overflow Announcement	36	ROA	2
— Recorded Overflow Announcement			
— Recorded Telephone Dictation			
— Recovery of Misoperation on the Attendant Console			
— Recovery on Misoperation of Attendant Console			
— Reference Clock Switching			
— Reference Clock Switching (see also packages 75, 129, and 154)			
Remote IPE	286	REMOTE_IPE	
— Remote Intelligent Peripheral Equipment			
Remote Virtual Queuing	192	RVQ	18
— Network Drop Back Busy and Off-hook Queuing (see also package 62)			
— Remote Virtual Queuing			

Package Name	Number	Mnemonic	Release
Resident Debug	82	RSDB	9
— Restricted Call Transfer			
— Ring and Hold Lamp Status			
— Ringback Tone from Meridian 1 Enhancement			
Ringling Change Key	193	RCK	15
— Ringling Change Key			
Room Status	100	RMS	10
— Room Status			
Scheduled Access Restrictions	162	SAR	20
— Scheduled Access Restrictions			
— Secrecy Enhancement			
— Secretarial Filtering			
— Seizure Acknowledgment			
— Selectable Conferee Display and Disconnect			
— Selectable Directory Number Size			
Semi-Automatic Camp-On	181	SACP	15
— Attendant Blocking of Directory Number			
— Attendant Idle Extension Notification			
— Semi-Automatic Camp-On			
— Serial Port Expansion			
Series Call	191	SECL	15
— Series Call			

Package Name	Number	Mnemonic	Release
Set Relocation	53	SR	1
— Automatic Set Relocation			
— Short Buzz for Digital Telephones			
— Short Memory Test			
— Single Digit Access to Hotel Services			
Set-to-Set Messaging	380	STS	25
— Set-to-Set Messaging			
Single Term Access	228	STA	19
— Single Term Access			
— Slow Answer Recall Enhancement			
— Slow Answer Recall for Transferred External Trunks			
— Source Included when Attendant Dials			
SIP Gateway and Converged Desktop	406	SIP	4.0
Soft Switch	402	SOFTSWITCH	4.0
Spanish KD3 DID/DOD interface	252	KD3	20
— KD3 Direct Inward Dialing/Direct Outward Dialing for Spain			
— Special Signaling Protocols			
— Special Trunk Support			
— Speed Call Directory Number Access			
— Speed Call on Private Lines (see also package 1)			
— Speed-Up Data Dump			
Standalone Meridian Mail	262	SAMM	20
— Meridian Mail, Standalone			

Package Name	Number	Mnemonic	Release
Station Activity Records	251	SCDR	20
— Station Activity Records			
Station Camp-On	121	SCMP	20
— Station Camp-On			
Station Category Indication	80	SCI	7
— Station Category Indication			
Station Loop Preemption	106	SLP	10
Station Specific Authorization Codes	229	SSAU	19
— Station Specific Authorization Code			
— Station-to-Station Calling			
Stored Number Redial	64	SNR	3
— Stored Number Redial			
Supervisory Attendant Console	93	SUPV	8
— Supervisory Attendant Console			
Supervisory Console Tones	189	SVCT	20
— System Capacity Enhancements			
System Errors and Events Lookup	245	SYS_MSG_ LKUP	19
— System Message Lookup			
System Speed Call	34	SSC	2
— Speed Call/Autodial with Authorization Codes (see also package 1)			
— Speed Call, System			
— Speed Call Delimiter (see also package 34)			
— Telephones (PBX)			
— Teletype Terminal Access Control in Multi- Customer Environment (see also package 164)			
— Telsset Call Timer Enhancement			

Package Name	Number	Mnemonic	Release
Time and Date	8	TAD	1
— Time and Date			
Tone Detector Special Common Carrier	66	SCC	7
Tone Detector	65	TDET	7
— Tone Detector			
— Tone to Last Party			
— Tones, Flexible Incoming			
Traffic Monitoring	168	TMON	
Trunk Anti-Tromboning	293	TAT	21
— Trunk Anti-Tromboning			
Trunk Barring	132	TBAR	20
— Trunk Barring			
Trunk Failure Monitor	182	TFM	15
— Trunk Failure Monitor			
— Trunk Failure Monitor Enhancement			
Trunk Hook Flash (Centrex)	157	THF	14
— Centrex Switchhook Flash			
— Italian Central Office Special Services (see also packages 129, and 131)			
— Trunk to Trunk Connections			
— Trunk Traffic Reporting Enhancement			
Trunk Verification from Station	110	TVS	9.32
— Trunk Verification from a Station			
— Uninterrupted Line Connection			

Package Name	Number	Mnemonic	Release
United Kingdom	190	UK	16
— Analog Private Network Signaling System (APNSS) (see also packages 122 123, and 124)			
— UK Analog Hardware Support			
Universal ISDN Gateways	283	UIGW	20
— Universal ISDN Gateway			
— Variable Flash Timing and Ground Button			
— Variable Guard Timing			
VIP Auto Wake Up	212	VAWU	17
— Hospitality Enhancements: V.I.P. Auto Wake Up			
Virtual Network Services	183	VNS	16
— Virtual Network Services			
— Virtual Network Services/Virtual Directory Number Expansion (see also package 58)			
— Voice Call			
Virtual Office	382	VIRTUAL_ OFFICE	25
— Branch Office			
— Emergency Services For Virtual Office			
— Internet Telephone Virtual Office			
— Virtual Office			
Virtual Office Enhancement	387	VOE	3.0
— Branch Office			
— Emergency Services For Virtual Office			
— Internet Telephone Virtual Office			
Voice Mailbox Administration	246	VMBA	19
— Meridian Mail Voice Mailbox Administration			

Package Name	Number	Mnemonic	Release
X08 to X11 Gateway	188	L1MF	15
— X08 to X11 Gateway			
Zone Call Admission Control	407	ZCAC	4.5
— Adaptive Network Bandwidth Management			

Departmental Listed Directory Number

Contents

This section contains information on the following topics:

Feature description	73
Operating parameters	75
Feature interactions	75
Feature packaging	77
Feature implementation	77
Feature operation	79

Feature description

The Departmental Listed Directory Number (DLDN) feature allows specified telephones sharing the same numbering plan to belong to one subgroup out of a possible six subgroups within a system customer group. Each Departmental Listed Directory Number (DLDN) subgroup is identified by one of the customer's Listed Directory Numbers (LDNs). Calls to specific Listed Directory Numbers (LDN), or dial-0 calls from subgroup telephones, are directed to the attendant console or consoles assigned to that LDN.

When the Departmental Listed Directory Number (DLDN) feature is implemented, a departmental attendant console is presented with calls from the following sources:

- Incoming external trunk calls routed to the LDN from:
 - an auto-terminate trunk (CO, FX, or WATS) whose Auto-Terminate Number (ATDN) is the LDN

- a Direct Inward Dialing (DID) trunk whose DID number is the same as the LDN
- Calls that originate from internal telephones or TIE trunks when:
 - a telephone user dials the LDN
 - a telephone user associated with a departmental attendant console dials 0, or
 - a TIE-line user dials the LDN.

The DLDN feature associates attendant consoles with an LDN. Up to 63 attendant consoles can be associated with one LDN.

For call distribution purposes, all attendant consoles within a subgroup are made members of a circular list. When a call is received, it is presented to the next listed console after the one that was last offered a call, thus ensuring that LDN calls are distributed in an equitable way. LDN calls, dial-0 calls, and associated timed recalls are serviced according to a circular list for the particular LDN.

On receiving an LDN type call, the system searches for an idle attendant console and tests whether or not that console is configured to answer a call for the dialed Directory Number (DN). If the attendant console is not configured to answer calls for that LDN, the next idle attendant console is tested. If an attendant console that can answer the call is found, the call is presented with the appropriate Loop and Incoming Call Indicator (ICI) lamps lit. If no idle attendant console for the LDN is found, the call is placed in the incoming call queue for all attendant consoles within the customer group.

The Call Waiting indication is provided to all attendant consoles within the customer group. If an Incoming Call Indicator (ICI) key has been provisioned for the LDN, a lamp indication (with no buzz) is provided to all idle attendant consoles within the customer group and may be answered by pressing the appropriate key.

When an attendant presses the Release key, the system checks to see if there are any calls waiting in the queue. If there are calls waiting, it tests whether or not the attendant console, if it is next in the circular list, can answer the first call in the queue. If the call can be answered, it is presented to the attendant console. Otherwise it is put back into the queue and another call is sought. If no calls for the LDN are found, the attendant console is idled and the Release lamp is lit.

Operating parameters

An optional assignment of ICI keys is allowed to provide a visual indication of the LDN (LD 15).

If the DN Expansion package is equipped, all LDNs can have up to seven digits.

Feature interactions

Attendant Overflow Position

LDN calls that have been waiting in the queue longer than the specified threshold period will be routed to the Attendant Overflow Position.

Attendant Position Busy

If all attendant consoles in a LDN group are in position busy, calls to that LDN are not automatically presented to any attendant console in the customer group and will enter the attendant queue for that customer group. Other attendants outside the LDN queue may only answer LDN calls in the attendant queue by pressing the relevant LDN ICI key, if configured. No buzz is provided as the call is in the attendant queue and not the loop key.

Attendant Supervisory Console

The supervisory capabilities extend to all attendant consoles defined within the customer group. The attendant console serving as supervisor should be a member of every DLDN group so that it can serve all groups when operating in the Normal mode.

Call Forward Busy

Call Forward No Answer

Call Forward

Call Forward No Answer to the attendant and Call Forward Busy operate like Call Forward to 0, and are routed to any idle attendant console in the customer group.

Centralized Attendant Service

LDN calls are not screened for Centralized Attendant Service (CAS). When a CAS key is pressed at a CAS remote attendant console, LDN calls will be handled at the CAS main as if the DLDN feature did not exist.

Console Operations

DLDN is a way of directing attendant calls. The feature has some similarities to MTS, but it overrides Multi-tenant Service (MTS) and is therefore not affected by Console Presentation.

Directory Number

With the Network-Wide LDN feature, telephones using DLDN have access to two additional LDNs, even though DLDN is not supported over a network.

Interdepartmental Attendant Transfers

Interdepartmental Attendant Transfers operate normally, except that if there is a recall, it will be to the appropriate department rather than to the last attendant that extended the call.

Listed Directory Numbers, Network Wide

Departmental LDN is not supported over the network; however, this feature does provide two more LDNs for the DLDN feature.

Multiple Console Operation

Departmental Listed Directory Number (DLDN) supports the assignment of 63 consoles per DLDN.

Network-Wide Listed Directory Number

DLDN is not supported over a network; however, Network-Wide LDN provides two additional LDNs for DLDN.

Night Service

DLDN does not affect Night Service (including TAFAS). Calls presented to the LDN from an external source will queue for the night bell. All other attendant calls receive busy treatment if the night Directory Number (DN) is busy.

Feature packaging

Departmental Listed Directory (DLDN) package 76 has no other package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Enable the Departmental Listed Directory Number feature for a customer.
- 2 LD 10 – Configure Departmental Listed Directory Number for analog (500/2500 type) telephones.
- 3 LD 11 – Configure Departmental Listed Directory Number for Meridian 1 proprietary telephones.

LD 15 – Enable the Departmental Listed Directory Number feature for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	LDN	Departmental Listed Directory Numbers
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- OPT	NLDN	Network wide LDN allowed. XLDN = Network wide LDN denied (default).
- DLDN	(NO) YES	(Disable) enable DLDN.
- LDN0	xxxx	Listed Directory Number Zero.

- LDA0	1 - 63 ALL	Attendant consoles associated with LDN 0.
- LDN1	xxxx	Listed Directory Number One.
- LDA1	1 - 63 ALL	Attendant console number associated with LDN 1.
- LDN2	xxxx	Listed Directory Number Two.
- LDA2	1 - 63 ALL	Attendant console number associated with LDN 2.
- LDN3	xxxx	Listed Directory Number Three.
- LDA3	1 - 63 ALL	Attendant console number associated with LDN 3.
- LDN4	xxxx	Listed Directory Number Four.
- LDA4	1 - 63 ALL	Attendant console number associated with LDN 4.
- LDN5	xxxx	Listed Directory Number Five.
- LDA5	1 - 63 ALL	Attendant console number associated with LDN 5.
- ICI	xx LD0 xx LD1 xx LD2 xx LD3 xx LD4 xx LD5	Incoming Call Indication for Listed Directory Numbers Zero to Five (xx = key number 00-19).
<p>Note: To remove an LDN, enter an X before the Directory Number. An LDN cannot be removed if any attendant consoles are associated with it. To remove an associated attendant console, enter an X at the LDA prompt before the attendant number.</p>		

LD 10 – Configure Departmental Listed Directory Number for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
LDN	(NO) 0-3	Telephone associated with LDN (0-3 or none). Choose NO to remove this telephone from the group.

LD 11 – Configure Departmental Listed Directory Number for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
LDN	(NO) 0-3	Telephone associated with LDN (0-3 or none). Choose NO to remove this telephone from the group.

Feature operation

No specific operating procedures are required to use this feature.

D-channel Expansion

The D-channel Expansion feature increases the total number of possible D-channels in a multiple group system. The D-channel Expansion feature increases the number of physical I/O addresses permitted for D-channel application to 16 for each network group. For each MSDL physical I/O address, up to four ports are available for D-channel use. With the D-Channel Expansion feature, the software supports up to 255 D-channels.

For more information on the D-Channel Expansion feature, please refer to *ISDN Primary Rate Interface: Features* (553-3001-369).

Dial Access to Group Calls

Contents

This section contains information on the following topics:

Feature description	83
Operating parameters	84
Feature interactions	84
Feature packaging	85
Feature implementation	85
Feature operation	86

Feature description

This feature allows attendants and users of analog (500/2500 type) telephones, and Meridian 1 proprietary telephones to make a Group Call by dialing a Flexible Feature Code (FFC). telephone users may continue to use a Group Call key. The customer can define whether or not the originator of the Group Call has control of the active call. In the Group Call List, if GRPC = YES, the originator has control: when the originator goes on hook, the call is terminated. If GRPC = NO and the originator goes on hook, the Group Call acts like a conference call: the call remains active until all members go on hook.

For more information on group calls, see “Group Call” on page 433 in this book.

Operating parameters

All group stations must have Warning Tone Allowed (WTA) Class of Service.

Because analog (500/2500 type) telephones have no lamp state, there is no indication to the call originator that all group members have answered.

If a Group Call is originated using an FFC from a DN key of a Meridian 1 proprietary telephone, or a loop key on an attendant console, the DN lamp state does not display the status of the Group Call.

A Group Call member that has disconnected from the call cannot be reconnected to the call.

Feature interactions

The following features cannot be applied to a Group Call:

- Call Forward No Answer
- Call Forward Busy
- Call Join
- Call Park
- Conference
- Hunting
- Privacy Release, and
- Ring Again.

AC15 Recall: Transfer from Norstar

If Norstar sends a recall signal in order to initiate a consultation, the consultation will not be authorized because it is not possible to put a group call on hold. It is however possible to transfer a party to a group call using an AC15 trunk.

On Hold on Loudspeaker

If a group call is initiated from a set with Dealer Allowed Class of Service, the conference is built up on the assigned loop of the loudspeaker or speech monitor system channel since this is a potential On Hold on Loudspeaker call.

Feature packaging

Dial Access to Group Call requires the following packages:

- Group Call (GRP) package 48
- Flexible Feature Codes (FFC) package 139

Feature implementation**Task summary list**

The following is a summary of the tasks in this section:

- 1 LD 18 – Configure the Group Call List table for Group Call control.
- 2 LD 57 – Configure Flexible Feature Codes for Group Calls.

LD 18 – Configure the Group Call List table for Group Call control.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	GRP	Group Call data block.
CUST	xx	Customer number, as defined in LD 15
GRNO	0-63	Number of the Group Call list.
STOR	xx yyy...y	Group member number (xx) and associated DN (yyy...y).

LD 57 – Configure Flexible Feature Codes for Group Calls.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Codes.
CUST	xx	Customer number, as defined in LD 15
GRPF	xxxx	Group Call code.
- GRCL	0-63	Group Call List number.

Feature operation

To make a Group Call,

- Press the **Group Call** key. All group members are automatically called. The LCD indicator beside the Group Call key flashes until all members have answered. Then it lights steadily.

or

- Dial the Group Call FFC. All group members are automatically called. When an originating station makes a Group Call using an FFC, all idle stations in the group are rung. Busy stations are given Call Waiting or Camp-On, if equipped, along with a special warning tone.

Dial Intercom

Contents

This section contains information on the following topics:

Feature description	87
Operating parameters	88
Feature interactions	89
Feature packaging	91
Feature implementation	92
Feature operation	94

Feature description

Dial Intercom (DI) allows a customer to arrange stations within the system into separate Dial Intercom Groups (DIGs). A total of 100 stations can belong to each Dial Intercom Group (DIG). One-digit dialing is required for a Dial Intercom Group (DIG) of up to 10 stations, and two-digit dialing is required for a DIG of up to 100 stations.

Meridian 1 proprietary telephones can be equipped with a separate DIG key/lamp pair for each DIG of which it is a member. Single-line telephone users can belong to only one DIG and may not have any non-DIG Directory Numbers (DNs).

Voice or ring may be specified on a DIG basis for Meridian 1 proprietary telephones. If voice is specified, an idle station rings once for two seconds. The calling party is then connected and may make a voice announcement. If ring is implemented, normal ringing is received until the called party answers. This feature provides the option of an announcement or a two-way speech path.

The ring option must be used if a 500 telephone is a member of the group.

Distinctive ringing for Dial Intercom

This feature allows a user to differentiate between an incoming call and a Dial Intercom (DI) call. The Dial Intercom (DI) ringing has a different cadence than the regular Directory Number (DN) ringing and Distinctive Ringing.

Distinctive Ringing for DI is assigned on a per-customer basis. The cadence is 0.5 sec. on and 0.5 sec. off, repeatedly.

Dial Intercom Handsfree Voice Call

Dial Intercom Handsfree Voice Call can be used with the M2317 and M2616 telephones.

Handsfree Voice Call provides the option of configuring VCC/DIG (with voice option) to be answered in either handsfree mode or loudspeaker only mode. Calls answered in handsfree (HVA) mode establish a two-way voice path, while those answered in loudspeaker only (HVD) mode establish only a one-way voice path from the calling telephone to the destination telephone.

Dial Intercom Handsfree Voice Call applies only to voice option DIG calls.

Operating parameters

A maximum of 2046 DIGs can be established per customer.

Calls are restricted to stations within the DIG only. Trunks cannot be accessed using the DIG key, and cannot be added to a DIG call using the Conference feature.

A DIG member number must be a single appearance Directory Number (DN) within a specified DIG.

DI analog (500/2500 type) telephones cannot dial the attendant or be dialed by the attendant.

A DI telephone cannot be assigned a member number that conflicts with the Special Prefix (SPRE) code. In the case of double-digit DIG values, the first digit cannot be the same as the SPRE code. For example, if the SPRE code is 7, the member number cannot be 7 or any number from 70 through 79. A two-digit SPRE code, such as 77, allows 99 DIG member numbers (00, 01-76, and 78-99). With no SPRE code defined, 100 DIG members are possible.

Call Transfer and Conference cannot take place to telephones outside the DIG.

Handsfree Voice Call allowed/denied is set at the system level and can only be used with digital telephones that have handsfree capabilities (such as M2317 and M2616), and requires Class of Service Handsfree Allowed (HFA) on the destination telephone, which is set at the telephone level.

Basic Rate Interface (BRI) telephones do not support the Handsfree feature.

Feature interactions

Auto Answer Back (AAB)

This feature is not affected by the Handsfree Voice Call feature.

Autodial Speed Call

The Dial Intercom code may be dialed using Autodial or Speed Call.

Automatic Line Selection

A Dial Intercom DN is selected by Incoming Ringing Line Selection and Outgoing Line Selection.

Call Forward Call Waiting

The Call Forward and Call Waiting features do not apply to a Dial Intercom appearance.

Call Party Name Display

The display on telephones connected by Dial Intercom shows the group member's DIG number plus Call Party Name Display information.

Call Pickup

Call Pickup may be used by Meridian 1 proprietary telephones if the telephones are all in the same DIG and Call Pickup Group and the ring option is specified for the DIG.

Call Pickup Network Wide

The Dial Intercom feature is not supported network wide. Any pickup attempt from a distant node to a local intercom call will be rejected, because the far-end user is considered as not being in the same intercom group.

Conference Call Transfer

When using Conference or Transfer, the voice option is not provided if the call is terminated before the conference or transfer is completed. If an analog (500/2500 type) telephone is part of a Dial Intercom Group (DIG), the user of the telephone can conference only with another user whose telephone is within the same Dial Intercom Group (DIG).

Digit Display

The digit display will be cleared when the DIG key is pressed. When the user dials the DI code, the digits of the code are displayed. When the call is answered, the DI code of the calling party appears on the display of the called party.

If either party presses the Release key or goes on hook during a DIG call, the displays of both parties are cleared. If either party presses the Hold key, the display of the holding station is cleared but the display of the other station remains unchanged. When the held call is reestablished, the holding station redisplay the DIG number of the other party.

Display of Calling Party Denied

Display information on sets that are involved in a Dial Intercom Group (DIG) call is based on the individual Class of Service of each set. If a DN is denied for a set involved in a DIG call, the DIG number for that set is replaced by one dash (–) in the case of 10 DIG stations. For 100 DIG stations, the DIG number is replaced by two dashes (– –).

Hot Line

The analog (500/2500 type) Hot Line telephones cannot be members of Dial Intercom Groups (DIGs).

Station features

DI can be used in combination with the following features:

Feature	Meridian 1 proprietary telephones	Analog (500/2500 type) telephones
Autodial	•	
Speed Call	•	
Digit Display	•	
Make Set Busy	•	
Override	•	
Release	•	
Hold	•	
Call Pickup	•	•
Conference	•	•
Call Transfer	•	•
Ring Again	•	•

Tones, Flexible Incoming

For Dial Intercom Group (DIG) calls with the voice (V) option, if the telephone receiving the call is busy, the user hears one buzz followed by a flashing indicator. This is how DIG works with or without FIT.

Feature packaging

Dial Intercom (DI) package 21 has no other package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Enable Dial Intercom for a customer.
- 2 LD 10 – Configure Dial Intercom for analog (500/2500 type) telephones.
- 3 LD 11 – Configure Dial Intercom for Meridian 1 proprietary telephones.
- 4 LD 15 – Configure Handsfree Voice Call for the system.

LD 15 – Enable Dial Intercom for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- DGRP	0-2046	Maximum number of DIGs that can be defined for the customer. The maximum number of DIGs allowed is 2046.

LD 10 – Configure Dial Intercom for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change. Single line telephones cannot have both a Dial Intercom Group number and a standard DN. To add this feature, you must remove the telephone from the database and build it again, as a Dial Intercom Group member.
TYPE:	500	Telephone type.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
DES	a...x	ODAS set designator. a...x = one-to-six character alphanumeric designator.
CUST	xx	Customer number, as defined in LD 15
DIG	xxxx yy	xxxx = Dial Intercom group number (0-2046). yy = member number (0-99) within the group. The maximum number of DIGs allowed is to 2046.

LD 11 – Configure Dial Intercom for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx DIG aaa bb c	Add a Dial Intercom key, where: xx = key number aaa = group number (0-2046) bb = member number (0-99), and c = r (ring) or v (voice). The maximum number of DIGs allowed is to 2046.

LD 15 – Configure Handsfree Voice Call for the system.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- OPT	(HVD) HVA	Handsfree Voice Call (Denied) Allowed.

Feature operation

An example of a Dial Intercom call is listed below.

Dial Intercom Call

To make a Dial Intercom call:

- 1 Lift the handset and dial the **Intercom** key.
- 2 Dial the one- or two-digit code for the DIG member.

If your telephone and the telephone you are calling are configured for the voice option, you can deliver a voice message after two seconds of ringing.

To answer a Dial Intercom call when you are on a line other than your DIG line:

- 1 Release the current call or place it on hold.
- 2 Press **Intercom**.

Dial Intercom Handsfree Voice Call

Examples of both Handsfree Voice Call options are listed below.

HVA option

The originating telephone (telephone A) places a DIG call to the destination telephone (telephone B).

- Telephone B rings once.
- After one ring, telephone B automatically answers the call in Handsfree mode.

The DN and handsfree LCDs are lit and a two-way voice path is established.

HVD option

Telephone A places a call to telephone B.

- Telephone B rings once.
- After one ring, telephone B automatically answers the call in loudspeaker only mode.

The DN LCD is lit and the handsfree LCD remains dark, establishing a one-way voice path from telephone A to telephone B. At this point, telephone A is unable to hear the person at telephone B.

To establish a two-way voice path, telephone B must either go off hook, or press the Handsfree button.

Dial Pulse/Dual-tone Multifrequency Conversion

Contents

This section contains information on the following topics:

Feature description	97
Operating parameters	98
Feature interactions	98
Feature packaging	98
Feature implementation	98
Feature operation	98

Feature description

With the Dial Pulse/Dual Tone Multifrequency Conversion feature, Dial Pulse (DP) signals from analog (500/2500 type) telephones, Dial Pulse (DP) TIE lines, Meridian 1 proprietary telephones, or attendant consoles are automatically converted to Dual-tone Multifrequency (DTMF) signals for transmission over trunks equipped for Dual-tone Multifrequency (DTMF) service. Dual-tone Multifrequency (DTMF) signals from single-line 2500 telephones are automatically converted for transmission over rotary-dial-only trunks, such as TIE lines. This eliminates the need for duplicate dials.

DTMF calling allows the use of 2500 telephones, equipped with push-button dials, to transmit digits through audible tones to the system equipment. This feature provides the ability to use any combination of telephones. However, 2500 telephones cannot use DTMF to control dictation equipment when the dictation trunk is specified as Dial Pulse (DP).

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Dialed Number Identification Service

The Automatic Call Distribution (ACD) Dialed Number Identification Service (DNIS) shows the last three or four digits of the dialed DNs received from auto-terminated Direct Inward Dialing (DID) and TIE trunks on the display for ACD agents. The maximum number of characters allowed is 27, including spaces.

In telemarketing environments, DNIS can reduce the time needed to serve a call. For example, the dialing plan can be configured so the DNIS digits represent product lines or services. The ACD agent can then answer incoming calls with the correct response

For further information on Dialed Number Identification Service, please refer to *Automatic Call Distribution: Description* (553-3001-351).

Digit Display

Contents

This section contains information on the following topics:

Feature description	101
Operating parameters	105
Feature interactions	105
Feature packaging	108
Feature implementation	108
Feature operation	110

Feature description

There are two types of Digit Displays: Attendant Console Digit Display and Meridian Modular Telephone Digit Display.

Attendant Console Digit Display

The M2250 attendant console is a Digital console with a 4-line, 40-character wide alphanumeric Liquid Crystal Display. The console's LCD displays the information presented in Table 1.

Table 1
LCD alphanumeric display information

Line	Display information
1	Displays the time and date.
2	Displays call source information.
3	Displays call destination information.
4	Displays console status information.

Meridian Modular Telephone Digit Display

This feature allows the automatic display of information relevant to normal call processing and feature activation on any Meridian Modular Telephone equipped with a 16-digit display. A key/lamp pair is also provided to enable the station user to obtain information manually, independent of call processing activity.

Time and Date are displayed with an additional Time and Date (TAD) key.

CAUTION

This option should not be used when a Prime DN appears on another telephone as a Prime DN. Severe real-time penalties will occur (ERR040 message).

The following display options are available:

- **No Digit Display (NDD)**
 This is the default option.
- **Automatic Digit Display (ADD)**
 This option allows the display of digit information during call processing. ADD allows the automatic display of a calling party number on an incoming call to the Prime DN on a telephone.

- **Standard Delayed Display (DDS)**
Provides calling party information, displayed after answer only.
- **Tandem Digit Display (TDD)**
With this option, when an incoming call is presented to a busy Meridian Modular Telephone with display, the Calling Line Identification and Call Party Name Display information is automatically displayed on the busy telephone.

Automatic displays will show the following:

- Number dialed
- Number of calling party
- Call Pickup
- Call Waiting party, and
- Time and date.

Press the Display (DSP) key, then the feature key to display information associated with these features:

- **ACD in-calls**
If the Display Key is used to view information defined on the ACD DN key of an agent serving multiple queues, then the ACD DN displayed will be the current queue being served if the agent is active on a call. The last queue is served if the agent is not serving an ACD call or the Primary ACD DN if the agent is logged out.
- **Autodial number**
When the telephone is inactive and the DSP key is pressed, followed by the autodial key, the number stored against the key will be displayed.
- **Autoline**
To display the DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy. On an analog console, to display a DN that is longer than eight digits, the attendant presses the display key after pressing the Autoline key.

- **Buzz DN**
When the telephone is inactive and the DSP key is pressed, followed by the Buzz DN key, the number stored against the key will be displayed.
- **Call Forward party**
When the telephone is inactive and the DSP key is pressed, followed by the Call Forward key, the number stored against the key will be displayed.
- **Call Park**
The Park DN of the most recently parked call can be re-displayed on proprietary telephones equipped with displays, a Park key, and a Display key. This is done by pressing the Display key, then the Park key. The attendant can display the last call parked by pressing the Park key when no loop key is active.
- **Call Pickup**
To display Call Pickup, press the Display key, followed by the Call Pickup key.
- **Call Waiting party**
Pressing the Call Waiting key to answer a waiting call makes that call active. The call can be placed on hold by pressing the Call Waiting key again, or by pressing any idle DN key on the set. If the Display key is pressed before the Call Waiting key, the call waiting party information is displayed.
- **Conference**
While in a conference call, the Display (DSP) key can be used to obtain information on other keys. However, the Display key is blocked when the CSD key is active.
- **DN key (Meridian Modular Telephones)**
While the key is active (established, outgoing ringing) will show the source of the destination. While the key is active but not answered (that is, ringing) will show the source of the originator. While inactive will show the number stored that will be used for the 'last number redial' function (if configured).
- **Hot Line**
Hot Type I calls are supported by the Display key feature; pressing the Display key and then the Hot Type I key will show the target DN on the originating station's display.

- **Message Waiting**
When the telephone is inactive and the DSP key is pressed, followed by the Message Waiting key, the number stored against the key will be displayed.
- **Ring Again party**
When the telephone is inactive and the DSP key is pressed, followed by the Ring Again key, the number stored against the key will be displayed.
- **Speed Call number**
To display a stored entry the user presses the Display key and the Speed Call key and dials the list number. The list number cannot be abbreviated.
- **Voice Call party**
When the telephone is inactive and the DSP key is pressed, followed by the Voice Call key, the number stored against the key will be displayed.

Operating parameters

Digit Display must be enabled for all console types in LD 15, using the prompt OPT.

Only telephones equipped with a Digit Display module can use this feature.

The Display Time and Display Date key cannot be assigned to key 0.

Feature interactions

Attendant Break-In

During Attendant Break-In, the Attendant Console Digit Display shows the DN of the incoming call and the destination DN until the Attendant extends the incoming call to the destination DN and releases the connection.

Autodial Tandem Transfer

Digit Display allows the automatic display of information relevant to normal call processing if the sets have display capability and the Class of Service is ADD or DDS. When the THF key is pressed the display gets cleared, and pressing the ADL key causes the ADL digits to be displayed. However, no ADL digits will be displayed if no Tone and Digit Switch (TDS)/XCT is available to generate the Dual-tone Multifrequency (DTMF) tones for the ADL digits.

Automatic Redial

Dialed numbers are displayed when the Automatic Redial (ARDL) feature is activated. The calling party can dial digits even though a busy tone indication is given.

Digits dialed while on hold are not displayed. When the calling party accepts a redialed call, the dialed numbers are displayed. If the Display (DSP) key and appropriate RGA key are pressed while a call is on hold, the number redialed is displayed.

China – Flexible Feature Codes - Outgoing Call Barring Enhanced Flexible Feature Codes - Outgoing Call Barring

Meridian Modular Telephones with displays do not display the OCB level and the Station Control Password (SCPW) when OCB FFCs are dialed. This protects the security of the SCPW.

Centralized Multiple Line Emulation

The digit display of the station picking up a parked call recall shows the parked call's access code followed by the parked call's access-identification code. If the picked-up call is a group member call, the display shows the group number of the picked-up station.

Dial Intercom

The digit display will be cleared when the Dial Intercom Group (DIG) key is pressed. When the user dials the DI code, the digits of the code are displayed. When the call is answered, the DI code of the calling party appears on the display of the called party.

If either party presses the Release key or goes on hook during a DIG call, the displays of both parties are cleared. If either party presses the Hold key, the display of the holding station is cleared but the display of the other station remains unchanged. When the held call is reestablished, the holding station redisplay the DIG number of the other party.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

The digit display rules for DPNSS1 UDP are based on what is currently done in an MCDN.

Group Hunt

Until a call is answered, the calling party will see the dialed DN. When the call is answered, the caller will see the dialed DN appended with the DN and name, if Calling Party Name Display (CPND) is equipped, of the called party. The terminating set will always see the originating DN appended by a Pilot DN.

Hot Line

A Display key on a telephone with a Hot Line appearance will display the Hot Line target DN data stored for that key.

INIT ACD Queue Call Restore

Call information associated with Digit Display is lost after system initialization and call restoration.

LOGIVOX Telephone

During manual dialing or last number redial, the display shows the dialed digits, even if the set has display denied Class of Service. If the set has LOGIVOX denied Class of Service, each digit is shown twice.

Override
Override, Enhanced
Override, Priority

The Digit Display of the telephone being overridden changes to the Directory Number (DN) of the overriding telephone once Priority Override is accomplished.

Pretranslation

The Pretranslation digit is displayed as it was dialed, but if the call is put on hold, the digits of the pretranslated DN are displayed

Feature packaging

Digit Display (DDSP) package 19 has no other feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Configure Digit Display for attendant consoles for each customer.
- 2 LD 11 – Configure Digit Display for Meridian Modular Telephones.
- 3 LD 12 – Configure Digit Display for each attendant console.

LD 15 – Configure Digit Display for attendant consoles for each customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	ATT_DATA	Attendant console options

CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- OPT	(XDP) IDP	(Exclude) include Digit Display capability for attendant consoles of this customer.

LD 11 – Configure Digit Display for Meridian Modular Telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(NDD) DDS	Telephone is not equipped with a Digit Display. Calling Party information is displayed after call is answered (delayed display source).
	ADD	Calling Party information is displayed during call processing (Automatic Digit Display).
KEY	xx DSP xx TAD	Add a Digit Display key (must be key/lamp pair). Add a Time and Date key (must be key/lamp pair). xx = key number.

LD 12 – Configure Digit Display for each attendant console.

Prompt	Response	Description
REQ	CHG	Change.

TYPE	2250	Attendant console type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx DCW xx DDT xx DPD xx DPS xx DTM xx MDT xx MTM	Add display Call Waiting key. Add display Date key. Add display Destination key. Add display Source key. Add display Time key. Add display/change Date key. Add display/change Time key.

Feature operation

No specific operating procedures are required to use this feature.

Digital Private Network Signaling System

British Telecom's Digital Private Signaling System No. 1 (DPNSS1) is the open signaling protocol standard for intelligent private network digital connections. DPNSS1 provides the signaling capability to establish simple telephony and data calls, as well as supplementary features.

The following DPNSS1 features have been introduced:

- DASS2/DPNSS1 – Integrated Digital Access
- DPNSS1 Attendant Call Offer
- DPNSS1 Attendant Timed Reminder Recall and Attendant Three-party Service
- DPNSS1 Call Back when Free and Next Used
- DPNSS1 D-channel Handler Interface Expansion
- DPNSS1/DASS2 to ISDN PRI Gateway
- DPNSS1 Extension Three-party Service
- DPNSS1 Loop Avoidance
- DPNSS1 Redirection
- D-Channel Interface Expansion for DASS2/DPNSS1
- DPNSS1 Route Optimization
- DPNSS1 Step Back on Congestion
- DPNSS1 Executive Intrusion , and
- DPNSS1/DASS2 Uniform Dialing Plan Interworking.

For more information on DPNSS1, see *DPNSS1 (553-3001-372)*.

Digital Trunk Interface – Commonwealth of Independent States

Contents

This section contains information on the following topics:

Feature description	113
Operating parameters	115
Feature interactions	115
Feature packaging	118
Feature implementation	118
Feature operation	133

Feature description

The information presented in this section does not pertain to all market regions. Contact your system supplier or your Nortel representative to verify support of this product in your area.

The Commonwealth of Independent States (CIS) Digital Trunk Interface (DTI) feature allows the system to connect to Direct Inward Dialing (DID)/ Central Office Trunk (COT) trunks to a CIS Public Exchange/Central Office and to a CIS toll exchange.

To satisfy the unique requirements of CIS DTI signaling, two new trunk cards have been introduced: a dual 2 Mbps Enhanced Network (ENET) styled digital trunk card (CDTI2); and a 2 Mbps digital trunk card (CSDTI2) for use with Small Systems. The CDTI2 card provides 60 voice or data 64 kbps channels, whereas the CSDTI2 card provides 30 voice or data 64 kbps channels. Each card occupies one card slot on the common equipment shelf (CDTI2), or on the Small System base cabinet (CSDTI2)

In addition to most of the features provided by digital trunks, the CDTI2 and CSDTI2 cards provide the following features intended for the CIS market:

- CIS digital trunk signaling (outgoing, incoming toll, and incoming local calls)
- Automatic Number Identification (ANI) transmission for outgoing calls on request from the Public Exchange
- Special disconnect procedure (two-way release) on incoming local answered calls initiated by the Public Exchange to provide Malicious Call Trace
- Unanswered free special service calls – outgoing calls that remain unanswered are recognized in a special manner to allow the called party (special service operator) to disconnect the calls
- CIS transmission plan
- Downloading the required firmware mode per loop, and
- Dial tone provided internally to the calling party by the system after seizure of an outgoing CIS trunk. However, for outgoing call terminating to a busy, vacant, invalid, or restricted DN, the system does not provide busy/overflow tone. The Public Exchange will send the tone on the speech path.

The CIS DTI trunk provides significant improvement on real-time impact for dial pulse outputting and digit collection by transferring these processes from the software to the firmware. The trunk state change validation timing is performed by the firmware. A Firmware Unproductive Timer is used to prevent a call on a CIS trunk from remaining unanswered for too long.

Operating parameters

CDTI2 and CSDTI2 cards do not support Periodic Pulse Metering, continuous pulse detection, or echo suppression.

The only line signaling supported for CIS is a two-bit ABCD protocol.

The data in ANI always refers to the originator of the outgoing call. If the call is transferred, the ANI information is not changed and therefore may be different than that of the set currently involved in the call.

On outgoing toll calls, there is no delay. On outgoing local calls, there is a 700 millisecond delay in the Answer signal recognition before the call is established.

Incoming and outgoing trunks cannot be mixed within the same route.

Toll Operator Break-In/Trunk Offer is not supported.

Toll Operator Manual Ringing is not supported.

MF Shuttle Register Signaling is not supported.

CSDTI2 cards are required for Cabinet system, while CDTI2 cards are required for all other machine types.

Only ANI transmission is supported.

Feature interactions

Authorization Code

An extension may refer to an Authorization Code to seize an outgoing CIS DTI trunk. The Authorization Code category is used to build the Automatic Number Identification (ANI) message. Thus, a set having a CIS restricting call category can complete a call to the Public Network using the Authorization Code.

Automatic Trunk Maintenance

This feature is not supported on CSDTI2 due to the absence of tone detectors on the Cabinet system.

Called Party Disconnect Control

This feature may not be used in the CIS market because of its signaling requirements.

Computer to circuit-switched network interface

Computer to circuit switched network Interface is not supported on CDTI2/CSDTI2 because the protocol conversion is not supported.

Call Detail Recording

If ANI is requested to be output in the Call Detail Recording (CDR) record, it will not refer to the CIS DTI2 ANI.

Data Transmission

All features connected with Data Transmission must be used with caution, because the ANI interaction can happen at any time during an outgoing call, thus destroying the transmitted data and disrupting the call.

Dial Tone Detection

Dial tone detection is supported, but with the limitation of low reliability of the tone provided by the Public Exchange.

Incoming Digit Conversion Enhancement Incoming DID Digit Conversion

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the Direct Inward Dialing (DID) number to dial to reach the set. Therefore, if an external party uses a DN, delivered in an ANI message, for making a call to the corresponding extension, the call may fail.

Japan DTI2

All features related to Japan DTI2 may not be used, because the proper Scan and Signaling Distributor (SSD) messages are not supported in the CDTI2/CSDTI2 firmware.

Multiple Appearance Directory Number

Since the ANI category is defined on a per set basis, two stations with the same Multiple Appearance Directory Number (MADN) can be assigned different ANI categories.

Periodic Pulse Metering

Periodic Pulse Metering is not supported.

Pulsed E&M DTI2 Signaling

Pulsed E&M is not supported.

R2MFC Calling Number Identification

The category (CAC) used to build the R2MFC Calling Number Identification (CNI) for the analog, digital, and Basic Rate Interface (BRI) sets is also used to build the CIS Automatic Number Identification (ANI). The meaning of CAC is different between the R2MFC CNI signaling and the CIS signaling (analog BRI and digital). R2MFC CAC prompt values are in the range of 0-10, with the default value of 0. CIS CAC prompt values are in the range of 0-9, with the default value of 3.

If the MFC package is equipped, but not the CIST package, the CAC prompt uses the R2MFC range and default. If the CIST package is equipped, whether or not the MFC package is equipped, the CAC prompt uses the CIS range and default.

Special Dial Tones after Dialed Numbers

Special Dial Tones can be used to provide dial tone after the system user has dialed the digit “9” (Local Exchange access code).

Tandem Switching

If an ISDN TIE incoming trunk (MCDN, QSIG, DPNSS1) with Calling Line Identification (CLID) and Originating Line Identification (OLI) available seizes the CIS DTI2 outgoing trunk, the ANI DN to be used for sending to the CIS Public Exchange is extracted from this CLID/OLI.

In any other case, the ANI sent to the CIS Public Exchange is based on the local system node (that is, tandem node) definitions.

Virtual Network Services

Virtual Network Services via CIS DTI2 is not supported.

Feature packaging

This feature is packaged as Commonwealth of Independent States Trunk Interface (CIST) package 221.

The following packages are required:

- Flexible Tones and Cadences (FTC) package 125
- 2 Mbps Digital Trunk Interface (DTI2) package 129
- International Supplementary Features (SUPP) package 131
- Flexible Numbering Plan (FNP) package 160
- Meridian 1 Intelligent Peripheral Equipment (XPE) package 203
- Meridian 1 Extended Conference, TDS and MFS (XCT0) package 204, and
- Meridian 1 Superloop Administration (XCT1) package 205.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Change system configuration data.
- 2 LD 73 – Define DTI2 data.
- 3 LD 73 – Define the SICA table for CDTI2/CSDTI2.
- 4 LD 97 – Define dial pulse make-break ratio.
- 5 LD 15 – Define busy tone/overflow tone time out.
- 6 LD 16 – Add or change route data for CIS DTI2 trunks.
- 7 LD 16 – Add or change route data for an incoming, non CIS DTI2, trunk.

- 8** LD 14 – Add or change trunk data for CIS DTI2 incoming and outgoing trunk.
- 9** LD 10 – Specify ANI category for CIS DTI2 calls.
- 10** LD 11 – Specify ANI category for CIS DTI2 calls.
- 11** LD 12 – Specify ANI category for CIS DTI2 calls.
- 12** LD 27 – Add or change Digital Subscriber Loop (BRI set) for CIS.
- 13** LD 88 – Add or change the Authcode data block.
- 14** LD 56 – Configure the dial tone.
- 15** LD 56 – Configure Tone to Last Party.
- 16** LD 18 – Add or change Speed Call lists, System Speed Call lists, Group Call lists, Enhanced Hot Line lists, Pretranslation lists, and Special Service lists. Special Service lists can now handle the Special Service Unanswered Call (SSUC) call type.

LD 17 – Change system configuration data.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PARM	System Parameters
...		
- PCML	(MU) A	System Companding Law.
TYPE	CEQU	Common Equipment
...		
- DTI2	<loop> <loop>...	Define CDTI2/CSDTI2 loops exactly like existing DTI2/SDC2.

LD 73 – Define DTI2 data.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	DTI2 Data Block.
FEAT	LPTI	Loop timers and some other per DTI2 loop defined parameters.
LOOP	<loop>	DTI2 loop number.
CDTI2	YES	CDTI2/CSDTI2 card.
P DIGIT (S)	PXXX	DP outpulsing will be sent on signaling bit A.
P METR (R)	NO	Pulse Metering.
SASU	1024	Seize Acknowledgment Supervision timer is defined in milliseconds (rounded to the closest multiple of 128 milliseconds).
MFAO	YES	Multi-frame alignment option used.
SZNI	NO	Seize Not Idle option not used.
LCLB	NO	Lockout Clear Back option (send CLR-BK signal to DID in lockout) not used.
UCFS	1101	Unequipped Channel Fault Signal – ABCD bits to be sent on unequipped channel. The default value of 1101 is acceptable.
MFF	(AFF) CRC	Alternate Frame Format or CRC4 may be chosen.
...		
FRFW	NO	Prompted only if French Type Approval (FRTA) package 197 is equipped.
CISFW	YES	Prompted only if Commonwealth of Independent States – Digital Trunk Interface (CIST) package 221 is equipped and CDTI2 = YES.

LD 73 – Define the SICA table for CDTI2/CSDTI2.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	DTI2 Data Block.
FEAT	ABCD	Signaling category.
SICA	2-16	SICA table number.
...		
Incoming/ Outgoing Calls		
IDLE(S)	0101, 1101	Idle on backward sent, where: 0101 = incoming trunks (local and toll), and 1101 = outgoing trunks.
IDLE(R)	0101, 1101	Idle on backward sent, where: 0101 = incoming trunks (local and toll), and 1101 = outgoing trunks.
FALT(S)	1101	Fault (referred to as blocked in CCITT terminology).
FALT(R)	1101	Fault (referred to as blocked in CCITT terminology).
Incoming Calls		
E_SEZ(R)	1001	Seize.
SEZD(R)	NO	Seize for voice calls.
P CALL (R)	NO	Signal sent during seize by an incoming CO trunk.
SEZA (S)	1101	Seize Acknowledge.
- TIME	150	Time in milliseconds.
P DIGT(R)	Pxxx	DP Digits received decadic pulses.
NRCV(S)	NO	Number received.

P EOSF(S)	NO	Pulsed End of Selection Free is not used.
EOSF(S)	NO 1001	Steady End of Selection Free, where: NO = local trunk, and 1001 = incoming toll trunk.
P EOSB(S)	NO	Pulsed End of Selection Busy is not used.
EOSB (S)	0001	Steady End of Selection Busy.
P OPCA(R)	NO	Operator calling.
E_CONN(S)	1001 1101	Connect Send (Answer), where: 1001 = local trunk, and 1101 = incoming toll trunk.
CONN(R)	1001 0001	Connect received, where: 1001 = local trunk, and 0001 = incoming toll trunk.
P RRC(S)	NO	Register recall.
P BURS(S)	NO	Bring up receiver for L1 networking.
P BURS(R)	NO	Bring up receiver for L1 networking.
CLRB(S)	0001 1001	Clear Back (B Ring Off), where: 0001 = local trunk, and 1001 = incoming toll trunk.
CLRF(R)	0001 NO	Clear Forward (A Ring Off), where: 0001 = local trunk (used only to start two-way release), and NO = incoming toll trunk.
P OPRS(R)	NO	Operator manual recall.
P NXFR(S)	NO	Network transfer.
P ESNW(S)	NO	ESN wink.
P CAS(S)	NO	Centralized attendant.
Outgoing Calls		

E_SEZ(S)	1001	Seize.
SEZD(S)	NO	Seize for data calls.
SEZA(R)	1101	Seize Acknowledge.
P WNKS(R)	NO	Wink start.
P EOS(R)	NO	End of selection busy.
E_CONN(S)	NO	Connect.
E_CONN(R)	1001	Connect Receive (Answer).
P OPRC(R)	NO	Operator recall for special services.
P BURS(S)	NO	Bring up receiver for L1 networking.
P BURS(R)	NO	Bring up receiver for L1 networking.
CLRB(R)	0001	Clear Back (B Ring Off).
CLRF(S)	NO	Clear Forward (the same as the IDLE(S) signal).
P NXFR(R)	NO	Network transfer.
P ESNW(R)	NO	ESN wink.
P CAS(R)	NO	Centralized Attendant Service.

LD 97 – Define dial pulse make-break ratio.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SYSP	System parameters.
INTN	YES	A-law should be used as system companding law.
...		
P10R	(50)-70	Make-break ratio for primary 10 pulses per second dial pulse dialing.

P12R	(50)-70	Make-break ratio for secondary 10 pulses per second dial pulse dialing.
P20R	(50)-70	Make-break ratio for 20 pulses per second dialing.

LD 15 – Define busy tone/overflow tone time out.

Prompt	Response	Description
REQ:	NEW CHG	New or change.
TYPE:	TIM	Gate opener.
...		
- BOTO	30	Busy tone/overflow tone time out (in seconds).

LD 16 – Add or change route data for CIS DTI2 trunks.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	RDB	Route Data Block.
...		
TKTP	DID COT	Trunk type, where: DID = incoming trunks route, and COT = outgoing trunks route.
...		
DTRK	YES	Digital trunk.
DGTP	DTI2	Digital trunk type for route.
...		
ICOG	ICT OGT	Incoming trunk. Outgoing trunk.
...		

CNTL	YES	Changes to controls or timers.
TIMR	DDL 0	Delay Dial Timer not needed.
TIMR	DSI 49992	Disconnect supervision timer (five-second value, rounded to the nearest 128 ms.).
TIMR	EOD 13952	End of dial timer (default value).
TIMR	SFB 25	Seize Fail Busy timer. The recommended value for trunks with seizure supervision is 25 seconds.
TIMR	GTI 0	Incoming Guard timer must be defined equal to zero. Incoming CIS DTI2 trunks only. For CIS DTI2 trunks no guard timing is necessary on the incoming side. Immediately after sending the "IDLE" signal, the incoming trunk may be re seized by the CO.
TIMR	ATO 128-(4992)-65408	ANI time out timer in milliseconds. For CIS outgoing trunk routes this defines the time delay performed after the outpulsing of the toll access code. During this delay further outpulsing is temporarily halted until the special message from the card firmware confirms that a successful ANI request/response interaction has been performed.
...		
NEDC	ORG ETH	Near end disconnect control, where: ORG = originating end disconnect control for incoming calls, and ETH = either end control for outgoing calls.
FEDC	ORG ETH	Far end disconnect control, where: ORG = originating end disconnect control for incoming calls, and ETH = either end control for outgoing calls.
CDPC	NO	The system is not the only controlling party on incoming calls.
...		
OPCB	NO	External operator features not allowed on this route.
...		

CGPC	NO	Calling party control of calls not enabled.
CDCT	NO	Called party control of call is not enabled.
DDO	NO	Do not delay digit outpulsing for DOD trunks.
...		
DTD	NO	Dial tone detection is not to be performed on this route.
...		
CDR	YES	CDR to output for calls on trunks in this route.
...		
OAL	YES	CDR on all outgoing calls.
...		
OAN	NO	CDR on answered outgoing calls. It is not used because of free special service calls, which are not answered.
NATL	NO	North American toll scheme is not used.
TDG	8	Toll digit (list of digits after the trunk access code which indicate toll calls). This can also be defined in LD 18.
...		
PRDL	YES	Partial dial timing is equipped using EOD.
DNSZ	(0)-7	Number of digits expected on DID routes. 0 (the default) indicates no fixed value. This value must be defined according to the numbering plan.
...		
BTT	30	Duration of busy/overflow tone to be returned on DID route in seconds.
...		
LEC	0-9999999	Local Exchange Code.

ADDG	0-9	Additional digit.
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.

LD 16 – Add or change route data for an incoming, non CIS DTI2, trunk.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	RDB	Route Data Block.
...		
ICOG	ICT IAO	Incoming trunk. Incoming and outgoing trunk.
...		
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.
RDNL	0-(4)-7	Remote DN Length.

Note: This trunk may be any kind of trunk. If this trunk, used as an incoming trunk, originates an outgoing call to a CIS DTI2 trunk, its CAC and ANDN are used in the ANI information sent out.

LD 14 – Add or change trunk data for CIS DTI2 incoming and outgoing trunk.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	DID COT	Direct Inward Dialing (for incoming trunks), or Central Office Trunk (for outgoing trunks).
...		
SICA	2-16	Signaling category table number. Note: standard default SICA table (number 1) may not be used for CIS DTI2 trunks. CIS DTI2 trunks for incoming local and incoming toll calls must have different SICA tables.
PDCA	(1)-16	PAD table number.
PCML	A	Only A-law companding may be used on the CIS DTI2 trunk line.
...		
CIST	(NO) YES	This prompt appears for incoming trunks only (ICOG = ICT in LD 16), where: YES = toll trunk, and NO = local trunk.
...		
CLS	(DIPF DIP	Dial pulse execution, where: DIP = outputting by firmware, digit collection – traditional, by software, and DIPF = outputting and digit collection are performed by firmware.
	(P10) P12	Make-break ratio for dial pulse dialing.

LD 10 – Specify ANI category for CIS DTI2 calls.

Prompt	Response	Description
REQ:	NEW CHG	Add or change.
TYPE:	500	500/2500 telephone data block.
...		
CAC	0-(3)-9	Specify ANI category for CIS DTI2 calls.
CLS	(DNAA) DNAD	DN of set (allowed) not allowed for use in ANI messages.

LD 11 – Specify ANI category for CIS DTI2 calls.

Prompt	Response	Description
REQ:	NEW CHG	Add or change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
...		
CAC	0-(3)-9	Specify ANI category for CIS DTI2 calls.
CLS	(DNAA) DNAD	DN of set (allowed) not allowed for use in ANI messages.

LD 12 – Specify ANI category for CIS DTI2 calls.

Prompt	Response	Description
REQ	NEW CHG	Add or change.
TYPE	2250	Attendant console type.
...		
DNAN	(DNAA) DNAD	For CIS ANI purposes, the ANI DN will be LDN0 (defined in LD 15).

LD 27 – Add or change Digital Subscriber Loop (BRI set) for CIS.

Prompt	Response	Description
REQ	NEW CHG	Add or change.
TYPE	DSL	Digital Subscriber Loop.
...		
CAC	0-(3)-9	Specify ANI category for CIS DTI2 calls.
CLS	(DNAA) DNAD	DN of set (allowed) not allowed for use in ANI messages.

LD 88 – Add or change the Authcode data block.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	AUB	Authcode data block.
...		
CLAS	(0)-115	Classcode value assigned to Authcode (NAUT).
...		
NCOS	(0)-99	Network Class of Service group number.
CAC	0-(3)-9	ANI category for CIS DTI2 calls.

LD 56 – Configure the dial tone.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	DTAD	Special dial tone after dialed number.
DDGT	9	Use “9” as the outgoing local access code.

TONE	SRC1	Dial tone to be provided after the dialed digit 9 (Source Tone 1).
...		
REQ	NEW CHG	New or change.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0-31	FTC table number.
DFLT	0-31	Default FTC table.
...		
SRC	YES	Change Source Tones (SRC1-SCR8).
SRC1		Source Tone 1.
TDSH	0 0 0 3	Tone number 3 on QPC609 provides 400 Hz, -23 db.
XTON	159	NT8D17 TDS tone code: 420 Hz, -25 db, A-law.
XCAD	0	NT8D17 cadence code for FCAD (steady tone).

LD 56 – Configure Tone to Last Party.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0-31	FTC table number.
DFLT	0-31	Default FTC table.
RING	<CR>	
HCCT	YES	Change the TDS card controlled cadence tones.
...		
TLP		Tone to Last Party.

TDSH	0 0 31 3	Cadence 31 in MCAD table will provide repeating 256 ms burst and 256 ms silence. Tone number 3 on QPC609 provides 440 Hz, -23 db.
XTON	159	NT8D17 TDS tone code: 420 Hz, -25 db, A-law.
XCAD	31	NT8D17 cadence code for FCAD.
TLTP	30	Tone to Last Party timer in seconds.
...		
REQ	NEW CHG	New or change.
TYPE	MCAD	Master Cadence table.
WCAD	31	Cadence number.
CDNC	0051 0051	Repeating 256 ms burst and 256 ms silence.
...		
REQ	NEW CHG	New or change.
TYPE	FCAD	Firmware Cadence table.
WCAD	31	Cadence number.
CDNC	0060 0060	Repeating 300 ms burst and 300 ms silence.

LD 18 – Add or change Speed Call lists, System Speed Call lists, Group Call lists, Enhanced Hot Line lists, Pretranslation lists, and Special Service lists. Special Service lists can now handle the Special Service Unanswered Call (SSUC) call type.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	SSL	Special Service List.
SSL	1-15	SSL number.
SSDG	0-999	Special Service Digits combination.

CDPC	(NO) YES	Called Party Control mark.
TOLL	(NO) YES	Toll access code mark.
ALRM	(NO) YES	Alarm digits mark.
TNDM	(NO) YES	Tandem mark. Send MFC “H” tandem signal.
SSUC	(NO) YES	Special Service Unanswered Call mark. If the outgoing call is recognized as SSUC (first 1-4 digits outputted to the trunk are equal to the SSDG with SSUC = YES), then such a call requires some specific disconnect treatment.

Feature operation

No specific operating procedures are required to use this feature.

Digitone Receiver Enhancements

Contents

This section contains information on the following topics:

Feature description	135
Operating parameters	136
Feature interactions	136
Feature packaging	136
Feature implementation	137
Feature operation	137

Feature description

The Digitone Receiver Enhancements feature consists of the Digitone Receiver Time out Enhancement and the Quadruple Density Digitone Receiver Card.

An enhancement to Digitone receiver (DTR) time out prevents the situation in which the far-end of an outgoing call from a Dual-tone Multifrequency (DTMF) telephone or trunk is answered before speechpath can be established.

This problem can occur when trunks without answer supervision are used, and the called party answers quickly. Without answer supervision, the speech path is established upon time out of the end-of-dialing timer. It is possible for the far-end station to answer before this time out.

The timer enhancement will prevent this situation from occurring by holding back outpulsing of the last digit until a half-second before end-of-dialing time out. This leaves only a half-second interval in which the far-end station could answer before speechpath is established.

This DTR timer enhancement applies to DTRs of all densities, and for all trunk calls made from DTMF telephones or trunks, except for:

- MFC or MFE calls
- terminating trunks that have answer supervision
- Electronic Switched Network (ESN) calls

Operating parameters

This feature is not supported on the 1.5 Mbit Digital Trunk Interface (DTI).

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 13 – Create or modify data blocks for Digitone Receivers.

Prompt	Response	Description
...		
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CDEN	4D	Enter 4D if the unit is on a quadruple density circuit pack (not allowed if the network loop is not configured for quadruple density).

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward Dialing Call Forward No Answer Timer

Contents

This section contains information on the following topics:

Feature description	139
Operating parameters	140
Feature interactions	140
Feature packaging	141
Feature implementation	141
Feature operation	141

Feature description

This feature introduces the Direct Inward Dialing Call Forward No Answer (DFNR) timer that, when expired, allows an unanswered Direct Inward Dialing (DID) call to be routed to the attendant after the last stage of Call Forward No Answer (CFNA) or hunt treatment has been completed (the maximum number of CFNA or hunt steps is two). The DFNR timer is customer-defined as a number of ring cycles in LD 15.

The operation of the DFNR option can be overridden or disabled, depending on the definition of the FNAD option in LD 15. If FNAD has been defined as attendant (ATT), the DFNR timer is overridden, since unanswered DID calls are automatically routed to the attendant. If FNAD has been defined as NO, DFNR is disabled. If FNAD has been defined as Hunt (HNT) or Forward DN (FDN), the DFNR timer is applied after the last stage of CFNA or hunt treatment has been completed.

Operating parameters

DFNR does not apply to Automatic Call Distribution (ACD) calls, nor does it apply to non-DID calls.

The DFNR overrides the Forward Number Allowed (FNA) or Forward Number Denied (FND) Class of Service of the called party.

Feature interactions

Attendant Recall

The Direct Inward Dialing Call Forward No Answer Timer does not apply to an answered DID call that is extended to an unanswered station by the attendant – the call is recalled to the attendant using the Attendant Recall feature.

Call Forward No Answer Hunting

Call Forward No Answer and Hunting take precedence over the Message Center feature.

Call Waiting Redirection

The Direct Inward Dialing Call Forward No Answer Timer is applied after the last stage of Call Forward No Answer or SFNA treatment resulting from the Call Waiting Redirection feature for DID Call Waiting calls.

Feature packaging

The Direct Inward Dialing Call Forward No Answer (DFNR) feature requires the Flexible Feature Codes (FFC) package 139.

Feature implementation

LD 15 – Define the Number of Ring Cycles.

Prompt	Response	Description
REQ:	NEW CHG	Add. Change.
TYPE:	RDR	Call Redirection
...		
- DFNR	(0)-15	DID Forward No Answer Ring cycles, prompted if the FNAD prompt is not set to ATT or NO. Defines the number of ringing cycles before a DID call is Slow Answer recalled to the attendant console after the last stage of CFNA or Hunt treatment has been completed (the maximum number of CFNA or hunt steps is two). If DFNR = 0 then DID CFNA is disabled

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward Dialing Recall Features on DTI2 for Italy

Contents

This section contains information on the following topics:

Feature description	143
Operating parameters	144
Feature interactions	145
Feature packaging	145
Feature implementation	145
Feature operation	148

Feature description

Direct Inward Dialing (DID) Recall Features on DTI2 for Italy consists of DID Offering and DID Recall.

DID Offering

When a DID call placed on a DTI2 trunk terminates on a busy set, the system replies by sending an End of Selection Busy (EOSB) signal on the calling channel to inform the Public Exchange/Central Office that no further call modification will be performed. Busy tone is returned while waiting for the release signal from the Central Office (IDLE). The new DID Offering feature enables the external Central Office operator to reroute the call to the attendant by sending the Operator Recall Signal (OPRS) instead of the IDLE signal. Upon receipt of the OPRS signal, the call is presented to the attendant console on the Recall (RLL) Incoming Call Indicator (ICI) key.

DID Recall

When an established DID call placed on a DTI2 trunk is released by called party (internal set), the system sends a Clear Backward (CLRB) signal on the calling channel to inform the Central Office that the call has been disconnected. Upon receipt of this signal, the Central Office should reply with the IDLE signal to confirm the disconnection of the call. At this point, the new DID recall feature allows the external Central Office operator to reroute the call to the attendant console by sending the OPRS signal instead of IDLE. The system will detect the OPRS as a valid signal and the call will be presented to the attendant console on the RLL ICI key.

Operating parameters

Both DID Offering and DID Recall currently only support Type Approval in Italy and are not commercially available.

The QPC536 Digital Trunk Interface and NTAK10 (XDTI) cards are required.

This feature only works on DTI2 trunks.

Feature interactions

Basic Rate Interface (BRI) Special Call Forward Busy

This feature takes precedence over the DID offering; when the conditions for the BRI Special Call Forward Busy are met, the call is diverted to the attendant console without waiting for the OPRS signal. When the BRI Special Call Forward Busy feature fails or is not enabled, busy tone is returned to the Central Office and the DID offering can be activated.

Forward Busy

The DID offering is available only after the End of Selection Busy signal has been sent by the Central Office. This signal is provided to the Central Office trunk only if the busy set is configured with Forward Busy Denied (FBD) Class of Service.

Network Attendant Services (NAS)

Incoming DID calls which are Offered or Recalled to the attendant may receive NAS treatment. This feature requires no modification.

Feature packaging

Direct Inward Dialing (DID) Recall Features on DTI2 for Italy are included in the existing 2 Mbit Digital Trunk Interface (DTI2) package 129, which requires International Supplementary Features (SUPP) package 131.

Feature implementation

DID Offering

Task summary list

The following is a summary of the tasks in this section:

- 1 LDs 10/11 –Set the Class of Service to FBD.
- 2 LD 16 – Set DID Recall for this Rate.

- 3 LD 73 – Configure the SICA table for the DID Offering feature.
- 4 LD 16 – Set DID Recall to Attendant for this rate.
- 5 LD 73 – Configure the SICA table for the DID Recall feature.

LDs 10/11 –Set the Class of Service to FBD.

Prompt	Response	Description
REQ:	NEW CHG	New or change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	FBD	Forward Busy Denied.

LD 16 – Set DID Recall for this Rate.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
...		
RCAL	DRA	Set DID Recall to ATTN for this route.

LD 73 – Configure the SICA table for the DID Offering feature.

Prompt	Response	Description
REQ	CHG	Change.

TYPE	DTI2	2 Mbit DTI.
FEAT	ABCD	Digital signaling category table.
SICA	nn	Signaling Category table number.
INCOMING/OUTGOING CALLS		
IDLE(R)	ABCD	(Receive) IDLE signal bits.
INCOMING CALLS		
P EOSB(S)	ABCD	End of Selection Busy (receive) signal.
- TIME	(100)-150	Duration of the EOSB(S) signal in milliseconds.
...		
P OPRS(R)	ABCD	Operator (receive) recall signal.
- TIME	xxxx yyyy	Time for OPRS(R) in milliseconds, where: xxxx = 8-(48)-2040, and yyyy = xxxx-(128)-2040.

DID Recall

LD 16 – Set DID Recall to Attendant for this rate.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route Data Block.
...		
RCAL	DRA	Set DID Recall to attendant for this route.

LD 73 – Configure the SICA table for the DID Recall feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	2 Mbit DTI.
FEAT	ABCD	Digital signaling category table.
SICA	nn	Sica table number.
...		
INCOMIN G CALLS		
CLRB(S)	ABCD	Clear Backward (send) signal.
...		
P OPRS(R)	ABCD	Operator (receive) recall signal.
- TIME	xxxx yyyy	Time for OPRS(R) in milliseconds, where: xxxx = 8-(48)-2040, and yyyy = xxxx-(128)-2040.

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward Dialing to TIE Connection

Contents

This section contains information on the following topics:

Feature description	149
Operating parameters	150
Feature interactions	150
Feature packaging	150
Feature implementation	150
Feature operation	151

Feature description

This feature allows DID-to-TIE connections, subject to all trunk barring, Trunk Group Access Restrictions (TGAR), Trunk Access Restriction Groups (TARG), and other Class of Service restrictions. When the end-of-dialing timer detects that end-of-dialing is reached for an outgoing TIE trunk the Call Forward No Answer (CFNA) timer is started.

If the CFNA timer expires prior to detecting an answer signal the call is intercepted to the attendant. If a routed call receives a busy signal from an extension, the busy signal is returned to the DID. If the DID does not go on-hook before the CFNA recall timer expires, the call is routed to the attendant.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the DID-to-TIE Connection feature described above.

The DID-to-TIE Connection feature is not available on 1.5 Mbps digital, Japanese DMI, PRI2 or DPNSS trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Allow DID-to-TIE connections.
- 2 LD 16 – Define the Number of digits expected on DID rate.

LD 15 – Allow DID-to-TIE connections.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	NET	ISDN and ESN networking options.
...		
- DITI	(NO) YES	DID-to-TIE connections (are not) are allowed.

LD 16 – Define the Number of digits expected on DID rate.

Prompt	Response	Description
...		
DNSZ	(0)-7	Number of digits expected on DID route. 0 indicates no fixed number.

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward System Access

Contents

This section contains information on the following topics:

Feature description	153
Operating parameters	154
Feature interactions	155
Feature packaging	158
Feature implementation	158
Feature operation	161

Feature description

Direct Inward System Access (DISA) allows selected users to access the system from the public or private network by dialing a special Directory Number (DN) assigned by the customer. The number can be dialed from any Digitone telephone outside the network. Once the Direct Inward System Access (DISA) call has been answered, the user can access any of the following features and capabilities offered through Direct Inward System Access:

- Calls to any station within the customer group
- Trunk calls (such as calls to a Public Exchange/Central Office, a TIE trunk, or paging and dictation trunks)
- Basic/Network Authorization Code (BAUT/NAUT)

- Call Detail Recording (CDR) and Call Detail Recording Charge Account, and
- Basic/Network Alternate Route Selection (BARS/NARS) and Automatic Number Identification (ANI) route selection.

Each special Directory Number (DN) dialed by a DISA user is associated with a particular DISA Directory Number. Any number of DISA DNs can be assigned, provided that they are consistent with the numbering plan of the customer. Access rights are determined by the Class of Service and Trunk Group Access Restrictions (TGAR) associated with the DISA number. Calls to DISA can be placed on dedicated, auto-terminate incoming trunks (Central Office [CO], Foreign Exchange [FX], or Wide Area Telephone Service [WATS]) and TIE or Direct Inward Dialing (DID) trunks, all of which must have proper supervision.

As a safeguard against unauthorized use, an authorization code or special security code of one to eight digits can be assigned for each DISA DN. The security code must be entered before any system resources can be used. Additionally, a secure data password can be provided to enable the customer to create, modify, or remove information concerning DISA.

Operating parameters

The features not available to DISA users are those that require a switchhook flash (such as Call Transfer, Conference, Hold, or Ring Again). Also unavailable are features requiring that predefined data be assigned for the DN (for example, Speed Call), and other features that are not applicable to DISA calls (such as Call Pickup and Call Forward).

Any CO, FX, or WATS trunk route can be designated as an auto-terminate route, allowing incoming calls in the route to terminate on one particular DN rather than going to the attendant. Several trunks can specify the same DISA DN, or each trunk can specify a different DISA DN.

Only trunks that give disconnect supervision can be used to provide access to DISA. Therefore, trunks dedicated to DISA (CO, FX, or WATS) must have a ground start signaling arrangement. Incoming DISA calls on trunks without disconnect supervision will not be allowed. For these calls, overflow tone is given to TIE, DID, and Common Controlled Switching Arrangement (CCSA)

trunk calls, and calls on CO, FX, and WATS trunks are intercepted to the attendant.

Trunks dedicated to DISA can also be used as normal outgoing trunks.

For CS 1000E systems, analog trunks used for DISA must be provisioned on an MG 1000E. Digital trunks used for DISA must be provisioned on an MG 1000T. DISA must also be packaged on the CS 1000E (for analog trunks) and MG 1000T (for digital trunks).

Feature interactions

Access Restrictions

Access restrictions are assigned to the DISA DN as they are to any station within the system. Separate access restrictions are also assigned to authorization codes used by DISA callers.

Attendant Busy Verify Busy Verify

Attendant Busy Verify applies only to DNs within the system. If an attendant tries to use the feature to enter a DISA DN, overflow tone is returned.

Basic/Network Alternate Route Selection (BARS/NARS)

The BARS/NARS features function on a DISA call as if it had been originated from inside the system.

Basic/Network Authorization Code (BAUT/NAUT)

This feature can be used in conjunction with DISA to allow a user access to more resources than are normally available. The Authorization Code must be entered, in addition to the security code (if required), using the applicable Special Prefix (SPRE) code followed by the authorization access code 6, or by an applicable Flexible Feature Code. If authorization codes are required, a valid Authorization Code must be entered after the DISA security code (no SPRE code is needed).

Call Detail Recording

If the customer and trunk route on which the incoming DISA call is being made have the applicable Call Detail Recording (CDR) options in effect, particulars of the call are recorded when it is established. There is no special indication on the CDR record that this was a DISA call. If the incoming trunk route is not specified for CDR options, recording depends on what has been specified by the customer for any outgoing trunks seized by the DISA caller.

Call Forward/Hunt Override Via Flexible Feature Code

DISA is not supported. Any attempt to dial the Call Forward/Hunt Override Via Flexible Feature Code will be ignored and access denied treatment will be returned.

Call Page Network Wide (PAGENET)

Paging trunk routes must have the response PGNU programmed for the NACC prompt in LD 16 (RDB) in order to allow DISA access from (Central Office [CO], Foreign Exchange [FX], Wide Area Telephone Service [WATS]) or Direct Inward Dialing (DID) trunks.

China Number 1 Signaling - Called Party Control

If an external station is allowed access to the trunk on which a Special Service resides using Direct Inward System Access (DISA), the station may also access that Special Service. However, Called Party Control is not supported.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

DISA is not supported in a DPNSS1 UDP network.

Electronic Lock Network Wide/Electronic Lock on Private Lines

The Electronic Lock feature cannot be activated or deactivated when accessing the node through DISA.

Generic XFCOT Software Support

This feature allows selected external users to access the system switch by dialing a special directory number, and to use some features of the system as an internal station.

A Direct Inward System Access (DISA) call is allowed on a disconnect supervised or unsupervised loopstart trunk. If a caller on an unsupervised loopstart trunk disconnects during a DISA operation, it is detected by a dial time out or when the call is answered.

Caller disconnection during a DISA operation is detected by a disconnect-supervised loopstart trunk on an XFCOT card and the operation can then be ended.

ISDN QSIG/EuroISDN Call Completion

Call Completion on Busy Subscriber (CCBS) and Call Completion No Response (CCNR) are not supported on Direct Inward System Access (DISA) calls when the call destination is busy.

Line Lockout Flexible Line Lockout

The defined Flexible Line Lockout treatment is provided to DISA calls.

New Flexible Code Restriction

If the Direct Inward System Access (DISA) DN has a TLD, CUN, or CTD Class of Service, calls made through DISA are eligible for NFCR treatment.

Night Service Enhancements

It is not possible to assign a Night Service Group Number to any trunk that is a member of a route that is set to auto-terminate on a DISA DN.

Pretranslation

Direct Inward System Access calls are automatically assigned XLST 0.

Scheduled Access Restrictions

Direct Inward System Access (DISA) numbers are not assigned to Scheduled Access Restrictions (SAR) groups and therefore are not affected by SAR schedules.

DISA can be used to manually modify the SAR schedule, provided that the correct FFC and Authorization Code are dialed.

Feature packaging

Direct Inward System Access (DISA) is package 22 and has no other feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 24 – Configure the Direct Inward System Access feature for a customer.
- 2 LD 16 – Define an auto-terminate trunk route for Direct Inward System Access.
- 3 LD 14 – Define Direct Inward System Access DNs for trunks in an auto-terminate trunk route.

LD 24 – Configure the Direct Inward System Access feature for a customer.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	DIS	DISA data.
CUST	xx	Customer number, as defined in LD 15

SPWD	xxxx	System secure data password (0001-9999) allows modifications to the DISA data block. 0000 = disable the password (see LD 15).
DN	xxx...x	DN for DISA access.
SCOD	X xx...xx	DISA security code (1-8 digits). X = remove security code.
AUTR	(NO) YES	Authorization Code is not or is required.
TGAR	xx	Trunk Group Access Restriction to be applied to calls made using DISA (0-15). TGAR can be from 0 to 31.
NCOS	xx	Network Class of Service to be applied to DISA calls.
COS	UNR CUN SRE TLD CTD FRE FR1 FR2	Class of Service to be applied to DISA calls. Unrestricted. Conditionally unrestricted. Semi-restricted. Toll restricted. Conditionally toll restricted. Fully restricted. Fully restricted 1. Fully restricted 2

LD 16 – Define an auto-terminate trunk route for Direct Inward System Access.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number

	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	aaa	Trunk type.
AUTO	(NO) YES	Route is not or is arranged to auto-terminate incoming calls on the DISA DN.
ICOG	IAO ICT OGT	Incoming and outgoing trunk.
ACOD	xxxx	Trunk route access code.

LD 14 – Define Direct Inward System Access DNs for trunks in an auto-terminate trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	COT FEX WAT	Trunk type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
XTRK	XUT	Universal trunk card (prompted for Superloops).
CUST	xx	Customer number, as defined in LD 15
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

ATDN	xxx...x	DISA DN on which incoming calls are to auto-terminate.
SIGL	GRD	Ground Start signaling.

Feature operation

To dial into the system from the public network:

- 1** Dial the DISA number. You hear a dial tone.
- 2** Dial the security code, if required.
- 3** Dial the Authorization Code, if required.

Direct Inward System Access on Unsupervised Trunks

Contents

This section contains information on the following topics:

Feature description	163
Operating parameters	163
Feature interactions	164
Feature packaging	164
Feature implementation	164
Feature operation	164

Feature description

With this enhancement, Direct Inward System Access (DISA) is allowed on Public Exchange/Central Office (CO), FEX, and WATS trunks without disconnect supervision. Without the enhancement, DISA calls on these trunks are intercepted to the attendant. The Timed Forced Disconnect Timer is used to prevent the permanent seizure of the Central Office trunk in cases where the far-end goes on-hook first.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Direct Inward System Access (DISA) package 22.

Feature implementation

LD 16 – Configure the Timed Forced Disconnect Timer.

Prompt	Response	Description
...		
MFC	(NO) YES	Respond with YES to enable Multifrequency Compelled Signaling.
- TIMR	TFD (0)-3600	Timed Force Disconnect in 30-second increments.

Note: In addition, make sure the DISA feature is configured as described in the DISA feature description contained within this document.

Feature operation

To dial into the system from the public network:

- 1 Dial the DISA number. You hear a dial tone.
- 2 Dial the security code, if required.
- 3 Dial the Authorization Code, if required.

Direct Private Network Access

Contents

This section contains information on the following topics:

Feature description	165
Operating parameters	166
Feature interactions	167
Feature packaging	168
Feature implementation	169
Feature operation	171

Feature description

The Direct Private Network Access feature provides enhancements to the processing of Direct Inward System Access (DISA) and Authcode Last Request calls. This feature complements system capabilities to provide an arrangement suitable for long distance resellers. Typically, subscribers to these resellers' services dial in through a DISA port and require some automated digit manipulation, recorded announcements and Authcodes for billing purposes. This feature offers the following capabilities:

DISA Digit Insertion

Once a DISA Directory Number (DN) is accessed, the system automatically inserts from 1 to 31 digits to save the caller from having to manually enter these digits. Dial tone is provided if the system expects to receive more digits from the caller in order to complete the call. If no additional digits are required, the call terminates automatically.

DISA Recorded Announcement (RAN)

A caller may be greeted with a Recorded Announcement once a DISA DN is accessed. The caller can begin dialing anytime during the greeting, in which case the greeting is stopped and the call is processed. If the Recorded Announcement finishes, dial tone is provided if more digits are expected from the caller to complete the call. As with the case of DISA Digit Insertion, the call terminates automatically if no additional digits are required.

Authcode Last Retry Request

For an Authcode Last Request call, if a caller enters an authorization code (Authcode) that is invalid, the caller is prompted to enter an Authcode again. The re-prompt for the Authcode takes the form of either an Authcode Last Retry Request dial tone or a RAN before the Authcode Last Retry Request dial tone.

If configured, the RAN indicates to the caller that a wrong Authcode has been entered. While RAN is being given, all dialed digits are ignored.

If a caller realizes they have misdialled, an octothorpe (#) can be pressed which allows the user to immediately re-enter the Authcode. If an invalid Authcode is entered for a second time, the existing invalid Authcode treatment results.

Operating parameters

DISA Digit Insertion, DISA RAN, and Authcode Last Retry can be activated individually or can be combined to work in conjunction with one another.

DISA Digit Insertion and DISA RAN can be optionally assigned on a per DISA basis in LD 24, and are only applicable to DISA calls.

Authcode Last Retry can be optionally assigned on a per customer basis in LD 88, and is applicable to all call types supporting Authcode Last.

All existing DISA limitations apply to the DISA Digit Insertion and DISA RAN functionalities.

All existing RAN limitations apply to the DISA RAN and Authcode Last Retry functionalities.

All existing Authcode Last limitations apply to the Authcode Last Retry functionality.

To support DISA RAN and the Authcode Last Retry RAN function, the system must be equipped with all the necessary RAN hardware.

Feature interactions

Attendant Console Operation

Authcode Last Retry Not Configured

If an invalid Authcode is entered by an attendant, overflow tone is given as soon as a sufficient number of Authcode digits has been entered. If the attendant enters some digits for an Authcode that is less than the number of digits defined in LD 88, silence is heard.

Authcode Last Retry Configured

If the caller is an attendant and the Authcode entered is invalid, once a sufficient number of digits has been entered, the Authcode Last Request dial tone is immediately given to reprompt for the Authcode. If the attendant enters some digits for an Authcode that is less than the number of digits defined in LD 88, silence is heard. Since there is no interdigit time out for an attendant console, no Authcode Last Request dial tone will be given for retry.

Authcode Last Request tone will be heard immediately prompting for Authcode Retry if the attendant enters an octothorpe “#” followed by some digits.

Authorization Code Security Enhancement

Only when an Authcode retry fails will a Security Administration (SECA) message be printed to the configured MTC, FIL console and/or the configured History File.

Autodial

If Autodial is programmed with a valid Authcode for Authcode Last followed by an octothorpe “#”, the existing Authcode Last operation will reject the Authcode as an invalid Authcode. If Authcode Last Retry is defined, the caller will be reprompted for the Authcode.

Call Detail Recording

Digits inserted by DISA Digit Insertion are reflected in the Call Detail Recording (CDR) record.

When a caller is reprompted for an Authcode due to Authcode Last Retry, and a new Authcode is entered, the second Authcode will overwrite the first entry. Therefore, the CDR record only reflects the last Authcode entered.

Pretranslation

Digits automatically inserted by DISA Digit Insertion are pretranslated during call processing in the same manner as if the caller had manually dialed the digits.

Speed Call

If a Speed Call entry is programmed with a valid Authcode for Authcode Last followed by an octothorpe “#”, the existing Authcode Last operation will reject the Authcode as an invalid Authcode. If Authcode Last Retry is defined, the caller will be reprompted for the Authcode.

Feature packaging

This feature is packaged under Direct Private Network Access (DPNA) package 250.

DISA Digit Insertion requires the following additional package:

- Direct Inward System Access (DISA) package 22

DISA RAN requires the following additional packages:

- Direct Inward System Access (DISA) package 22
- Recorded Announcement (RAN) package 7

Authcode Last Retry requires the following additional packages:

- Basic Authorization Code (BAUT) package 25
- Network Authorization Code (NAUT) package 63
- Recorded Announcement (RAN) package 7 when an Authcode Last Retry RAN is required

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 24 – Modify the Direct Inward System Access data block.
- 2 LD 88 – Modify the authorization code data block.

DISA DN Data

Configure RAN routes (LD 16) and RAN trunks (LD 14) as per existing procedures.

LD 24 – Modify the Direct Inward System Access data block.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	DIS	DISA data.
CUST	xx	Customer number, as defined in LD 15
...		

RANR	0-511	RAN route number for "Authcode Last" prompt (NAUT) Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- RTMR	(0)-10-300	The maximum amount of time (in seconds) that a caller can wait for an available RAN trunk before being removed from the RAN queue and proceeding as if DISA RAN has been completed.
	(0)	Removes and deactivates the timer.
DGTS	x...x	Digits for DISA Digit Insertion. Up to 31 digits can be defined.
	(X)	Removes and deactivates DISA Digit Insertion.
- DLTN	(YES)	Dial tone needed after digit insertion.
	NO	Dial tone not needed after digit insertion.

Authcode Data

Configure RAN routes (LD 16) and RAN trunks (LD 14) as per existing procedures.

LD 88 – Modify the authorization code data block.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	AUB	Authcode data.
CUST	xx	Customer number, as defined in LD 15
...		
RANR	0-511 0-127	RAN Route number For Large Systems For Small Systems and CS 1000S systems

RTRY	(NO) YES	Disable Authcode Last Retry. Enable Authcode Last Retry.
- RAN2		Route number for Authcode - last Retry RAN
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
	x	Response for CS 1000M Small System.
CLAS	xx	Class code value assigned to authcode.

Feature operation

Operational Sequence of a DISA Call

Step	User Action	Result
1.	Dials DISA DN.	If DISA Security Access Code is required, special dial tone is given, and the caller continues to Step 2. Otherwise the caller skips to Step 3.
2.	Enters the Security Access Code.	The dial tone is removed as soon as the first digit is dialed. If the security access code entered is valid, the caller continues to Step 3. Otherwise, the existing treatment for invalid Security Access code is given when the interdigit timer expires.
3.	<no user action>	If Authcode is required, normal dial tone is given, and the caller continues to Step 4. Otherwise, the caller skips to Step 5.
4.	Enters an Authcode.	The dial tone is removed as soon as the first digit is dialed. If the Authcode entered is valid, the caller continues to Step 5. Otherwise, the existing invalid Authcode treatment is given when the interdigit timers times out.

5.	<no user action>	If DISA Digit Insertion is not configured, the caller immediately continues to Step 6. Otherwise, the digits defined for DISA Digit Insertion are automatically inserted into the call register before the caller continues to Step 6.
6.	<no user action>	If DISA RAN is configured, a RAN greeting is provided, and the caller continues to Step 7. Otherwise, the caller skips to Step 8.
7.	<p>a) The caller listens to the RAN greeting; or</p> <p>b) begins dialing before the RAN is finished.</p>	<p>a) If DISA Digit Insertion is not defined, or DISA Digit Insertion specifies to give dial tone to prompt the caller to enter more digits, the caller continues to Step 8. Otherwise, the inserted digits are immediately processed for call completion.</p> <p>b) The RAN greeting is stopped as soon as the first digit is dialed. The dialed digits are appended into the call register (that is, if DISA Digit Insertion is defined, the dialed digits are stored after the inserted digits), and the call is processed for call completion.</p>
8.	<no user action>	Dial tone is given and the caller continues to Step 9.
9.	Dials digits to originate the call.	Dial tone is removed as soon as the first digit is dialed. The dialed digits are appended into the call register (that is, if DISA Digit Insertion is defined, the dialed digits are stored after the inserted digits), and the call is processed for call completion.

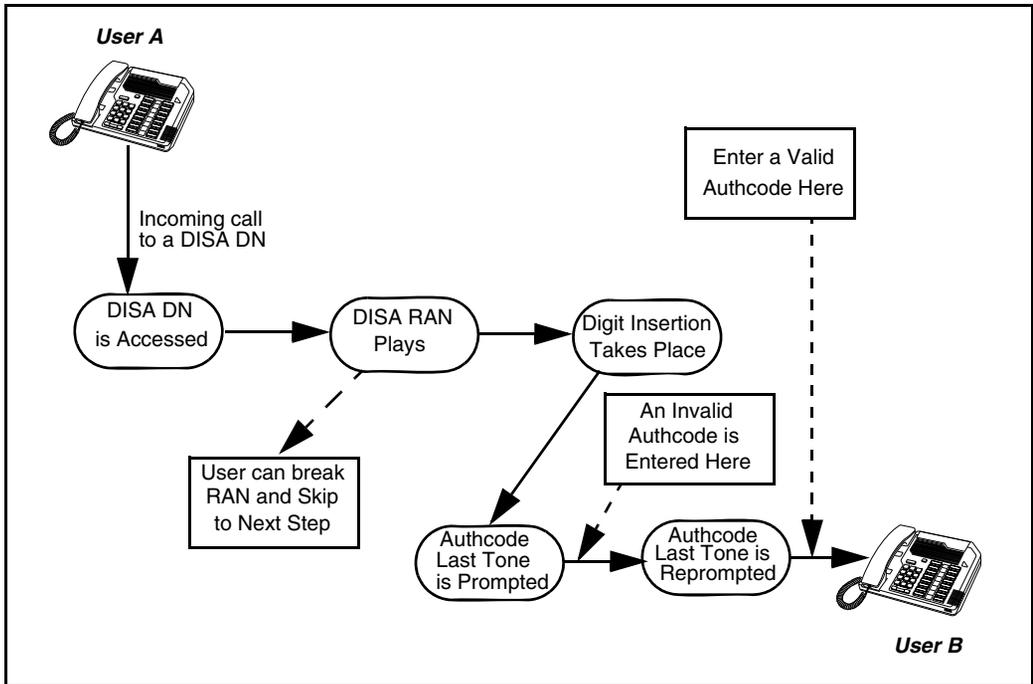
Operational Sequence of Authcode Last

Step	User Action	Result
1.	Makes an outgoing call that requires Authcode Last.	Authcode Last Request dial tone is given. If Authcode Last RAN is defined, RAN precedes the dial tone. The caller continues to Step 2.
2.	Dials one of the following: <ul style="list-style-type: none"> a) A valid Authcode. b) An invalid Authcode followed by “#”. c) An invalid Authcode. 	<p>The Authcode Last Request dial tone is removed as soon as the first digit is dialed. Then depending on the digit input, one of the following occurs:</p> <ul style="list-style-type: none"> a) The call is processed for call termination. b) If Authcode Last Retry is defined, Authcode Last Request dial tone is immediately given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. If Authcode Last Retry is not defined, when the interdigit timer expires the existing invalid Authcode treatment is given. c) If Authcode Last Retry is defined: <ul style="list-style-type: none"> — If the caller is an attendant, Authcode Last Request dial tone is immediately given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. — If the caller is not an attendant, when the interdigit timer expires Authcode Last Request dial tone is again given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. <p>If Authcode Last Retry is not defined, when the interdigit timer times out the existing invalid Authcode treatment is given.</p>
3.	Dials one of the following: <ul style="list-style-type: none"> a) A valid Authcode b) An invalid Authcode followed by “#”. c) An invalid Authcode. 	<p>The Authcode Last Request dial tone is removed as soon as the first digit is dialed. Then depending on the digit input, one of the following occurs:</p> <ul style="list-style-type: none"> a) The call is processed for call termination. b) When the interdigit timer times out, the existing invalid Authcode treatment is given. c) When the interdigit timer times out, the existing invalid Authcode treatment is given.

Example of a DPNA Call Using All Three Functions

In this example, User A calls from home to a DISA DN and subsequently to an ESN number as defined in the DISA Digit Insertion. When prompted for an Authcode, User A initially enters an invalid one, before being reprompted for the authcode (See Figure 1).

Figure 1
DPNA call using all three functions



Directory Number

Refer to the following feature modules in this book for information on Directory Number:

- “Directory Number Delayed Ringing” on page 177
- “Directory Number Expansion” on page 183
- “Flexible Attendant Directory Number” on page 343
- “Listed Directory Numbers” on page 769
- “Multiple Appearance Directory Number” on page 1087
- “Prime Directory Number” in *Features and Services (553-3001-306)*, Book 3
- “Single Appearance Directory Number” in *Features and Services (553-3001-306)*, Book 3

For Network-Wide Listed Directory Number, refer to *ISDN Primary Rate Interface: Features (553-3001-369)*.

Directory Number Delayed Ringing

Contents

This section contains information on the following topics:

Feature description	177
Operating parameters	178
Feature interactions	178
Feature packaging	181
Feature implementation	181
Feature operation	182

Feature description

There are two types of Directory Number keys: ringing and non-ringing. The Directory Number Delayed Ringing (DNDR) feature offers the ability to provide an audible notification (for example, ringing or buzzing) after a specified delay to non-ringing keys for a particular Terminal Number (TN). These keys can be either Single Call Non-Ringing (SCN) or Multiple Call Non-Ringing (MCN).

When an incoming call is presented to an SCN/MCN key, the associated lamp starts flashing. If Directory Number Delayed Ringing is defined for the set, an audible notification is given after a defined number of seconds (from 1 to 120 seconds). The DNDR value is defined in LD 11, and the feature is disabled if zero is selected as the delay value. When the feature is disabled, all Single Call Non-Ringing (SCN) or Multiple Call Non-Ringing (MCN) keys for this particular TN will not receive audible notifications.

Operating parameters

Only Meridian 1 proprietary telephones with DN key type SCN or MCN may use this feature; analog (500/2500 type) telephones are not supported.

When enabling the Directory Number Delayed Ringing feature and zero is entered as delay value, the desired Single Call Ringing or Multiple Call Ringing key must be changed to Single Call Non-Ringing (SCN) or Multiple Call Non-Ringing (MCN).

The DNDR feature is enabled on a TN basis. Thus, all or none of the SCN/MCN keys for the TN will receive the audible notification.

For a single call, two appearances of a Multiple Appearance Directory Number (MADN) may ring simultaneously if their DNDR values differ by two seconds or less.

The DNDR value can be different for multiple TNs with the same DN appearance; therefore, the audible notification may begin at different times for a single call.

When the DNDR is configured for a non-ringing DN, the telephone will begin to ring after the delay specified by the DNDR value. If other appearances of the DN are already ringing, the ringing of the telephone that is starting will be level to the beginning of a cadence in order to synchronize it with the other telephones. The first actual tone may be slightly delayed from the actual DNDR value.

Feature interactions

Any feature that works with non-ringing keys works with the DNDR feature whether or not the key is ringing.

Attendant Administration Automatic Wake-Up

Attendant Administration and the Automatic Wake-Up features are not supported.

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Directory Number Delayed Ringing feature and ring the blocked DN immediately when the SACP key is pressed to ring the blocked DN.

Attendant Recall Automatic Timed Reminder Recalls

If a dialed set has DNDR defined, and an attendant re-extends a call without releasing it, the DNDR timing is not reset. If the value of the recall timer is less than that of the DNDR timer, the call is recalled to the attendant before audible notification begins.

Attendant Recall Enhancement

With this feature, when a call to a set is recalled to the attendant, the ringing is stopped on that set. If the attendant re-extends the call and ringing is applied again, the DNDR delay is also applied.

Buzzing

If a set is defined with DNDR delay and there is an incoming call to another SCN/MCN DN key on the same set, buzzing (or short buzzing) is applied after the DNDR delay timer expires.

Call Forward No Answer Call Forward No Answer, Second Level

The DNDR feature allows the SCN/MCN (non ringing keys) to actually ring after a definable period of time (DNDR prompt in LD 11). If the time before CFNA takes effect is less than the DNDR time for a particular set, CFNA will forward this call before any SCN/MCN keys can ring on this set. Note that CFNA is defined in the number of rings and DNDR is defined in seconds.

If the Forward DN set is busy or invalid when the call is forwarded, the call will return to the originally called set. However, the DNDR delay timer will be reapplied to the called set if DNDR is defined.

If a call is forwarded, as per existing operation, this call will be treated as a new incoming call to the forward DN. For example, if the forward DN has a DNDR value defined, a new timer will begin timing according to the forward DN's DNDR delay.

Call Waiting

Call Waiting tones apply to SCN/MCN keys as per existing operation. The DNDR delay does not apply, and the user is informed of the incoming call immediately.

Data Calls

Private Line Ringing (PVN)

Private Line Non-Ringing

Set-Based Administration Enhancements

These features are not supported by the Directory Number Delayed Ringing feature.

Distinctive/New Distinctive Ringing

The DNDR feature applies to the Distinctive Ringing feature; what applies to normal ringing with DNDR also applies to distinctive ringing.

Flexible Incoming Tones

If DNDR is enabled, the Flexible Incoming Tones buzz is delayed as with any type of audible notification.

Group Call

When a group call is made to an SCN/MCN key with Directory Number Delayed Ringing (DNDR) defined, audible notification will be given after the DNDR delay has expired.

Ringling Change Key

If an SCR/MCR key is toggled from “ringing” to “non-ringing”, the DNDR feature will apply to the key. If an SCR/MCR key is toggled again from “non-ringing” to “ringing”, the key will be rung immediately and DNDR will no longer apply.

If an SCN/MCN key is toggled from “non-ringing” to “ringing”, the DNDR key will ring immediately and DNDR will no longer apply. If an SCN/MCN is toggled again from “ringing” to “non-ringing”, the key will not ring immediately and the DNDR feature will apply to the key.

Short Buzz for Digital Telephones

If a set is defined with DNDR delay and there is an incoming call to another SCN/MCN DN key on the same set, buzzing (or short buzzing) is applied after the DNDR delay timer expires.

Spanish KD3 Forced Disconnect

Spanish KD3 Digital Trunk Signaling Direct Inward Dialing (DID) disconnects an incoming call if the destination does not answer in 60 seconds. If the DNDR delay is set to a value of more than 60 seconds, the KD3 DID will terminate the call and the destination never receives the audible notification.

User Selectable Call Redirection

With User Selectable Call Redirection (USCR) a user can change the number of CFNA/DFNA ringing cycles. If the user changes the CFNA/DFNA value so that CFNA takes place before the DNDR timer runs out, none of the SCN/MCN keys will receive an audible notification. See the interaction with Call Forward No Answer.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 11 – Configure the delay value (in seconds).

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	a...a	Telephone type. Type ? for a list of possible responses.

TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
DNDR	(0)-120	Delay value in seconds. A DNDR value of zero disables the feature. If the DNDR value is an odd number, it is rounded up to the next even number. If REQ = NEW, the delay value is 0 (the default); otherwise the existing value appears.
...		
KEY	xx SCN yyyy xx MCN yyyy	Key number, Single Call Non-Ringing, DN. The key must be SCN or MCN.

Feature operation

No specific operating procedures are required to use this feature.

Directory Number Expansion

Contents

This section contains information on the following topics:

Feature description	183
Operating parameters	184
Feature interactions	185
Feature packaging	188
Feature implementation	188
Feature operation	188

Feature description

This feature increases the number of digits allowed for internal Directory Numbers (DNs), from a maximum of four digits per DN to seven digits per DN. The following internal DN types have been expanded:

- Single-line telephone DNs
- Multi-line telephone DNs
- Trunk Group Access codes
- Attendant DNs (including local attendant in Centralized Attendant Service)
- Listed Directory Numbers (LDNs)
- Coordinated Dialing Plan (CDP) steering codes
- Automatic Call Distribution (ACD) DNs

- ACD position IDs
- Direct Inward System Access (DISA) DNs
- Centralized Attendant Service (CAS) hold DNs
- Release Link Trunk (RLT) DNs in Centralized Attendant Service)
- System Park DNs
- Test line DNs, and
- Data service DNs.

The following DN types are not expanded:

- Special Prefix (SPRE)
- Basic/Network Alternate Route Selection (BARS/NARS) access codes
- Route Selection Automatic Number Identification (RSANI) access code, and
- Automatic Modem Pooling (AMP) all-digital-connection prefix.

Along with Directory Number Expansion (DNXP), Call Detail Recording Expansion (CDRE) package 151 is available to allow Call Detail Recording (CDR) records to accommodate the increased digit field lengths. Call Detail Recording (CDR) package 4 and Directory Number Expansion (DNXP) package 150 are required for CDRE.

Operating parameters

The number of DNs that can be configured is limited by the available protected data store in the system.

DNXP does not enhance existing feature capability other than allowing an internal DN with up to seven digits.

If DNXP is equipped, the system communicates with any attached Auxiliary Processor (AUX), except ACD-D, in a new message format containing expanded DN fields. Therefore, the respective Auxiliary Processor (AUX) software must be upgraded to handle longer DNs in new messages.

If a message is sent to an Auxiliary Processor (AUX) that is not capable of handling expanded DNs, only the last four digits are included in the message.

Incoming Digit Conversion (IDC) translates a maximum of four digits only.

The Automatic Number Identification (ANI) calling number is always seven digits long. It is obtained by combining the Automatic Number Identification Listed Directory Number (ANI LDN) with one of the following:

- DN of the analog (500/2500 type) telephone
- Prime DN of the digital telephone
- Automatic Number Identification (ANI) attendant number, specified on a per customer basis, and
- Automatic Number Identification (ANI) trunk number, specified on a per trunk group basis.

With the DNX package equipped, if an Automatic Number Identification Listed Directory Number (ANI LDN) is not defined, then the full seven digits of an internal DN can be used as the ANI calling number. If an ANI LDN is defined and internal DNs are longer than four digits, only the leading digits of the DNs are retained in the ANI calling number.

CDRE must be equipped to allow the printing of seven-digit DNs in the CDR records. CDRE is not supported by Mini-CDR.

An Automatic Identification of Outward Dialing (AIOD) station identification number remains four digits long. If a DN is longer, only the leading digits are retained as the Automatic Identification of Outward Dialing (AIOD) station identifier.

Service-change and print overlays with DN-related prompts and commands have been modified to accommodate seven-digit DNs if the DNX package is equipped.

Feature interactions

ACD-C Reports

When the DNX package is equipped, each DN-related field is expanded to seven digits.

ACD Load Management

ACD Load Management commands have been modified to allow longer DN-related fields (ACD DN, position ID, route access code).

Automatic Identification of Outward Dialing

The Automatic Identification of Outward Dialing (AIOD) station identifier and trunk identifier remains four digits long. If the total number of digits in the AIOD prefix and internal DN exceeds four, only the leading digits of the station DN are retained as the AIOD identifier.

Automatic Number Identification

If the DN Expansion package is equipped, the Automatic Number Identification billing number (ANAT) can have up to seven digits. The total number of digits for ANAT and Automatic Number Identification listed DN (ANLD) cannot exceed seven.

Auxiliary processors

Any AUX or application processor that shares or exchanges system internal DN-related information with the system must be modified to handle the longer DN format. Otherwise, only the four trailing digits will be included in the message.

The presence of DNXP has an impact on the following types of AUX:

- Auxiliary Processor Link (APL)
- Application Module Link (AML)
- Standard Serial Data Interface (SDI) with application interface to the system, and
- Standard SDI without application interface to the system.

Background Terminal Interface

When the DNXP package is equipped, any background terminal command, response, or display containing a DN is allowed to have a DN of up to seven digits.

Coordinated Dialing Plan

Coordinated Dialing Plan (CDP) steering codes are expanded to a maximum of seven digits. The maximum number of digits for a complete CDP DN has increased from seven to ten (a three-digit steering code followed by a seven-digit internal DN).

With DNX, the maximum number of leading digits to be deleted from a Local Steering Code (LSC) is expanded to seven digits, due to longer CDP numbers.

Digit and Name Display

If longer DNs are defined, the left most digits may be scrolled out on a digit display, depending on the size of the display window.

Direct Inward Dialing

Depending on the number of Direct Inward Dialing (DID) digits outpulsed by the Public Exchange/Central Office (CO), the system can insert a unique string of prefix digits to the incoming Direct Inward Dialing (DID) digits on a per DID trunk group basis to form a final internal DN. The number of digits that can be inserted for a DID (or TIE) trunk group has been expanded from six to eight digits.

Do Not Disturb

If the Directory Number Expansion (DNXP) package is equipped, DNs can have up to seven digits.

Electronic Switched Network

With DNX, a seven-digit Location Code (LOC) call to an Electronic Switched Network (ESN) switch can be terminated to an internal DN of up to seven digits. A Digit Manipulation Index associated with a Home Location Code is used to properly terminate the calls.

Flexible Attendant Directory Number

The attendant DN can have up to seven digits if the Directory Number Expansion (DNXP) package is equipped.

Integrated Services Digital Network

Refer to *ISDN Primary Rate Interface: Features* (553-3001-369).

Night Service

If the Directory Number Expansion (DNPX) package is equipped, the Night DNs can be up to seven digits; otherwise, the DN can be a maximum of four digits.

Single Appearance Directory Number

The DN can have up to seven digits if the Directory Number Expansion package is equipped.

Feature packaging

Directory Number Expansion (DNXP) package 150 has no other feature package dependencies.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Distinctive Ringing by DN

Contents

This section contains information on the following topics:

Feature description	189
Operating parameters	190
Feature interactions	191
Feature packaging	193
Feature implementation	194
Feature operation	196

Feature description

Distinctive Ringing by DN (DRDN) allows a distinctive ringing cadence to be configured for each DN key. The ability to have sets with a distinctive ring is useful for distinguishing calls with different DNs and is only available on Meridian Modular sets.

Distinctive ringing is an enhancement to the existing Executive Distinctive Ringing (EDRG) feature. This existing feature supports a distinctive ringing cadence when a call is made from an executive set. The Distinctive Ringing by DN feature enhances the EDRG feature by introducing two new functionalities.

The EDRG feature is determined by Class of Service as executive and it will ring distinctively. The existing functionality of EDRG is modified to allow the ringing cadence to be defined on a DN key basis rather than a TN basis.

A sub prompt for every DN key configures distinctive ringing index for incoming and outgoing calls. There are two available features for incoming and outgoing calls:

- **Distinctive Ringing by call source, per DN-key:** The distinctive ringing given to the called set is determined by the call source (calling set). This functionality is the same as the EDRG feature, except it is DN-key based rather than set based
- **Distinctive Ringing by call destination, per DN-key:** The distinctive ringing given to the called set is determined by the call destination (called set) and is also based on the DN-key of the called set.

With these enhancements, a DN-key can be configured to give a distinctive ring to the terminating set, and receive a distinctive ring for incoming calls.

Operating parameters

The precedence order for the different distinctive ringing cadences to ring the terminating set in a call is:

- Distinctive Ringing for an Incoming trunk call
- Distinctive Ringing by DN by call source
- Executive Ringing by DN call destination
- Distinctive Ringing by DN by call destination

The Private Line Ringing (PVR)/ Non-Ringing (PVN) keys are not supported by the DRDN features.

No DRDN functionality is supported on the Voice Call (VCC) keys since no DN is assigned to a VCC key.

The QPC609D Fast Tone and Digit Switch card, or a later version of this card, is required to implement the New Distinctive Ringing feature.

A total of five distinctive ringing cadences used by DRDN are supported. Therefore a set with more than five DNs will have at least two DN-keys with the same distinctive ringing cadences.

The functionality of DRDN is limited to the following DN-keys; otherwise, normal ringing is given.

- Single Call Ringing (SCR)
- Single Call Non-ringing (SCN)
- One-way HOTLine (HOT)
- Two-way HOTLine
- Conference Hotline (CH)

The following Meridian sets can support DRDN:

- M2006
- M2008
- M2008HF
- M2616
- M2016
- M2216
- M2317

Feature interactions

Attendant Extended Call

A call from a set with DRDN extended from the attendant to the called set rings distinctively with the DNRO ringing cadence as configured on the originating set. If the attendant set is not configured for DRDN and the called set is equipped with DRDN then the called set rings with the DNRI ringing cadence as configured on the called set. If DRDN is not configured, normal ringing is given.

Call Forward All Calls

The forwarded call rings distinctively the called set if the originating set is configured with DRDN. If DRDN is not configured on the originating set then the called set rings distinctively, otherwise normal ringing is given.

Call Forward No Answer, Second Level

The ringing cadence for all telephones in a chain of call redirections remains the same as for the original DN called. When CFNA is activated for a set, distinctive ringing is given to the called set if the originator set is configured with DRDN, otherwise normal ringing is given.

Call Transfer

The ringing of the redirected call is determined by the set that has originated the call and not by the set transferring the call. The transferred call distinctively rings the called set if the originating set is configured with DRDN. If the originating set is not configured with DRDN then the ringing of the transferred call is determined by the called set.

Conference

The conference call is either scanned for a call marked as distinctive or a set designed as an executive set. The conferee with the highest index determines the ringing for the new call. The index of the conferees across the network checks if the network supports NAS supplementary messaging.

Dial Intercom Call

A Dial Intercom call is distinguished from a normal call since it has a different cadence configured in the FTC table. Dial Intercom takes precedence over the existing EDRG feature.

Distinctive Ringing

Existing Distinctive Ringing by DN (defined by the Class of Service in LD 11) specifies the frequency and the tone rate where the DRDN features supports the cadences.

Distinctive Ringing by an Incoming Trunk Call

All calling sets marked as distinctive rings the called set with a distinctive ring. The distinctive ring is determined by the index configured for the calling set. This takes precedence over DRDN.

Group Call

Distinctive ringing takes priority over the ringing cadence selected by the DRDN feature.

Hunting

Hunting occurs when the called set is busy. If the originating set is configured with DRDN the called set rings distinctively. A called set on a network call will ring distinctively with the cadence determined by the ringing index received across the network.

Enhanced Hotline

Enhanced Hotline DN-keys are required to support the functionality of the DRDN feature. A call made from Hotline DN-keys rings the called set with the index as configured for DNRO of the key. An incoming call to the HOT key rings the set with the index configured for DNRI.

Flexible Tones and Cadences

With the Flexible Tones and Cadences package 125 equipped, the Call Park Recall Ring Cadence (RBCS) specified in LD 56 has precedence over the Distinctive feature and Distinctive Ringing by DN given for Call Park recall.

Multiple Appearance DN

Distinctive Ringing by DN does not support Multiple Appearance DN's. Therefore, each appearance of a DN configured on a different set cannot be configured to allow different ringing cadences.

Night Service

Incoming calls terminating on a night Directory Number (DN) that has been set up with DRDN ring distinctively. If DRDN is not configured on the calling set, the night DN rings distinctively, otherwise normal ringing is given.

Feature packaging

The following packages are required for Distinctive Ringing by DN:

- Distinctive Ringing (DRNG) package 74

- Flexible Tones and Cadences (FTC) package 125
- Executive Distinctive Ringing (EDRG) package 185

Network Distinctive Ringing (NDRG) for feature functionality over the ISDN requires:

- Distinctive Ringing (DRNG) package 74
- Integrated Service Digital Network (ISDN) package 145
- Integrated Service Digital Network International (ISDN_INTL_SUP) package 161

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 56 – Define the ringing cadence for analog (500/2500 type) sets, and the network and distinctive ringing tone for proprietary sets.
- 2 LD 11 – Define the distinctive ringing cadence/tone to be used for Meridian 1 proprietary telephones and define Class of Service.

LD 56 – Define the ringing cadence for analog (500/2500 type) sets, and the network and distinctive ringing tone for proprietary sets.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FTC	Flexible Tones and Cadence table.
TABL	0-31	FTC table number.
RING	YES	Tones and cadences for ringing.
...	...	
NDR1 PBX	0-(2)-15	Network Distinctive Ring 1 cadence for analog (500/2500 type) sets.

NDR1 BCS		Network Distinctive Ring 1 cadence for proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- XCAD	0-(2)-15	NT8D17 TDS Cadence code.
NDR2 PBX	0-(2)-15	Network Distinctive Ring 2 cadence for analog (500/2500 type) sets.
NDR2 BCS		Network Distinctive Ring 2 cadence for proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- XCAD	0-(2)-15	NT8D17 TDS Cadence code.
NDR3 PBX	0-(2)-15	Network Distinctive Ring 3 cadence for analog (500/2500 type) sets.
NDR3 BCS		Network Distinctive Ring 3 cadence for proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- XCAD	0-(2)-15	NT8D17 TDS Cadence code.
NDR4 PBX	0-(2)-15	Network Distinctive Ring 4 cadence for analog (500/2500 type) sets.
NDR4 BCS		Network Distinctive Ring 4 cadence for proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- CAD	7	NT8D17 TDS Cadence code.

LD 11 – Define the distinctive ringing cadence/tone to be used for Meridian 1 proprietary telephones and define Class of Service.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
DES	d...d	Office Data Administration System (ODAS) Station Designator of 1-6 alphanumeric characters.
CUST	xx	Customer number, as defined in LD 15
...		
CLS	DRDA	Distinctive Ringing by DN enabled. (DRDD) is the default.
...	...	
KEY	xx aaa yyyy	<p>Telephone function key assignments for this feature, where:</p> <ul style="list-style-type: none"> • xx = key number. • aaa = key type for this feature. These key types include: HOT D (one way and two way hotline), MCR, MCN, SCR, SCN and CH D. • yyyy = Directory Number. <p>Note 1: The maximum number of distinctive ringing cadences is five. Therefore, a set configured with more than five DNs, say six, can provide distinctive ringing for five of the six DNs.</p> <p>Note 2: Any call originating from other than the above mentioned keys gives the default ring to the terminating sets.</p>
- MARP	NO	Multiple Appearance DN Redirection Prime.
- DNRO	(0)-4	Distinctive Number Ringing index for outgoing calls.
- DNRI	(0)-4	Distinctive Number Ringing index for incoming calls.

Feature operation

No specific operating procedures are required to use this feature.

Distinctive/New Distinctive Ringing

Contents

This section contains information on the following topics:

Feature description	197
Operating parameters	198
Feature interactions	198
Feature packaging	200
Feature implementation	201
Feature operation	203

Feature description

In commercial applications, the ability to have telephones with a distinctive ring is useful for distinguishing various call types. The Distinctive Ringing capability is enabled for specific trunk groups.

The Tone and Digit Switch (TDS) card provides Meridian 1 proprietary telephones with distinctive ringing cadence. This card provides a distinctive ringback tone of 440 Hz + 480 Hz on incoming calls on the designated trunks, timed for 1.64 on and 0.36 off. On single-line telephones, the normal ringing pattern is 2 on and 4 off. Distinctive Ringing for single-line telephones is 1.54 on and 0.38 off.

New Distinctive Ringing

This feature provides a new ringing cadence of 0.512 on and 0.512 off, followed by 1.024 on and 4.096 off, for all telephone types.

Distinctive Ringing for Dial Intercom

This feature allows a user to differentiate between an incoming call and a Dial Intercom call. The Dial Intercom ringing has a different cadence than regular Directory Number (DN) ringing or Distinctive Ringing.

Distinctive Ringing for Dial Intercom is assignable on a per-customer basis. The cadence is 0.5 on and 0.5 off, repeatedly.

Operating parameters

Distinctive Ringing requires 2.5 times as much “on” ringing time as routine ringing. The number of simultaneously ringing lines per ringing generator is reduced according to the proportion of incoming calls that receive Distinctive Ringing. For example, if 50 percent of all calls receive Distinctive Ringing, the number of simultaneous ringing lines is reduced from 20 to 14 per ringing generator.

The QPC609D Fast Tone and Digit Switch card, or a later version of this card, is required to implement the New Distinctive Ringing feature.

Feature interactions

Attendant calls

When an incoming trunk call is extended by an attendant, the terminating extension rings distinctively.

Call Forward Busy

Calls modified by Call Forward Busy are not given Distinctive Ringing as they terminate on the attendant console.

Call Forward No Answer, Second Level

The ringing cadence for all telephones in a chain of call redirections remains the same as for the original DN called.

Call Waiting Redirection

The existing Distinctive Ringing Call Forward No Answer feature is applied to calls from a Distinctive Ringing enabled trunk. If such an incoming call is receiving Call Waiting treatment on sets with Distinctive Ringing, Call Forward No Answer (CFNA), and the Call Waiting Redirection feature enabled, the DFNA timer is applied to the call instead of the CFNA timer. The Call Waiting warning tone, if enabled, is not changed by Distinctive Ringing. If that call is not answered before the expiration of the DFNA timer, CFNA treatment is given using the Call Waiting Redirection feature.

Directory Number Delayed Ringing

The Directory Number Delayed Ringing (DNDR) feature applies to the Distinctive Ringing feature; what applies to normal ringing with DNDR also applies to distinctive ringing.

Flexible Tones and Cadences

With the Flexible Tones and Cadences package equipped, the Call Park Recall Ring Cadence (RBCS) specified in LD 56 has precedence over the Distinctive or New Distinctive Ringing given for Call Park recall.

ISDN Semi Permanent Connections for Australia

For ISDN Semi Permanent Connections for Australia (ISPC) calls, Distinctive/New Distinctive Ringing is provided according to the configuration of the route associated to the phantom trunk TN. This configuration is independent of the route associated to the real TN.

Night Service

Incoming calls terminating on a night Directory Number (DN) ring distinctively.

Telephones

The Meridian digital telephone Distinctive Ringing (defined by the Class of Service in LD 11) specifies the frequency and the warble-tone rate, and does not pertain to the Distinctive Ringing feature as referred to in this feature description.

For example, suppose New Distinctive Ringing is enabled and a call comes in from a Distinctive Ringing enabled trunk. If the call terminates on a Meridian digital telephone with DR2 Class of Service, it rings with DR2 (frequency and warble tone), but with a cadence of 0.512 on and 0.512 off, followed by 1.024 on and 4.096 off.

Telephone features

Calls modified by the following features receive Distinctive or New Distinctive Ringing:

- Call Forward All Calls
- Call Forward No Answer
- Flexible Call Forward No Answer
- Call Park
- Call Transfer
- Conference
- Hunting

User Selectable Call Redirection

The single parameter previously used to define distinctive ringing cycles (DFNA) is expanded to three (DFN0-2), with the Ringing Cycle Options (RCO) parameter used to select the specific DFNA entry for each telephone.

Virtual Network Services

An incoming call using VNS on a Bearer trunk defined with the prompt DRNG = YES will ignore this value and will perform the treatment as if the value of this prompt was DRNG = NO.

Feature packaging

Distinctive/New Distinctive Ringing (DNRG) package 74 has no feature package dependencies.

Distinctive Ringing for Dial Intercom is included in Dial Intercom (DI) package 21.

Distinctive Ringing for digital telephones is included in Digital Telephones (DSET) package 88.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Enable or disable Distinctive Ringing for Dial Intercom calls and specify Call Forward No Answer timing for trunks with Distinctive Ringing.
- 2 LD 17 – Specify Distinctive or New Distinctive Ringing.
- 3 LD 16 – Enable or disable Distinctive Ringing for each incoming or incoming/outgoing trunk route.
- 4 LD 11 – Specify Distinctive/New Distinctive Ringing Class of Service for Meridian 1 proprietary telephones.

LD 15 – Enable or disable Distinctive Ringing for Dial Intercom calls and specify Call Forward No Answer timing for trunks with Distinctive Ringing.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- IRNG	(NO) YES	(Disable) enable Distinctive Ringing for Dial Intercom calls.
DFNA	1-(4)-15	The number of distinctive ringing cycles before Call Forward No Answer is activated for calls with Distinctive Ringing (the default is 4).

LD 17 – Specify Distinctive or New Distinctive Ringing.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. System parameters.
PARM	(NO) YES	Change system parameters.
- NDRG	(NO) YES	(Disable) enable New Distinctive Ringing (DRNG). Prompted only if DRNG is equipped.

LD 16 – Enable or disable Distinctive Ringing for each incoming or incoming/outgoing trunk route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
DRNG	(NO) YES	(Disable) enable Distinctive Ringing for incoming calls.

LD 11 – Specify Distinctive/New Distinctive Ringing Class of Service for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	DRGX	Distinctive ring type (DRG1), DRG2, DRG3, DRG4, where: DRG1 = high fast tone, frequency 667/500 Hz. DRG2 = high slow tone, frequency 667/500 Hz. DRG3 = low fast tone, frequency 250/333 Hz. DRG4 = low slow tone, frequency 250/333 Hz. The DRG3/4 distinctive ringing for M2006 and M2008 telephones are different: DRG3 = low fast tone, frequency 1600/2000 Hz. DRG4 = low slow tone, frequency 1600/2000 Hz.

Feature operation

No specific operating procedures are required to use this feature.

Do Not Disturb

Contents

This section contains information on the following topics:

Feature description	205
Operating parameters	208
Feature interactions	208
Feature packaging	212
Feature implementation	212
Feature operation	217

Feature description

Individual Do Not Disturb (DNDI) allows the attendant to place a particular Directory Number (DN) in Do Not Disturb (DND) mode. A DN in this mode is free to originate calls, but appears busy to incoming calls. An attendant dialing a Directory Number in Do Not Disturb mode receives a visual indication and can override it temporarily by using Busy Verify (BVR) and signal source. To activate Individual Do Not Disturb (DNDI), a separate Individual Do Not Disturb (DNDI) key/lamp pair must be assigned to each applicable attendant console.

Analog (500/2500 type) telephones can be equipped with a Do Not Disturb lamp. Common Control Switching Arrangement (CCSA) and LPA Class of Service must be allowed.

Calls will receive the customer-specified intercept treatment (for example, busy tone, Recorded Announcement (RAN), or attendant). An enhancement to DND provides the ability to route calls to the Hunt DN instead of to the intercept treatment. Table 2 lists possible intercept treatments based on responses to the prompts Do Not Disturb Intercept Treatment (DNDT) and Do Not Disturb Hunt (DNDH) in LD 15.

Table 2
Do Not Disturb intercept treatments (Part 1 of 2)

Call type	Hunt	DNDT = BST		DNDT = RAN		DNDT = ATT	
		DNDH No	DNDH Yes	DNDH No	DNDH Yes	DNDH No	DNDH Yes
DID							
Analog (500/2500 type) telephone	Allow	H	H	R	H	H	H
	Deny	A	A	R	R	A	A
Meridian 1 proprietary telephone	Allow	A	H	R	H	A	H
	Deny	A	A	R	R	A	A
Attendant							
Analog (500/2500 type) telephone	Allow	H	H	B	H	H	H
	Deny	B	B	B	B	B	B
H = Follow Hunt Directory Number (DN) A = Intercept to attendant B = Busy tone R = RAN treatment							

Table 2
Do Not Disturb intercept treatments (Part 2 of 2)

Call type	Hunt	DNDT = BST		DNDT = RAN		DNDT = ATT	
		DNDH No	DNDH Yes	DNDH No	DNDH Yes	DNDH No	DNDH Yes
Meridian 1 proprietary telephone	Allow	B	H	B	H	B	H
	Deny	B	B	B	B	B	B
Internal							
Analog (500/ 2500 type) telephone	Allow	H	H	R	H	H	H
	Deny	B	B	R	R	A	A
Meridian 1 proprietary telephone	Allow	B	H	R	H	A	H
	Deny	B	B	R	R	A	A
H = Follow Hunt Directory Number (DN) A = Intercept to attendant B = Busy tone R = RAN treatment							

Group Do Not Disturb (DNDG) allows an attendant to place predefined groups of DNs in DND mode. A DN can belong to many DND groups.

If a DN belongs to more than one DND group, the DND status of the DN might not be consistent with the DND status of each group. For example, if one of the DN's groups is removed from DND mode, the DN is also removed from DND mode even if another group to which the DN belongs is still in DND mode.

To enable Group Do Not Disturb (DNDG), the DNDI package must be equipped. DNDI allows the user to activate, cancel, and verify the presence of the feature. A separate Group Do Not Disturb (DNDG) key is assigned to each attendant console for activating the DNDG feature.

Operating parameters

A maximum of 100 groups (0-99) can be defined per customer. Each group can contain up to 127 DNs.

A maximum of 20 DNDG keys can be equipped on an M2250 attendant console. Alternatively, the DNDI key plus dial-access can be used to activate DND for up to 100 groups.

To activate DNDG using a DNDG key, a group of telephones must be defined for that key (see LD 26).

For Individual Do Not Disturb (DNDI), a Direct Inward Dial (DID) call to a DN with DND active goes to the attendant if DNDT in LD 15 is set to BST or ATT. If the attendant is in Night Service, DID calls go to the night DN, if one is specified.

For Group Do Not Disturb (DNDG), if a DN is busy or has DND active, a DID caller gets a busy tone. If DNDT in LD 15 is set to CDB or RAN, and a DN is busy or has DND active, the DID caller gets RAN and then goes to the attendant.

Feature interactions

Attendant Alternative Answering

A DN in the DND mode is free to originate calls but appears busy to incoming calls. Call Forward All Calls takes precedence over DND indication on Attendant Alternative Answering (AAA) DNs.

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Do Not Disturb feature. If the dialed DN of the set that has the Do Not Disturb feature active is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Attendant Break-In

For a telephone with Do Not Disturb in effect, Break-In is temporarily denied to the attendant. The Break-In lamp uses slow flash to indicate this situation. Using the Break-In key prior to dialing the destination DN circumvents this situation. After the Break-In, the telephone returns to its prior status.

Attendant Break-In to Inquiry Calls

The operation of Do Not Disturb is overridden on a analog (500/2500 type) telephone that has inadvertently been placed on-hook during a Break-In conference to allow it to be re-rung by the attendant.

If the controlling party goes on hook in a Break-In conference, and is being re-rung by the attendant, the ringing takes precedence over Do Not Disturb that may be applied to the set.

Automatic Wake Up

When a telephone is configured for Do Not Disturb, a wake up call can still be presented.

Call Forward All Calls Hunting

If activated, Call Forward All Calls, Call Forward, Internal Calls and Hunting take precedence over DND busy indication.

Call Forward/Hunt Override Via Flexible Feature Code

Do Not Disturb is not overridden by the Call Forward/Hunt Override Via FFC feature.

Call Park

Calls can be parked on and by DNs in DND mode. When a telephone in DND mode parks a call, the call will not return to the DND telephone. It recalls to the attendant.

Camp-On, Forced

Telephones with Do Not Disturb enabled cannot be camped on to with Forced Camp-On. Overflow tone is returned to telephones attempting Forced Camp-On.

China – Attendant Monitor

If an attendant attempts to monitor a DN which has Do Not Disturb activated and is idle, idle DN treatment is given.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is not allowed if either of these features is active at the requested party.

Directory Number Expansion

If the Directory Number Expansion (DNXP) package is equipped, DNs can have up to seven digits.

Group Hunt

Do Not Disturb (DND) has priority over Group Hunting. Group Hunting will skip over sets with DND active.

Hunting

If activated, Hunting takes precedence over Do Not Disturb busy indication.

Idle Extension Notification

It is not possible to request for Idle Extension Notification towards an extension that has the Do Not Disturb feature activated.

The Idle Extension Notification feature is not supported on DPNSS networks.

It is not possible to request Idle Extension Notification towards an extension that is Second Degree Busy. Idle Extension Notification is only possible on an extension that is First Degree Busy.

It is not possible to set Idle Extension Notification towards a pilot DN.

Intercept Computer Dial from Directory

This feature can be activated for an extension DN as follows:

- Press an idle Loop key, and press the Do Not Disturb Individual (DND IND) key on the attendant console.

- Dial a DN from the ICT.
- Press the DND IND key once more, and terminate the procedure by pressing the Release key on the attendant console.

The same approach applies when cancelling Do Not Disturb for a set.

To override Do Not Disturb for an extension DN:

- Press an idle Loop key on the attendant console.
- Dial a DN from the Intercept Computer (ICT).

Press the DND IND key on the attendant console.

ISDN QSIG/EuroISDN Call Completion

An incoming notification overrides a set with Do Not Disturb (DND) activated. Call Completion requests can be applied to sets with the DND feature activated. However, this request does not advance until the DND feature is deactivated.

Last Number Redial

A Hot Line key cannot be redialed using the Last Number Redial feature.

Make Set Busy and Voice Call Override

Voice calls are not allowed on a set with attendant-activated Do Not Disturb.

Meridian Hospitality Voice Services

Individual Do Not Disturb (DND) allows the attendant to place a Directory Number into DND mode. A DN in this mode is free to originate calls, but appears busy to incoming calls. With MHVS equipped, a new prompt (DNDH) allows callers to be redirected to Meridian Mail for voice mail services. A called telephone must have Hunting Allowed (HTA) class of service, and Hunt to Meridian Mail and DNDH in LD 15 must both be set to YES.

Network Individual Do Not Disturb

An attendant may receive a visual indication of the state of a set belonging to Group Do Not Disturb mode, whether this set is located on the local node or any other network node.

Network Intercom

Hot Type I calls ignore the Do Not Disturb feature. Hot Line calls are presented to the defined target, even when DND is activated.

Night Station

A Night Station DN can be placed in DND mode.

Override

Priority Override

Telephones with DND enabled cannot be overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Private Line Service

DND cannot be used on Private Lines.

Feature packaging

Do Not Disturb, Individual (DNDI) package 9 has no feature package dependencies.

Do Not Disturb, Group (DNDG) package 16 requires DNDI package 9.

Do Not Disturb Hunt requires Meridian Hospitality Voice Services (MHVS) package 179.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Specify the treatment received by calls to a number in Do Not Disturb mode.
- 2 LD 26 – Add or change a Group Do Not Disturb.
- 3 LD 26 – Merge one or more defined Do Not Disturb groups into another DND group, retaining their status as groups.

- 4 LD 26 – Print Do Not Disturb group data.
- 5 LD 12 – Add or change Individual or Group Do Not Disturb keys on an attendant console.
- 6 LD 10 – Enable or disable lamp for analog (500/2500 type) telephones.

LD 15 – Specify the treatment received by calls to a number in Do Not Disturb mode.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- DNDL	(NO) YES	Do Not Disturb lamp for analog (500/2500 type) telephones.
TYPE	INT	Intercept Treatment Option.
- DNDT	(BST) ATT RAN	Busy tone treatment for Do Not Disturb (DND) numbers. Attendant treatment for DND numbers. Recorded announcement for DND numbers.
-- RRT	xxx	Route number for the recorded announcement for calls to a DND number (prompted if DNDT = RAN).
TYPE	RDR	Call Redirection.
- DNDH	(NO) YES	(Disallow) Allow Do Not Disturb Hunt.

LD 26 – Add or change a Group Do Not Disturb.

Prompt	Response	Description
REQ	CHG REM	Change, or remove DN in DND group.
TYPE	DND	Do Not Disturb Group data block.
CUST	xx	Customer number, as defined in LD 15
GPNO	0-99	DND group to be added or changed.
STOR	xxx...x	DN to be added or changed in the DND group; repeat to add other DNs.
RMOV	xxx...x	DN to be removed from a DND group. Prompted if REQ = REM.

LD 26 – Merge one or more defined Do Not Disturb groups into another DND group, retaining their status as groups.

Prompt	Response	Description
REQ	MRG CHG REM OUT	Merge DND groups. Add a DND group from a list of merged DND groups. Remove DND group from a merged group. Remove a DND group that consists of a list of merged DND groups.
TYPE	DND	Do Not Disturb Group data block.
CUST	xx	Customer number, as defined in LD 15
GPNO	0-99	Number of the DND group to be created through merging of other DND groups.
GRP1	G0-G99	Number of the first DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.

GRP2	G0-G99	Number of the second DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
GRP	G0-G99	Number of the DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
STOR	G0-G99	Specify the number of the DND group to be added to a list of merged DND groups. Prompted if REQ = CHG.
RMOV	G0-G99	Specify the number of the DND group to be removed from a list of merged DND groups. Prompted if REQ = REM.

LD 26 – Print Do Not Disturb group data.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	DND	Do Not Disturb Group data block.
CUST	xx	Customer number, as defined in LD 15
GPNO	0-99 <CR>	DND group to be printed. Print all DND group data.

LD 12 – Add or change Individual or Group Do Not Disturb keys on an attendant console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	2250	Attendant console type.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx DDL	Add an Individual Do Not Disturb key, where xx = 0-19 for M2250 consoles.
KEY	xx GND 0-99	Add a DND group key, where xx = 0-19 for M2250 consoles.

LD 10 – Enable or disable lamp for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(LPD) LPA (CCSD) CCSA	(Disable) enable lamp. Controlled Class of Service (denied) allowed.

Feature operation

Individual Do Not Disturb

To activate DNDI using the DNDI key (Attendant Console):

- 1 Select an idle loop key.
- 2 Press **DNDI**.
- 3 Dial the DN of the telephone to place into DND mode.
- 4 Press **DNDI** again. (Ignore status of indicator.)
- 5 Press **Rls**.

To deactivate DNDI, follow the same steps.

Group Do Not Disturb

There are two ways to activate DNDG: with the DNDG key or with the DNDI key.

To activate DNDG using the DNDG key (Attendant Console):

- 1 Press **DNDG**. This key already has a defined group assigned to it. The associated indicator remains steadily lit to indicate that all telephones in that DND group are in DND mode.
- 2 Press **Rls**.

To deactivate DNDG:

- Press **DNDG**.

To activate DNDG using the DNDI key (Attendant Console):

- 1 Select an idle loop key.
- 2 Press **DNDI**.
- 3 Press the **octothorpe (#)** key.
- 4 Dial the group number.
- 5 Press **#** again.
- 6 Press **DNDI** again.
- 7 Press **Rls**.

Dual Signaling on Analog Trunks

Contents

This section contains information on the following topics:

Feature description	219
Operating parameters	221
Feature interactions	221
Feature packaging	221
Feature implementation	221
Feature operation	222

Feature description

A telephone user can select any interexchange carrier for any given call by using a Carrier Access Code (CAC). A CAC comprises an Equal Access identifier and a Carrier Identification Code (CIC). Nortel refers to a call preceded by a CAC as an Equal Access call.

The Dual Signaling on Analog Trunks feature allows Dial Pulse signaling and Digitone signaling to be applied separately to incoming and outgoing calls on one trunk. It reduces the number of Digitone Receiver (DTR) units required on the system since these units are no longer necessary for incoming calls on trunks programmed with the new DPDT Class of Service.

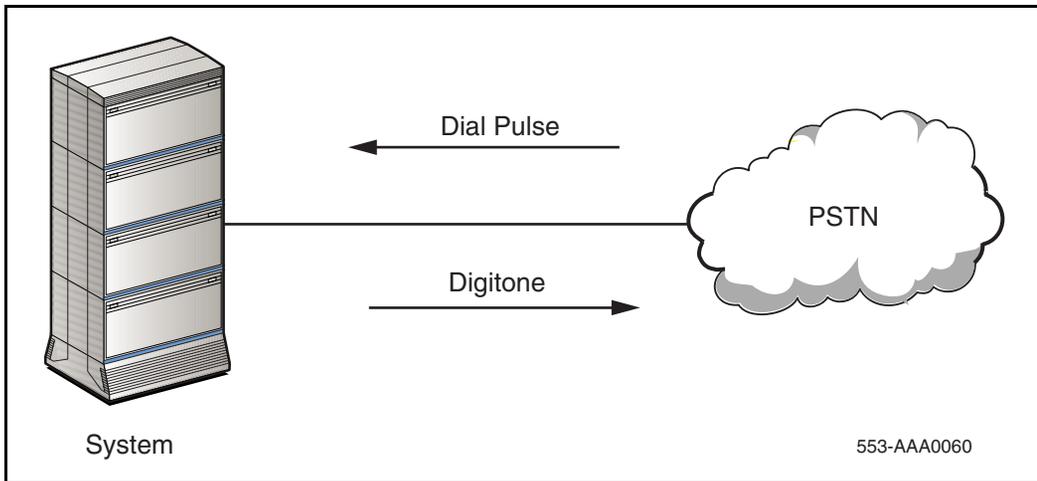
Dual Signaling on Analog Trunks introduces the following trunk Classes of Service in LD 14:

- DPDT = digit information is received as Dial Pulse and sent as Digitone
- DTDP = digit information is received as Digitone and sent as Dial Pulse

Prior to the introduction of Dual Signaling on Analog Trunks, a similar functionality was available when trunks were programmed for DTMF signaling. Dial Pulse calls, if received, were analyzed and handled by the Tone and Digit Switch or Extended Conference and Tone Service card. A DTR was reserved, needlessly, for the duration of the signaling.

The following diagram shows one application of the feature.

Figure 2
System connected to the CO through analog trunks interface



This feature enables a trunk to be configured in one of the following ways:

- incoming Dial Pulse - outgoing Dial Pulse
- incoming DTMF - outgoing DTMF
- incoming Dial Pulse - outgoing DTMF
- incoming DTMF - outgoing Dial Pulse

Operating parameters

The new Classes of Service (DPDT and DTDP) are mutually exclusive with DIP, DTN, MFC, MFE, MFK, MFR and MFX.

If Dual Signaling on Analog Trunks is used on a trunk with DPDT programmed, a DTR is not involved with incoming trunk traffic.

This feature is available on analog DID and TIE trunks only.

CLS DPDT/DTDP can only be configured on routes with the ICOG prompt set to IAO (incoming and outgoing).

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 14 – Configure the trunk with the Dual Signaling on Analog Trunks Class of Service.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaa	Trunk type. xxx = DID, TIE.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

CLS	(DIP) DPDT DTDP	Dial Pulse. Incoming Dial Pulse - outgoing Digitone. Incoming Digitone - outgoing Dial Pulse.
-----	-----------------------	---

Feature operation

No specific operating procedures are required to use this feature.

Electronic Brandlining

Contents

This section contains information on the following topics:

Feature description	223
Operating parameters	230
Feature interactions	232
Feature packaging	234
Feature implementation	234
Feature operation	238

Feature description

The Electronic Brandlining (EBLN) feature enhances the display functionality of Meridian Modular sets. This feature allows the second line on the idle¹ display screen of a Meridian Modular set to show a custom display.

The display screen of a Meridian Modular set contains two lines with 24 character spaces on each line. Previously, the second line on the display screen of an idle Meridian Modular set was blank. With the Electronic Brandlining feature, however, a custom display is shown left justified on the second line of the idle display screen.

¹.Previous to the Electronic Brandlining feature, when a Meridian Modular set is in the idle state, only the time and date is shown on the first line of the display screen and the second line is blank.

Incremental Software Management

A License parameter is introduced with the Electronic Brandlining feature. This License parameter is used to transfer custom display information from the Order Management System to system software. The Electronic Brandlining License value is copied from the appropriate tape/keycode/file into system software during sysload. The system software then sends the custom display to the display screen of a Meridian Modular set.

The Electronic Brandlining License value contains one of the following:

- a Terminal Text Broadcast customized text string value
- a default value

The value of the Electronic Brandlining parameter determines the content of the Electronic Brandlining custom display.

LD 22 is modified to print the Electronic Brandlining License parameters. When REQ = SLT (Print System Limits: Incremental Software Management) in LD 22, the License parameters, system limits, and keywords are printed. The printing of the Electronic Brandlining custom display output is added after the License parameters.

Customers can deliver License parameters through keycodes. A keycode is a machine-generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects License parameters.

To expand License limits, customers must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in LD 143. To make the expansion effective, the customer must sysload. For further information on keycode installation, please refer to *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures* (553-3021-258).

For further information on Incremental Software Management, refer to the “Incremental Software Management” on page 585 in this book.

Custom Displays

The Electronic Brandling feature provides the following two custom displays:

- Terminal Text Broadcast Customized Text
- Default “NORTEL” or blank display

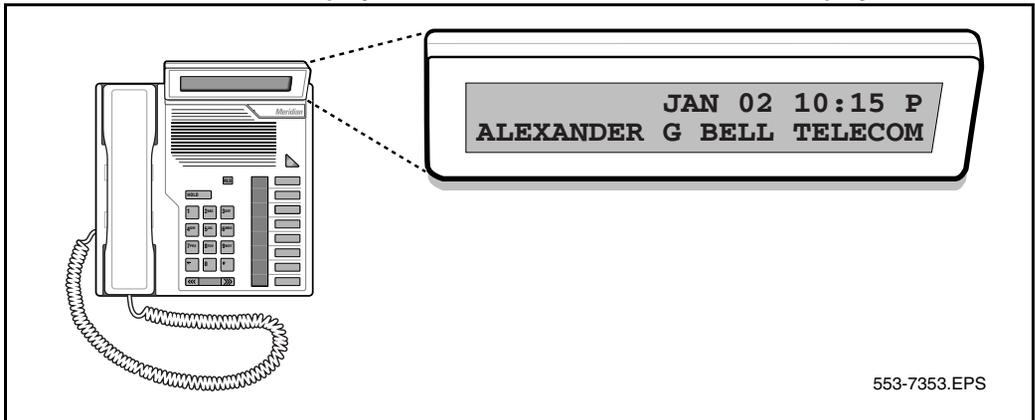
Terminal Text Broadcast Customized Text

When the Electronic Brandling License parameter is equal to the Terminal Text Broadcast value, the customized brandline to be displayed is initially defaulted to NORTEL. This brandline can then be configured to display a different customized brandline.

The customized brandline can have a maximum of 24 characters, each of which must be supported by the North American Meridian Modular set display firmware. Version 18 firmware supports 7-bit ASCII Roman characters and 8-bit non-ASCII Roman characters (See Tables 3 and 4). Alphanumeric and punctuation characters are supported. The customized brandline is configured on a system basis (LD 17).

Figure 3 shows an example of a customized brandline displayed on the idle screen of a Meridian Modular set.

Figure 3
An idle Meridian Modular display screen with a customized brandline displayed



In addition to displaying a customized brandline, the Terminal Text Broadcast functionality can also be used to broadcast a customized text string on the idle display screen of a Meridian Modular set. The text string can have a maximum of 24 supported characters (See Tables 3 and 4). The customized text string is configured on a system basis (LD 17).

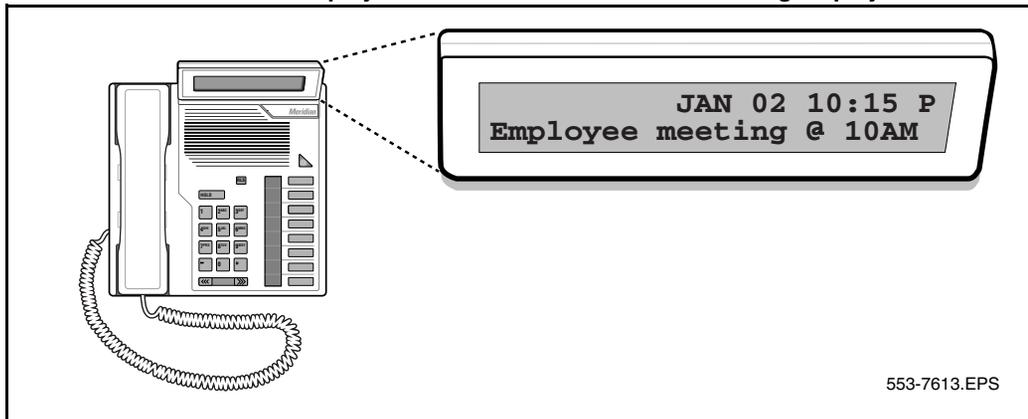
The customized text string can be composed of a single blank space. In this case, the second line of the idle display screen is blank, as per existing functionality.

To enter the customized brandline or text string in LD 17, use one of the following methods:

- Enter a line of supported characters followed by a Carriage Return (<CR>) at the IDLE_DISP_STRING prompt in LD 17.
- Enter a valid character one at a time using either a supported character or its two digit hexadecimal representation at the IDLE_DISP_CHAR prompt in LD 17. The end of input is indicated when only a <CR> is entered or when the 24th character is entered.

Figure 4 shows an example of a customized text string displayed on the idle screen of a Meridian Modular set.

Figure 4
An idle Meridian Modular display screen with a customized text string displayed



553-7613.EPS

Supported characters

Table 3 lists the 7-bit ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandling feature.

Table 3
Valid 7-bit ASCII Roman Characters

20 <space>	21 !	22 "	23 #	24 \$	25 %
26 &	27 '	28 (29)	2A *	2B +
2C ,	2D -	2E .	2F /	30 0	31 1
32 2	33 3	34 4	35 5	36 6	37 7
38 8	39 9	3A :	3B ;	3C <	3D =
3E >	3F ?	40 @	41 A	42 B	43 C
44 D	45 E	46 F	47 G	48 H	49 I
4A J	4B K	4C L	4D M	4E N	4F O
50 P	51 Q	52 R	53 S	54 T	55 U
56 V	57 W	58 X	59 Y	5A Z	5B [
5C \	5D]	5E ^	5F _	60 `	61 a
62 b	63 c	64 d	65 e	66 f	67 g
68 h	69 i	6A j	6B k	6C l	6D m
6E n	6F o	70 p	71 q	72 r	73 s
74 t	75 u	76 v	77 w	78 x	79 y
7A z	7B {	7C	7D }	7E ~	7F ÿ

553-7373.EPS

Table 4 lists the 8-bit non-ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandlining feature.

Table 4
Valid 8-bit non-ASCII Roman Characters

A0 <NASP>	A1 Ľ	A2 ģ	A3 £	A4 Ń	A5 Ÿ
A6 Ś	A7 Ď	A8 ¨	A9 ©	AA Ņ	AB ħ
AC Ž	AD Ÿ	AE ®	AF Ž	B0 °	B1 ±
B2 Ą	B3 Ł	B4 Ŕ	B5 Ľ	B6 Ć	B7 Č
B8 Ě	B9 Š	BA ²	BB Ę	BC Ř	BD Ú
BE Ž	BF ĭ	C0 À	C1 Á	C2 Â	C3 Ã
C4 Ä	C5 Å	C6 Æ	C7 Ç	C8 È	C9 É
CA Ê	CB Ĕ	CC Ì	CD Í	CE Î	CF Ï
D0 Đ	D1 Ñ	D2 Ò	D3 Ó	D4 Ô	D5 Õ
D6 Ö	D7 ×	D8 Ø	D9 Ù	DA Ú	DB Û
DC Ü	DD Ý	DE Þ	DF ß	E0 à	E1 á
E2 â	E3 ã	E4 ä	E5 å	E6 æ	E7 ç
E8 è	E9 é	EA ê	EB ë	EC ì	ED í
EE î	EF ï	F0 ò	F1 ñ	F2 ò	F3 ó
F4 ô	F5 õ	F6 ö	F7 ÷	F8 ø	F9 ù
FA ú	FB û	FC ü	FD ý	FE þ	FF ÿ

553-7369.EPS

Note: Characters that are listed in Tables 3 and 4 are available with North American Version 18 firmware. Individual TTYs may not match the characters and hexadecimal representations in the same way as shown in Tables 3 and 4.

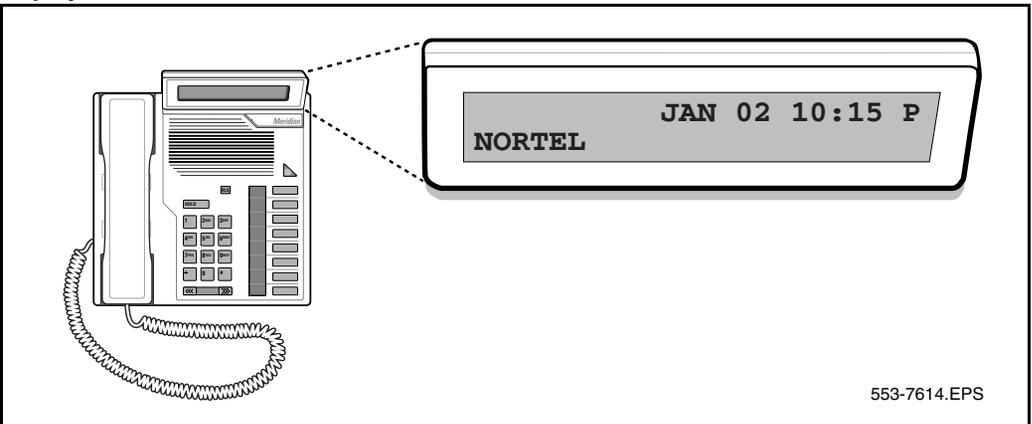
Default Electronic Brandling Display

If the Terminal Text Broadcast custom display is not chosen, then the Electronic Brandling parameter value indexes into a default brandline. The default brandline is “NORTEL”, the Meridian Modular set manufacturer (Nortel). This default brandline is displayed left justified on the second line of the idle display screen of a Meridian Modular set.

The default brandline is enabled/disabled on a system basis (LD 17). When the NORTEL_BRAND prompt is set to NO, the second line of the idle Meridian Modular display screen is blank, as per existing functionality.

Figure 5 shows the default brandline (NORTEL) displayed on an idle Meridian Modular set.

Figure 5
An idle Meridian Modular display screen with the Default Electronic Brandling, “NORTEL” displayed



Operating parameters

The Electronic Brandlining feature applies to Meridian Modular sets that are equipped with a display screen and the appropriate Meridian Modular display firmware. Meridian Modular sets include: M2008, M2016, M2616, M2216ACD1, and M2216ACD2.

The Meridian Modular display firmware, North American Version 18 (Three Language Display) or later, is required for Meridian Modular sets to use the Electronic Brandlining feature. North American Version 18 firmware supports English, French, and Spanish.

The North American Version 18 firmware stores and displays the custom display. If the custom display is sent to a Meridian Modular set without the new firmware, the extra Scan and Signal Distributor (SSD) messages are ignored.

There is an incremental impact of sending SSD messages for a customized brandline. Therefore, it is recommended that no brandlining be done for heavily loaded systems experiencing delays on the High Speed Link (HSL). Instead, the default EBLN brandline can be chosen. Only one SSD message is sent whether the NORTEL_BRAND prompt is set to YES or NO. To minimize the number of SSD messages with the Terminal Text Broadcast custom display, a blank display can be configured. In this case, the customized text string is composed of a single blank space, and only one SSD message is sent for the same real time impact as the default EBLN custom display.

The custom display can have a maximum of 24 characters. Each character must be supported by North American Version 18 firmware.

Version 18 firmware supports 7-bit ASCII Roman characters and 8-bit non-ASCII Roman characters, regardless of whether or not the Multi-language TTY Input/Output (MLIO) package 211 is equipped. Alphanumeric and punctuation characters are supported.

When the MLIO package is restricted, if the “Valid 8-bit non-ASCII Roman Characters” that are supported are used in a custom display, then a 7-bit TTY may not be able to print the characters. If not, then each character is replaced with an underscore character.

If the MLIO package is not restricted and a 7-bit TTY is used, the 8-bit supported characters cannot be printed correctly. Instead, the service change administration interfaces may print garbage characters and/or the interfaces may lock.

When the MLIO package is not restricted, the system sends the valid 8-bit characters to the TTY, rather than the underscore characters. With the MLIO package equipped, it is assumed that the TTY is capable of handling 8-bit characters. If the TTY is capable of entering the “¿” 7-bit character and all other supported 8-bit characters directly, then these characters are accepted by the system, without using the hexadecimal values for the Terminal Text Broadcast customized text. The hexadecimal values can, however, still be used for entries.

The “!” character cannot be entered directly from the TTY keyboard. It can be entered, however, through character-by-character input (IDLE_DISP_CHAR nn prompt in LD 17), using its hexadecimal value.

When the system does not recognize a temporary power outage on a Meridian Modular set, the screen may remain blank until the custom display information, along with the time and date information, is downloaded again.

If the new Electronic Brandlining parameter has an invalid value, the default display is shown. In this case, conversion should have defaulted the NORTEL_BRAND to YES, and as long as this prompt has not been changed, “NORTEL” is displayed.

If the Electronic Brandlining parameter is set to the Terminal Text Broadcast value and the customized text string is configured as “NORTEL” or blank, the NORTEL_BRAND option does not apply. The NORTEL_BRAND option only applies to toggles between “NORTEL” and a blank second line if the Electronic Brandlining parameter is set to the default value.

For new systems, the NORTEL_BRAND prompt is automatically set to YES (default), and the “NORTEL” default brandline is displayed. For the Terminal Text Broadcast option, the NORTEL_BRAND field is automatically set to YES (default); although, the NORTEL_BRAND field is not applicable nor is it output in LDs 17 and 22. The Terminal Text Broadcast customized brandline is initially set to the default “NORTEL” brandline.

No changes are made to the features which currently output information on the second line of the idle display screen of a Meridian Modular set. These features and their output have precedence over the Electronic Brandlining feature. The following idle screens take precedence over the Electronic Brandlining feature: Automatic Answerback, Call Forward, Logged Out, Make Set Busy, Not Ready, and Overflow Busy.

Feature interactions

Automatic Answerback

When Automatic Answerback (AAB) is activated on a Meridian Modular set, the second line of the idle display screen shows “AUTO ANSWER ACTIVATED”.

The Electronic Brandlining custom display is not shown when AAB is activated.

Call Forward All Calls Internal Call Forward

When Call Forward All Calls or Internal Call Forward is activated on a Meridian Modular set, the second line of the display screen shows “CFWD” on the idle screen. The Electronic Brandlining custom display is not shown when Call Forward All Calls or Internal Call Forward is activated.

When Call Forward All Calls or Internal Call Forward is de-activated on a Meridian Modular set, the second line of the display screen shows “CALL FORWARD CANCELLED” on the idle screen for a few seconds. The Electronic Brandlining custom display is not shown while “CALL FORWARD CANCELLED” is displayed. When the “CALL FORWARD CANCELLED” display times out, the Electronic Brandlining custom display is shown.

Digital Set Display Download

With the Electronic Brandlining feature, the existing time and date messages are modified to include the Electronic Brandlining custom display as part of its data (if applicable).

Display key

When the Display (DSP) key is first pressed, the display screen is blank. When any other key is pressed after the DSP key is pressed, all relevant information is displayed.

The Electronic Brandlining custom display is not displayed during the DSP key process until Lamp Audit updates the display screen with the time and date (when applicable).

Do Not Disturb

When a set is in the Do Not Disturb (DND) mode, the second line of the idle display screen is blank. Therefore, the second line displays the Electronic Brandlining custom display when the Electronic Brandlining feature is enabled (if applicable).

Limited Access to Overlays

The existing functionality of the Limited Access to Overlays (LAPW) feature is not changed as a result of the Electronic Brandlining feature.

The Terminal Text Broadcast configuration of a customized text string in LD 17 is password protected by level 2 system administration (PWD2). The added implementation of PWD2 in LD 17 is required to allow configuration of the Terminal Text Broadcast customized text string.

As per existing functionality, when LAPW is disabled on a system, the PWD2 password is restricted to a 4-digit password composed of the hexadecimal digits 0-9 and/or A-F.

As per existing functionality, when LAPW is enabled, PWD2 can be configured as a 16-digit alphanumeric password. LAPW then applies to the PWD2 prompt.

Make Set Busy

When Make Set Busy (MSB) is activated on a Meridian Modular set, the second line of the idle display screen shows “SET BUSY ACTIVATED”.

The Electronic Brandlining custom display is not shown when Make Set Busy is activated.

Set Based Administration

When a service change is made by Set Based Administration (SBA), the downloading of the time, date, and the Electronic Brandlining custom display (if applicable) is induced.

Set Relocation

Automatic Set Relocation (ASR) and Modular Telephone Relocation (MTR) include the “plugging in” of a Meridian Modular set for its feature operation. When a Meridian Modular set is “plugged in”, the power-on-reset induces the downloading of the time, date, and Electronic Brandlining custom display (if applicable).

System Access Enhancements

The existing functionality of the System Access Enhancements (SAE) feature is not changed as a result of the Electronic Brandlining feature.

The SAE feature applies to the added implementation of the PWD2 prompt in LD 17 for the Terminal Text Broadcast configuration of a customized text string.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Configure the NORTEL Electronic Brandline.
- 2 LD 17 – Enter a customized text string.
- 3 LD 11 – Enable the display on a Meridian Modular set.

LD 17 – Configure the NORTEL Electronic Brandline.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	PARM	System Parameters.
...		
NORTEL_BRAND	(YES)	“NORTEL” Electronic Brandline is displayed (default).
	NO	“NORTEL” Electronic Brandline is not displayed.
		NORTEL_BRAND is only prompted when parameter is set to the default value.

LD 17 – Enter a customized text string.

Note: To enter a customized text string, the Electronic Brandling parameter must be set to Terminal Text Broadcast.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	PARM	System Parameters.
...		
IDLE_SET_DISPLAY aaaa		The current customized text string “aaaa” is shown. This information is displayed for confirmation only.
-- MODIFY	(NO)	Gateway to new EBLN Terminal Text Broadcast configurations. Enter NO to keep existing configuration (default).
	YES	Enter YES to prompt for further EBLN Terminal Text Broadcast configuration.

<p>-- PWD2</p>	<p>x...x</p>	<p>Password 2. The second level administration password is needed to allow configuration of the Terminal Text Broadcast customized text string.</p>
<p>-- SUPPORTED_TEXT_ONLY</p>	<p>(YES) NO</p>	<p>Change customized text string by text string input. Enter YES to input by text string, and the IDLE_DISP_STRING prompt is prompted. Enter NO to input character by character, and the IDLE_DISP_CHAR nn prompt is prompted.</p>
<p>--- IDLE_DISP_STRING</p>	<p>bbbb</p>	<p>Enter the customized text string. IDLE_DISP_STRING is prompted only if SUPPPORTED_TEXT_ONLY = YES. A maximum of 24 supported characters are accepted and validated. For a blank display, enter <CR> only.</p>
<p>IDLE_SET_DISPLAY bbbb</p>		<p>The customized text (bbbb) entered at the IDLE_DISP_STRING prompt is shown. This information is displayed for confirmation only. It is confirmed at the following OK prompt.</p>
<p>-- OK</p>	<p>(YES) NO</p>	<p>Confirm the validated Terminal Text Broadcast customized text string (bbbb) entered at the IDLE_DISP_STRING prompt. Enter YES to keep the new text string as "bbbb". Enter NO to input a new Terminal Text Broadcast customized text string, and the Supported_TEXT_ONLY prompt is re-prompted.</p>
<p>...</p>		

LD 11 – Enable the display on a Meridian Modular set.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
CLS	(ADD) DDS	Digit Display options Automatic Digit Display (default). Delay Display. When CLS = DDS, the display is activated after the call is answered.
...		

Feature operation

No specific operating procedures are required to use this feature.

Electronic Switched Network

Contents

This section contains information on the following topics:

Feature description	239
Operating parameters	247
Feature interactions	247
Feature packaging	248
Feature implementation	249
Feature operation	249

Feature description

The Electronic Switched Network (ESN) group of features is designed to support voice and circuit-switched voiceband data telecommunications needs for multiple-location customer applications.

Basic Authorization Code

The Basic Authorization Code (BAUT) feature provides up to 5000 authorization codes of 1 to 14 digits that allow selected users to temporarily override system access restrictions by dialing a Special Service Prefix (SPRE) code, the digit 6, and the Basic Authorization Code (BAUT). The Basic Authorization Code (BAUT) is used for general applications and is described in *Basic Network Features* (553-3001-379).

Basic Alternate Route Selection

Basic Alternate Route Selection (BARS) enables calls placed to another location to be routed automatically over the least expensive route. After the Basic Alternate Route Selection (BARS) access code and the desired number have been dialed, Basic Alternate Route Selection (BARS) automatically tries alternate routes to the destination and completes the call over the least expensive route available at the time of dialing. BARS is described in detail in the *Basic Network Features* (553-3001-379).

Call Back Queuing

Call Back Queuing (CBQ) is an optional feature available to systems equipped with the Basic/Network Alternate Route Selection (BARS/NARS) or Coordinated Dialing Plan (CDP) features. If all facilities are busy when an individual places a BARS, NARS, or CDP call, Call Back Queuing (CBQ) enables the individual to invoke the Ring Again (RGA) feature and receive a callback from the system when a facility becomes available. Call Back Queuing (CBQ) is described in detail in Network Queuing description or *Basic Network Features* (553-3001-379).

Call Back Queuing to Conventional Mains

Call Back Queuing to Conventional Mains (CBQCM) enables call originators at a Conventional Main (any type of switch, including switches that are part of an Electronic TIE Network [ETN]) to access the CBQ feature at the serving ESN Node. When offered CBQ by the Node, users at the Conventional Main dial their extension number to accept the CBQ offer. When facilities become available at the Node, it initiates a CBQ callback to the call originator at the Conventional Main. Refer to *Basic Network Features* (553-3001-379) for a detailed description of Call Back Queuing to Conventional Mains (CBQCM).

Coordinated Call Back Queuing

Coordinated Call Back Queuing (CCBQ) enables telephones eligible for Ring Again (RGA) at the Main to be offered CBQ when network calls are blocked at the serving Node. When facilities become available at the Node, the call originator at the Main is alerted by a callback (identical to an RGA callback) from the Node. Coordinated Call Back Queuing (CCBQ) requires that the Main and associated Node be equipped with Network Signaling. Refer to *Basic Network Features (553-3001-379)* for a detailed description of Coordinated Call Back Queuing (CCBQ).

Coordinated Call Back Queuing Against Main

Coordinated Call Back Queuing Against Main (CCBQAM) is an enhancement to the CCBQ feature that allows a station at the Node to be offered CBQ if a call is blocked at the Main. When facilities become available at the Main, the call originator at the Node is alerted by a callback from the Main. The Network Signaling feature must be equipped at both the Main and the Node for Coordinated Call Back Queuing Against Main (CCBQAM) implementation.

Coordinated Dialing Plan

Coordinated Dialing Plan (CDP) enables a customer with a number of switches to coordinate the dialing plan of stations at these switches. The Coordinated Dialing Plan (CDP) feature allows the telephone user to call any other telephone within a CDP group by dialing a three- to seven-digit number assigned to the station. CDP can be arranged to provide a centralized public exchange network capability that channels access to the public network through a single system switch within the CDP group.

CDP routes Direct Inward Dialed (DID) calls over Central Office (CO) and Wide Area Telephone Service (WATS) trunks using a Distant Steering Code (DSC). The feature is controlled by the Customer Data Block (LD 15). This applies to CO, WATS, Data Terminal Interface (DTI), and Integrated Services Digital Network (ISDN) trunks.

CDP is described in detail in the *Dialing Plans: Description (553-3001-183)*.

Flexible ESN “0” Routing

Flexible ESN “0” Routing allows the routing of calls on different routes based on a few predefined non-leftwise unique dialing sequences. “Leftwise unique” means that each entry cannot match the left most portion of any other entry in the table. For example, if “123” is an entry in the table, then no other entry may begin with “123.”

The ESN translation table will allow any or all of the following non-leftwise unique numbers (along with their associated route lists) to be entered into the ESN translation table:

- 0
- 00
- 01
- 011

Flexible ESN “0” Routing is part of the existing BARS (57) and Network Alternate Route Selection (NARS) (58) packages and has no interaction with other features besides these. Since NARS has two translation tables, two Flexible ESN “0” Routing data blocks will be included in NARS. This means that a call could be configured to route in two different ways.

This feature is applicable to all route types and network types supported by ESN. For information on the appropriate prompts and responses in Service Change (LD 90), refer to the *Software Input/Output: Administration* (553-3001-311).

Network Alternate Route Selection

Network Alternate Route Selection (NARS) is an integral part of Nortel’s ESN. Network Alternate Route Selection (NARS) is designed for large business customers with numerous distributed operating locations, enabling the customer to tie together the switches at the various operating locations to create a private telecommunications network. NARS is described in detail in the *Basic Network Features* (553-3001-379).

BARS/NARS Incoming Trunk Group Exclusion

Incoming Trunk Group Exclusion (ITGE) is an enhancement to the BARS/NARS feature. Standard call blocking is applied on outgoing calls to a specific Numbering Plan Area (NPA), NXX, Special Number (SPN), or Location Code (LOC) at the ESN node if the call is from a specific incoming trunk group.

This prevents loopback routing through the caller's home switch (home NPA, NXX). Calls that should have been made off-net from the caller's home switch are blocked outgoing at the Node. Main users are prevented from using the ESN to make calls to certain NPA, NXX, SPN, or Location Codes (LOC) that they are restricted from making at the home switch.

Incoming Trunk Group Exclusion (ITGE) provides full ten-digit restriction for NPA and SPN codes, seven-digit restriction for NXX codes, and three-digit restriction for Location Code (LOC) codes.

Detailed information on this enhancement is provided in *Basic Network Features* (553-3001-379).

NARS Multiple DID Office Code Screening

Multiple DID Office Code Screening is an enhancement to the On-Net to Off-Net Overflow capability of the NARS feature. This enhancement permits network calls that undergo on-net to off-net conversion to terminate at any Directory Number (DN) that has been defined in the LOC data block of memory. This data block allows the definition of multiple office codes (NXX) and/or multiple Directory Number (DN) ranges of the following types:

- single office code/single Directory Number (DN) range
- single office code/multiple DN ranges
- multiple office codes/single DN range
- multiple office codes/multiple DN ranges

NARS Multiple DID Office Code Screening operates within the following parameters:

- Only one Numbering Plan Area (NPA) per LOC is allowed.

- Ranges defined within a LOC must be unique. Overlapping or duplication of ranges is not permitted.
- The number of digits must be the same in each Direct Inward Dialing (DID) range.
- A maximum of 20 Direct Inward Dialing (DID) ranges may be defined per location code.

BARS/NARS Off-Net Number Recognition

Off-Net Number Recognition is an enhancement to the Basic/Network Alternate Route Selection (BARS/NARS) feature for ESN, and for the BARS feature for standalone applications.

Off-Net numbers that terminate at an ESN Node or Main, or at a Conventional Main, can be routed through the private network by means of TIE trunks. BARS/NARS Off-Net Number Recognition prevents unnecessary TO and FROM terminations through CO trunks, at the terminating end, when a caller dials a DID or Direct Distance Dialing (DDD) call to a location in the private network. Calls are handled on the basis of customer-defined parameters stored in Network Translation Tables and Supplementary Digit Recognition/Restriction Blocks.

Detailed information is provided in *Basic Network Features* (553-3001-379).

BARS/NARS 11-Digit Translation

This feature expands the ESN BARS/NARS translation capabilities from a maximum of four digits to a maximum of 11 digits for route selection.

Possible conflicts between translatable codes (NPA, NXX, LOC, SPN) are eliminated by 11-Digit Translation. By allowing translation of more than four leading digits, unique nonconflicting routing to a destination is possible. More than one route list can exist for each specific code of a type. For example, the NXX 727 could only translate into one route list previously.

With 11-Digit Translation, up to 128 route lists for BARS and up to 256 for NARS may be defined, extending translation deeper into the dialed code. The codes must be leftwise unique. If an NXX of 7271 is defined, any other 727 entries must be extended to four digits.

BARS/NARS 11-Digit Translation is discussed in greater detail in *Basic Network Features* (553-3001-379).

Network Authorization Code

The Network Authorization Code (NAUT) feature provides up to 50,000 authorization codes. Network Authorization Code (NAUT) incorporates all the features of the BAUT feature, adds a conditionally last option for entering an Authorization Code after dialing an ESN call, and enables the attendant to enter an Authorization Code. Network Authorization Code (NAUT) is described in detail in *Basic Network Features* (553-3001-379).

Network Call Transfer

Network Call Transfer (NXFER) enhances the operation of Call Transfer (XFER) between two switches when a call is transferred back to the originating switch. The regular Call Transfer feature requires two TIE trunks to complete the call. With Network Call Transfer (NXFER), if the call is transferred back to the originating switch as the same TIE trunk group, the originating switch completes the transfer within itself and the TIE trunks are dropped. For a detailed description of Network Call Transfer (NXFER) refer to *Basic Network Features* (553-3001-379). The benefits derived from the NXFER feature include:

- minimal use of access TIE lines
- improved transmission performance, since TIE lines are not used for the completed connection
- operation identical to that of Call Transfer (XFER)

NXFER operates within the following parameters:

- Meridian 1 proprietary telephones must be equipped with a Call Transfer key.
- Network Signaling (NSIG) must be provided on both switches.

Network Signaling

Network Signaling (NSIG) provides a proprietary signaling protocol for transmission of network call information between switches that operate in a private network environment with Basic/Network Alternate Route Selection (BARS/NARS) or CDP. Network Signaling (NSIG) can be equipped at the Node and Main switches. For a detailed description of Network Signaling, refer to *Basic Network Features (553-3001-379)*.

NSIG supports transmission or reception of information between the following switch types:

- System Node to System Node
- System Node to System Main
- System Node to an Electronic TIE Network (ETN) switch
- System Main to System Node
- ETN switch to System Node

Information transmitted and received from one switch to another can include the following:

- call type
- called number
- Network Class of Service (NCOS)
- Traveling Class of Service (TCOS)
- Traveling Class Mark (TCM)
- queue identification number (for CCBQ)

NSIG operates within the following parameters:

- A Main can connect to only one Node, and both switches must be equipped with the NSIG feature.
- TIE trunks between Nodes and Mains must be arranged for Dual-tone Multifrequency (DTMF) sending/receiving and wink-start operation.
- System Node compatibility with Electronic TIE Network (ETN) switches is limited to seven-digit on-network and ten-digit off-network calls.

Network Traffic

The Network Traffic (NTRF) feature enables traffic data related to BARS, NARS, and CDP to be retrieved and output at a traffic TTY. The network traffic measurements (in addition to the switch traffic measurements) are described in detail in *Traffic Measurement: Formats and Output* (553-3001-450).

Network Speed Call

Network Speed Call (NSC) enables a user who is normally restricted from making network calls to make such a call through BARS/NARS, provided that the destination is a number defined in a System Speed Call (SSC) list. When such a call is placed, the CLS and TGAR restrictions are lifted and a Network Class of Service (NCOS), associated with the SSC list, is assigned for the duration of the call. NSC is described in detail in *Basic Network Features* (553-3001-379).

Off Hook Queuing

Off Hook Queuing (OHQ) is an optional feature available at any switch equipped with BARS, NARS, or CDP. If all facilities are busy when an individual places a BARS, NARS, or CDP call, the OHQ feature enables the individual to wait off hook for a programmed length of time until a facility becomes available. OHQ is described in *Basic Network Features* (553-3001-379).

Operating parameters

Refer to the appropriate Nortel technical publication for each ESN feature.

Feature interactions

Refer to *Electronic Switched Network: Signaling and Transmission Guidelines* (553-3001-180) for ESN feature interactions.

Feature packaging

Basic Authorization Code (BAUT) package 25 requires:

- Charge Account/Authorization Code (CAB) package 24.

Basic Alternate Route Selection (BARS) package 57 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32

Coordinated Dialing Plan (CDP) package 59 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32
- Flexible Call Back Queuing (FCBQ) package 61

Network Alternate Route Selection (NARS) package 58 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32

Network Authorization Code (NAUT) package 63 requires:

- Charge Account/Authorization Code (CAB) package 24
- Basic Authorization Code (BAUT) package 25

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58 or
- Coordinated Dialing Plan (CDP) package 59

Network Call Transfer (NXFR) package 67 requires:

- Network Class of Service (NCOS) package 32
- Network Signaling (NSIG) package 37

Network Signaling (NSIG) package 37 requires:

- Network Class of Service (NCOS) package 32

Network Traffic (NTRF) package 29 requires at least one of the following:

- Basic Alternate Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58
- Coordinated Dialing Plan (CDP) package 59
- Priority Queuing (PQUE) package 60
- Flexible Call Back Queuing (FCBQ) package 61, or
- Off Hook Queuing (OHQ) package 62

Network Speed Call (NSC) package 39 requires:

- System Speed Call package (SSC) package 34

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57, or
- Network Alternate Route Selection (NARS) package 58

Off Hook Queuing (OHQ) package 62 requires

- Basic Queuing (BQUE) package 28

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57, or
- Network Alternate Route Selection (NARS) package 58

Feature implementation

Refer to *Electronic Switched Network: Signaling and Transmission Guidelines* (553-3001-180) for ESN implementation.

Feature operation

Refer to *Electronic Switched Network: Signaling and Transmission Guidelines* (553-3001-180) for ESN operation.

Emergency Services Access

Emergency Services Access (ESA) is a feature that places a customer in compliance with new federal legislation that requires the Private 911 type of functionality provided by ESA. Please note, however, that the ESA feature is also generally useful for users who are not subject to legislation, and is broad enough to be used in different countries. For example, it will be appreciated by any customer who wants to route emergency calls in a special manner, or who wants to be notified when a telephone user makes an emergency call. It would also appeal to a customer who wishes to have ESA calls answered on-site, on the business premises, rather than being forwarded to the Public Services Answering Point (PSAP).

Please refer to *Emergency Services Access: Description and Administration* (553-3001-313) for complete information.

End of Selection

Contents

This section contains information on the following topics:

Feature description	253
Operating parameters	254
Feature interactions	254
Feature packaging	254
Feature implementation	254
Feature operation	254

Feature description

This feature allows an End of Selection (EOS) signal to be sent back on a Direct Inward Dialing (DID) trunk to inform the Public Exchange/Central Office that the dialing phase of the call has been completed. The signal will be sent back when one of the following occurs:

- the DID call terminates on an idle station or attendant, an Automatic Call Distribution (ACD) queue, or a busy station
- the call has been intercepted (the DN is busy, not in service, or prohibited), and
- the interdigit timer has expired or an incomplete DN has been dialed.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the End of Selection feature described above.

The End of Selection feature is available with either the QPC357 or NTD9447 pack for analog trunks, or the QPC536 pack for 2 Mbit digital trunks. It is not available on 1.5 Mbit digital trunks or Japanese DMI trunks.

If the DN size is specified, the End of Selection feature allows a trunk to be locked out if the correct number of digits are not received, or if termination has not been completed when the correct number of digits have been received.

The End of Selection signal is not supported by R2 Multifrequency.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

LD 16 – Create or modify data for trunk routes:

Prompt	Response	Description
...		
EOS	(NO) YES	End of Selection (EOS) signal is enabled; no EOS signal. EOS and BSY signals are enabled.

Feature operation

No specific operating procedures are required to use this feature.

End of Selection Busy

Contents

This section contains information on the following topics:

Feature description	255
Operating parameters	255
Feature interactions	256
Feature packaging	256
Feature implementation	256
Feature operation	256

Feature description

This feature can be used where there is a requirement for the system to send a busy signal to the Public Exchange/Central Office when the call terminates in a busy connection. The signal will be sent 500 to 900 milliseconds after the end of selection signal is sent and informs the Central Office to release the connection and return busy tone to the originating source.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the End of Selection Busy feature described above.

The End of Selection Busy feature is only available on the NTD9447 or the QPC536 pack, and is not supported by R2 Multifrequency Compelled Signaling.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

LD 16 – Create or modify data for trunk routes.

Prompt	Response	Description
...		
EOS	BSY	End of Selection (EOS) and BSY signals are enabled.

Feature operation

No specific operating procedures are required to use this feature.

End-of-Dialing on Direct Inward/Outward Dialing

Contents

This section contains information on the following topics:

Feature description	257
Operating parameters	257
Feature interactions	258
Feature packaging	258
Feature implementation	258
Feature operation	258

Feature description

This feature monitors an outgoing Direct Inward Dialing (DID) or Direct Outward Dialing (DOD) call to determine whether additional digits are dialed after the route access code seizes the trunk. If no digits are dialed in 15 seconds, the trunk is disconnected.

Operating parameters

The Public Exchange/Central Office must be equipped to handle the special signaling requirements associated with the End-of-dialing on DID/DOD feature described above.

The End-of-Dialing on DID/DOD feature is not available on 1.5 Mbit digital trunks or Japanese Digital Multiplex Interface (DMI) trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

No change to existing configuration is required for the End-of-dialing on Direct Inward/Outward Dialing feature.

Feature operation

No specific operating procedures are required to use this feature.

End-to-End Signaling

Contents

This section contains information on the following topics:

Feature description	259
Operating parameters	260
Feature interactions	261
Feature packaging	264
Feature implementation	264
Feature operation	266

Feature description

The End-to-End Signaling (EES) feature enables a station to send Digitone end-to-end signaling through an established outgoing connection. EES provides fast reliable service and an optional feedback tone to the originator, as specified in LD 56. In addition, EES eliminates the use of a conference loop for sending EES tones to the connected parties.

To use EES, the following prompt or prompts need to be set in LD 15: EEST = NO (no feedback tone, default value) or EEST = YES, DTMF = NO (single optional feedback tone, as specified in LD 56).

An outgoing connection from a digital telephone is considered established after the end of dialing time is elapsed. Alternatively, an outgoing call can be established after the end of dialing time is elapsed, or can be established immediately by pressing an octothorpe (#) after the last digit is dialed.

Attendant End-to-End Signaling

The attendant can send DTMF tones to either the source or destination party using the AEES key on the attendant console. If there are two receiving parties on the current active loop key, the attendant can press the EXCL SRC or EXCL DEST key to exclude one of the connected parties before pressing the AEES key (defined in LD 12). Only one party on the active loop key (source or destination) can receive the DTMF signal. After pressing the AEES key, the attendant can press digits to send DTMF tones out to the source or destination party. To terminate the EES operation, the attendant should press the AEES key again. The states for the EXCL SRC, EXCL DEST, SRC loop, and DEST loop keys remain the same as before the EES key is pressed.

Operating parameters

The EES capability extends to internal analog (500/2500 type) telephone calls and incoming trunk calls.

A call must be established before using the EES feature. An outgoing call is considered established 14 seconds (DP trunk) or four seconds (2500-type telephone or Digitone trunk) after the last digit has been outputted. The length of this delay can be changed through service change. EES can be performed after end of dial time out, or when an answer supervision has been received from the far end, by pressing the octothorpe key (#) after the last digit.

EES is allowed only on CO, FEX, WATS, TIE, CCSA, DID, and CAMA trunk types.

EES is not available on analog (500/2500 type) telephones.

EES eliminates the use of the conference loop.

The AEES key, like other flexible programmable keys, cannot be configured on key 0 or key 1 of the attendant console.

There is a 5.4 dB difference between when EEST is set to YES (provide end-to-end signaling feedback tone) and when it is set to NO (provide no tone). An attenuation of 5.4 dB using the conference pads is applied to the EES tone if user feedback is to be given.

Feature interactions

End-to-End Signaling feature interactions

Agent/All Observe

In the Agent/All Observe mode, a supervisor, agent, and customer are all in a conference call. This feature uses Conference EES.

Attendant End-to-End Signaling

An attendant console in Attendant End-to-End Signaling mode can communicate with the source or destination party through in-band DTMF tones on an established speech path. The attendant console is treated like any other telephone.

Autodial Tandem Transfer

EES is used to send the Automatic Dialing (ADL) digits to the Public Exchange/Central Office (CO). With Autodial Tandem Transfer (ATX), the 911 agent can use the ADL key or manually dial the digits, or use a combination of both methods, to dial the third party's number. The ADL key can be pre-programmed with a prefix and the remaining digits can be dialed manually to distinguish between different numbers.

To get uniform feedback tone when using the ADL key along with manual dialing, set the DTMF prompt to NO in LD 15.

Call Modification

If EES is in progress, Call Modification is blocked. If Call Modification were not blocked, it might not be performed correctly during EES.

Call Detail Recording Record

An option in the Customer Data Block (LD 15) defines whether EES digits should be captured in the Call Detail Recording (CDR) record or not. This can prevent EES digits that contain sensitive information, like account numbers and passwords, from appearing in the CDR record.

Call Party Name Display

When entered after a call is answered, EES digits are displayed immediately following the CPND name of the connected party. Leading DN digits and name characters may be shifted out of the display window.

Conference End-to-End Signaling

Improved EES does not apply when the parties are in a conference call. In conference EES, a Tone and Digit Switch (TDS) loop is attached to the conference loop when a digit is pressed by one of the conferenced parties, and TDS is released when the digit is released. The setting of the EEST prompt determines whether the DTMF feedback tone is provided or not. The DTMF prompt is ignored for Conference EES.

EuroISDN Continuation

End-to-End Signaling is supported on all outgoing EuroISDN routes as soon as the CALL PROCEEDING message with a Progress Indicator is received.

EuroISDN Trunk - Network Side

EuroISDN Master Mode

End-to-End Signaling, which allows in-band dialing to be performed on ISDN trunks before and after the call has been answered, is supported on the EuroISDN Trunk - Network Side connectivity.

In the case of tandem with ISDN trunks, the necessary information to allow the End-to-End Signaling feature is tandemmed to the ISDN trunk. At this point, it becomes the responsibility of the end user switch to provide the End-to-End Signaling service.

Multi-Party Operations – Three-Party Service

The party receiving the patience tone or the Misoperation ringback is not able to use EES.

Silent Observe

EES supports the Silent Observe feature of Automatic Call Distribution (ACD), like any other feature that involves EES between two telephones. A supervisor can use this ACD feature to silently observe an agent.

Stored Number Redial

End-to-End Signaling (EES) activates after a call to a trunk is established by expiration of the end-of-dial timer. Further digits dialed are not stored by the SNR feature once it is in EES mode.

Attendant End-to-End Signaling feature interactions

Attendant Administration

While in the Attendant Administration mode, pressing the AEES key is ignored.

Attendant Barge-In Attendant Busy Verify

While in the Barge-In/Busy Verify mode, the console cannot enter AEES mode.

Attendant Features

Activating Automatic Wake Up, Call Park, Charge Account, Calling Party Number, Hold, Release, or another loop key will terminate AEES operation.

Attendant Position Busy Centralized Attendant Service Night Service

These features work together with Attendant End-to-End Signaling (AEES). However, do not press one of these feature keys while using AEES, or the Dual-tone Multifrequency (DTMF) code signals may be blocked.

Attendant Supervisory Console

The supervisor can operate AEES if there is a call on the active loop key. An attendant in AEES mode can be monitored by the supervisor.

Conference

While in AEES mode, the receiving party cannot initiate a conference call.

End-to-End Signaling (station level)

The attendant console and the telephone receiving AEES cannot both activate EES simultaneously.

Interposition call

When an attendant is actively connected to another console using Interposition Attendant Call, AEES is blocked. During an Interposition Call Transfer, however, the console that is actively connected to a telephone can perform AEES, provided the party connected to the other attendant console is excluded.

Meridian Hospitality Voice Services – Digit Key

Attendant End-to-End Signaling and Digit Key are mutually exclusive. Being in AEES mode overrides the use of the Digit Key.

Trunk connection

On incoming ground start CO or Direct Inward Dialing (DID) trunks without Answer Supervision, you must press the Release (RLS) key on the console to exit AEES mode and drop the connection.

Feature packaging

End-to-End Signaling and Attendant End-to-End Signaling are both part of package 10 and have no feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Enable End-to-End Signaling tone feedback.
- 2 LD 12 – Add End-to-End Signaling key to attendant console.
- 3 LD 56 – Specify the cadence for the EES feedback tone.

LD 15 – Enable End-to-End Signaling tone feedback.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and Options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- EEST	(NO) YES	NO = No EES feedback tone is given to the telephone. YES = EES feedback tone is given; the type is defined by the DTMF prompt. For Small Systems, DTMF should be set to NO.
- DTMF	(NO) YES	NO = Use EES for single feedback tone. YES = Use EES for DTMF feedback tone. For Small Systems, DTMF should be set to NO.
...		
TYPE	CDR	CDR and charge account options.
- ECDR	(NO) YES	NO = Do not capture EES digits in the CDR record. YES = Capture EES digits in the CDR record.

LD 12 – Add End-to-End Signaling key to attendant console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	2250	Attendant console type.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx EES	Add EES key (xx = key number) (cannot be key 0 or 1).

LD 56 – Specify the cadence for the EES feedback tone.

Prompt	Response	Description
REQ	CHG NEW	Change, or add.
TYPE	FTC	Flexible Tones and Cadences.
TABL	x	FTC table number.
HCCT	YES	Hardware Controlled Cadence.
EEST		No response expected; this is an informational prompt.
- TDSH	i bb cc tt	TDS external, burst, cadence, and tone.
- XTON	0-255	NT8D17 TDS tone code.
- XCAD	0-255	NT8D17 cadence code for FCAD.

Feature operation

No specific operating procedures are required to use this feature.

End-to-End Signaling Display Enhancement

Contents

This section contains information on the following topics:

Feature description	267
Operating parameters	268
Feature interactions	268
Feature packaging	269
Feature implementation	269
Feature operation	270

Feature description

The End-to-End Signaling Display Enhancement (EESDSP) feature enhances the existing End-to-End Signaling (EES) feature. EES digits can communicate private information such as account numbers, authorization codes, and passwords. In some environments, showing this information can be a security issue. EESDSP feature provides the option to show or block the EES digits from appearing on a set's display screen. The customer can enable or disable this option at the EES Digit Display (EESD) prompt in the Customer Data Block.

With the EESDSP feature enabled, the user's display shows all the EES digits as dialed. EES digits display when you enter them after a call is answered. The digits appear following the Call Party Name Display (CPND) name of the connected party. Initial digits and name characters may move out of the display window if necessary. With the EESDSP feature disabled, the user's display does not change, keeping the established call information.

Operating parameters

The EES feature must be enabled for the EESDSP feature to function.

The EESDSP feature applies only to the EES digit display functionality of the existing EES features. The EES digits are not displayed on the sets of the other parties in an established call.

The EESDSP feature does not apply to a networking environment.

The EESDSP feature applies to proprietary sets, Basic Rate Interface (BRI) sets, and attendant consoles with a display screen enabled to show entered EES digits and EES capabilities.

Attendant consoles require Attendant EES (AEES), which is enabled by configuring and using the programmable AEES key.

Feature interactions

The EESDSP feature does not change the production of tones for EES digits, or the processing or sending of EES digits. This feature only gives the customer the option to show or block all EES digits on the display.

Attendant End-to-End Signaling

For Attendant End-to-End Signaling (AEES), place the attendant console in EES mode by pressing the AEES key. When in EES mode, you can dial EES digits. The attendant console can send the EES Dual-tone Multifrequency (DTMF) tones to either the source or destination party.

When the End-to-End Signaling Display Enhancement option is enabled, the attendant console display shows the EES digits entered while in the EES mode. The digits appear on the second line of the attendant console's display. If disabled, the attendant console display does not change.

Call Party Name Display (CPND)

With the EESDSP option enabled, EES digits appear after the Call Party Name Display (CPND) name of the connected party. Initial digits and name characters may move out of the display window if necessary.

With the EESDSP option disabled, the set display does not change from the established CPND display.

Conference End-to-End Signaling

The EESDSP option changes the display of the EES digits as dialed for all the EES features, including Conference EES.

End-to-End Signaling

The EESDSP option has no effect on the digits dialed before the system is in EES mode. In EES mode, digits dialed from a set with a digital display appear on the display when the EESDSP option is enabled. When you disable the EESDSP option, the display does not show the dialed EES digits.

Improved End-to-End Signaling

The EESDSP feature changes the display of EES digits the same for both Improved End-to-End Signaling (IEES) and EES.

Feature packaging

The End-to-End Signaling Display Enhancement (EESDSP) feature requires End-to-End Signaling (EES) package 10.

Feature implementation

LD 15 – Enable the End-to-End Signaling Display Enhancement feature.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Customer Features and options.

CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
....	
EEST		EES Tone to originating party. Do not send feedback to the originator. Send feedback tone to the originator.
	(NO) YES	Enhanced EES signaling is provided when EEST=YES and DTMF=NO.
- DTMF		EES feedback tone. EES for DTMF feedback tone. EES for single tone feedback (only prompted if EEST=YES).
	(YES) NO	
EESD		EES digit display. Do not display the EES digits. Display all EES digits.
	(NO) YES	
TTBL		Tone Table number.
	(0)–31	
....	

Feature operation

No specific operating procedures are required to use this feature.

Equal Access Compliance

Contents

This section contains information on the following topics:

Feature description	271
Operating parameters	274
Feature interactions	274
Feature packaging	274
Feature implementation	274
Feature operation	279

Feature description

A telephone user can select any interexchange carrier for any given call by using a Carrier Access Code (CAC). A CAC comprises an Equal Access identifier and a Carrier Identification Code (CIC). Nortel refers to a call preceded by a CAC as an Equal Access call.

Federal Communications Commission (FCC) requirements

FCC Part 68 regulations require that any equipment or software manufactured or imported on or after April 17, 1992, and installed by any aggregator, must allow all users to use Equal Access codes to selectively access the long distance carrier of their choice. As defined in FCC docket 90-313, an *aggregator* is any business that, in the ordinary course of operations, makes telephones available to the public, or to transient users of the premises, for interstate telephone calls using a provider of operator services. Aggregators include hotels or motels, hospitals, universities, airports, gas stations, or pay telephone owners.

Aggregators, although they must allow callers access to any long distance caller, are permitted to block calls selectively. Selective equal access lets aggregators choose to block direct-dialed calls that result in charges to the originating telephone. Aggregators cannot block operator-assisted calls.

Nortel complies with the FCC Equal Access rules in dockets 90-313, 91-35, and their appendixes.

Equal Access dialing plans

The system software supports Equal Access dialing plans as follows:

- It allows operator-assisted North American and international dialing.
 - CAC + 0
 - CAC + 0 + (NPA) + NXX + XXXX, and
 - CAC + 01 + CC + NN.
- It allows or denies direct North American and international dialing.
 - CAC + 1 + (NPA) + NXX + XXXX, and
 - CAC + 011 + CC + NN.

Legend:

CAC = Carrier Access Code (101XXXX)

NPA = Numbering Plan Area (area code in the North American Numbering Plan)

NXX = end-office code
(N = any digit except 0 or 1; X = any digit (0–9))

XXXX = any four digits

CC = Country Code

NN = National Number

Route types

Equal Access Compliance supports COT, FEX, WAT, DID, and TIE routes.

A TIE route is supported only if standard signaling is specified in LD 16 (SIGO = STD). To enable Equal Access call restrictions to function properly, Digital Trunk Interface (DTI) TIE routes must be voice only. (DTI TIE routes configured as voice/data are not supported for connection to a Public Exchange/Central Office.) TIE routes must be either outgoing or incoming/outgoing (ICOG = IAO or OGT).

Call restriction

Call restriction relies on fixed pattern recognition to determine which calls can be denied. Switch administrators can restrict two kinds of direct-dialed Equal Access calls: North American calls with the 101XXXX+1+NPA+NXX+XXXX format and international calls with the 101XXXX+011+CC+NN format. If either restriction option is chosen, the administration must verify that the Original Carrier Access Code (OCAC) flag is correctly set.

Call restrictions do not affect attendant calls.

Calls blocked by Equal Access are not directed to alternate routes.

BARS/NARS routing

Equal Access determines restrictions without looking at a call's originating type (ESN or Direct Access). Routing has no effect on Equal Access call restriction: calls receive the same restriction treatment whether they originate from a trunk access code or from BARS/NARS. Equal Access is not a BARS/NARS feature and does not require BARS/NARS dialing.

To configure BARS/NARS to route Equal Access calls, simply use a special number (SPN) of 10 (the Equal Access code) to identify the calls as Equal Access calls and route them accordingly.

Example

Configure BARS/NARS for Equal Access call routing, assuming that calls originate from Customer 0 and go out over Route 10. To route Equal Access calls originating from Customer 0 over Route 10, using route list index 100 and access code 1 (AC1).

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Equal Access compliance is included in base system software. Network Class of Service (NCOS) package 32 is required to configure Equal Access.

Feature implementation

The configuration in this example routes all Equal Access calls placed through BARS/NARS with access code 1 (AC1) over route 10. Set the SPN to "101".

In this example set Equal Access toll calls for NCOS = 4. Note that Equal Access toll calls placed through direct trunk access to route 10 also will be blocked.

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Set OCAC as appropriate.
- 2 LD 86 – Set the route list index to Route 10.
- 3 LD 90 – Establish an SPN for the Equal Access code.
- 4 LD 87 – Configure a NCOS for Equal Access.
- 5 LD 10 – Assign a NCOS to an Analog Telephone.
- 6 LD 11 – Assign a NCOS to a Digital Telephone.
- 7 LD 16 – Enable Equal Access for this route.

Carrier Identification Code Expansion supports and extends the General Carrier Restriction method of blocking calls. Given the expansion in the number of Carrier Identification Codes (CIC), it is no longer practical to support Selective Carrier Restriction functionality. Carrier Identification Code Expansion continues to provide the selective blocking function required by the FCC; Nortel and the FCC interpret the term “selective” differently. For these reasons, prompts pertaining to General Carrier Restriction and Selective Carrier Restriction in LD 16 no longer appear.

Customers who chose the ITOL prompt in LD 16 to block international calls should also have international calls blocked at the Public Exchange/Central Office to reduce the likelihood of unauthorized international calls. The carrier or Central Office operator intercept interdigit timer typically expires in four to six seconds. The system end of dial timers, End-of Dial Timer for non-Digitone Trunks (EOD) and End-of Dial-Timer for Digitone Trunks (ODT), are defaulted to 14 and four seconds respectively. ODT can be raised to seven seconds to prevent Digitone stations from bypassing Equal Access restrictions of Digital Distance Dialing international calls.

The interdigit timeout for non-leftwise-unique prefixes 0 and 01 is fixed for a given carrier network. Therefore, Equal Access connects the call to the Central Office trunk if the user dials Carrier Access Code + 0 and allows the end-of-dialing timer to expire. Equal Access blocks the same call if the caller presses the octothorpe (#) key and cancels the EOD or ODT. The caller cannot bypass the EQAR prompt in LD 16 provided that the EOD and ODT are set long enough to exceed the inter-digit timeout on the carrier networks.

Before and during the permissive period, when both the three-character and the four-character CIC are allowed, current Equal Access users must set the Original Carrier Access Code (OCAC) flag to YES in LD 17. OCAC should be set to NO (default).

New Equal Access customers do not need to change the OCAC flag until the feature is configured.

LD 17 – Set OCAC as appropriate.

Prompt	Response	Description
REQ	CHG	Change existing route data.
TYPE	CFN PARM	Configuration Record. System parameters.
PARM	YES	Change system parameters.
- NDRG	(NO) YES	(Disable) enable new distinctive ringing.
- OCAC	(NO) YES	Support original CAC format (must be set to YES during interim period, NO following interim period).

LD 86 – Set the route list index to Route 10.

Prompt	Response	Description
REQ	NEW CHG	Create, or change database.
CUST	xx	Customer number, as defined in LD 15
FEAT	RLB	Route List Block.

RLI	100	Use route list index 100 to route Equal Access calls.
ENTR	0	Route entry number for this route list index (0 if this is the first entry).
ROUT	10	Send Equal Access calls over Route 10.

LD 90 – Establish an SPN for the Equal Access code.

Prompt	Response	Description
REQ	NEW	New ESN translation table entry.
CUST	xx	Customer number, as defined in LD 15
FEAT	NET	Network translation table entry.
TRAN	AC1	Access code 1 is used to originate the Equal Access calls.
TYPE	SPN	SPN translation entry.
SPN	101	SPN (Equal Access code).
RLI	100	Use route list index 100 to route Equal Access calls.

LD 87 – Configure a NCOS for Equal Access.

Prompt	Response	Description
REQ	CHG	Change NCTL data.
CUST	xx	Customer number, as defined in LD 15
FEAT	NCTL	Change NCTL block.
NCOS	4	Network Class of Service group number.
EQA	YES	This NCOS permits Equal Access call restriction capabilities.

LD 10 – Assign a NCOS to an Analog Telephone.

Prompt	Response	Description
REQ:	CHG	Change existing set data.
TYPE:	aaa	Specify set type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
NCOS	4	Network Class of Service group number.

LD 11 – Assign a NCOS to a Digital Telephone.

Prompt	Response	Description
REQ:	CHG	Change existing set data.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
NCOS	4	Network Class of Service group number.

LD 16 – Enable Equal Access for this route.

Prompt	Response	Description
REQ	CHG	Change existing route data.
TYPE	RDB	Change Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT	10	
EQAR	(NO) YES	Enter YES to enable Equal Access and selective blocking for this route. A YES response triggers the next two prompts.
- NTOL	(DENY) ALLOW	Specify that Equal Access North American calls billed to originating telephone are to be denied.
- ITOL	(DENY) ALLOW	Specify that Equal Access international calls billed to originating telephone are to be denied.

Feature operation

No specific operating procedures are required to use this feature.

Extended DID/DOD Software Support – Europe

Contents

This section contains information on the following topics:

Feature description	281
Operating parameters	286
Feature interactions	286
Feature packaging	288
Feature implementation	288
Feature operation	291

Feature description

This feature provides software support for the European Extended Direct Inward Dialing (XDID)/Direct Outward Dialing (DOD) cards. These cards are the NT5K36AA (German XDID pack), NT5K84AA (Swiss XDID pack) and NTAG04AA (Dutch XCOT/DID). The new packs enable the system to have the following Intelligent Peripheral Equipment (IPE) DID/DOD functionalities.

Seizure acknowledgment on outgoing traffic

In order to provide this functionality, LD 14 has to be modified in order to allow Ear and Mouth (E&M) signaling to be configured for DID trunk on an XDID card. A new “Trunk Type and Signaling” in the type 2 Channel Download message defined for DID-E&M has to be downloaded onto the firmware. LD 14 must have a configuration of ACWK = YES, and LD 16 must have a configuration of “trunk type” (TYPE) = DID, “signaling” (SIGL) = EAM, and “start arrangement on outgoing” (STRO) = IMM.

End of dialing on DOD

No software changes are required to provide this functionality.

Interdigit timer on DID

To provide this functionality, the Partial Dial (PRDL) prompt has to be configured as BSY or YES.

End-of-selection signal on DID

To provide this functionality, a new outgoing SSD message, “End of Signaling”, has been defined. The End-of-selection (EOS) prompt in LD 16 has to be configured to BSY or YES.

End-of-selection busy signal on DID

To provide this functionality, a new Outgoing SSD message “End of Signaling Busy”, has been defined. The End of Selection (EOS) prompt in LD 16 has to be configured to BSY.

Provision of busy tone, ringback tone, and overflow tone for DID callers

No software changes are required to provide this functionality.

Restricted/unrestricted DID Class of Service for DID calls

No software changes are required to provide this functionality.

DID to TIE connection, subject to configured trunk barring and Class of Service restrictions

To provide this functionality, the DITI prompt in LD 15 has to be configured to YES.

Line Break Alarm

To provide this functionality, an incoming SSD message, BAR, has been defined to trigger the Trunk Failure Monitor feature whenever a problem situation arises on the line. A new SSD message, UNBAR, has been defined to clear the problem indications provided by the Trunk Monitor feature. LD 14 has to be configured with a Class of Service of trunk barring allowed (BARA) or denied (BARD). This Class of Service is downloaded onto the XDID/DOD cards.

Static loss pad

One of two loss pads (either long or short) can be selected on a per trunk basis. To provide this functionality, LD 14 has to be configured with a Class of Service of either SHL (short line) or LOL (long line). The configured pad type is downloaded onto the XDID/DOD cards.

Disconnect supervision

To support this functionality, the software has been changed so that an XDID card can provide disconnect supervision for a DID trunk with Ear and Mouth (E&M) signaling. The software has also been changed to refrain from sending an End of Selection (EOS) signal when an incoming trunk call is being disconnected.

DID digit collection type

To support this functionality, the type of incoming DID digit collection is configured against a Class of Service and downloaded to the XDID card.

Unsupported Class of Service

If an attempt is made to download an unsupported configuration during regular enabling of the pack or during audit, the pack responds with a problem report type 3 message. The error message ERR5327 is printed out on the TTY and the trunk is disabled.

Incoming Digit collection

This functionality only applies to Dual-tone Multifrequency (DTMF) DID trunks. The software must be ready to accept incoming digits regardless of whether or not an “Enable Digit Collection” message is sent. To support this functionality, the trunk must be configured with an incoming start arrangement (prompt STRI = IMM in LD 14). Message H0019 is sent when a Digitone Receiver (DTR) signal is found.

Proceed to Send message to the firmware

A “Proceed to Send” message must be sent to the firmware in cases of non dial pulse trunks, as soon as the software is able to receive digits. To support this functionality, LD 14 must be configured with DTCR = YES. A new H0019 message is sent when a Digitone Receiver (DTR) signal is found for Dual-tone Multifrequency (DTMF) signaling, or when a Multifrequency Compelled (MFC) sender/receiver is found for Multifrequency Compelled (MFC) signaling. If a DTR signal is not found, the call is released.

PPM and Buffered PPM downloadable on a per country basis

To support this functionality, Periodic Pulse Metering and Buffered Periodic Pulse Metering (PPM) are enabled on a per trunk basis, rather than on per card basis. Configuration of PPM and Buffered PPM is still done on a per route basis.

Audit conflict reporting and PPM event reporting

To support this functionality, a channel and card parameter download audit is performed during initialization and when LD 30 is run as a midnight routine. This is to ensure that the software configuration is the same as the configuration stored in the hardware. If a discrepancy is detected, the software information is stored in the hardware and an error message is printed on the TTY. Also, for PPM recording, two new type 5 messages have been defined to report hardware problems. These are the TRK Event: Partial Metering Detection Failure message and the TRK Event: Fatal Metering Detection Failure message.

On partial PPM failure, a TRK516 error message is printed on the TTY. If PPM is configured, CDR records for any calls in progress may be incorrect. If Busy Tone Supervision is configured, busy tone may not have been detected for calls in progress. On fatal PPM failure, a TRK517 error message is printed on the TTY. If PPM is configured, further PPM reporting is disabled until the pack is either disabled and then reenabled, or removed and then reinserted. The CDR record for any call in progress is incorrect. If Busy Tone Supervision is configured, tone supervision can no longer be performed until the pack is either disabled and then reenabled, or replaced.

Network DID and Enhanced Night Service groups on DID

No software changes are required to support these functionalities on the XDID/DOD cards.

Held call clearing

No software changes are required to support this functionality on the XDID/DOD cards.

Unequipped channel notification

To support this functionality, a channel download message is sent to the XDID pack whenever a trunk on the pack is removed.

Call blocking

Before disabling a trunk, the software requires confirmation that the trunk is in the idle state. To support this functionality, the software disable sequence has been modified. The software waits for an idle state message from the XDID pack before sending a disable message to the trunk. If the idle message is not received before the disconnect supervision (DSI) timer expires, the software prints the TRK136 (Release Failure on the Unit) error message. The trunk is placed in lockout state. If the disable sequence was started from an overlay, a TRK520 (No Far End Release) error message is printed. The trunk remains in lockout until a Far End Release message is received on the pack.

Number Reception message

This is a Dutch Central Office (CO) requirement. When sufficient digits are received at the Dutch CO, the battery is reversed. When the Dutch COT/DID pack (NTAG04AA) detects this reversal, it sends a Number Reception message. This functionality is a software enhancement.

When an ENLC command is performed on an XDID/E&M card, the card is first reset and then messages are downloaded to the firmware to reflect the software trunk state. This prevents the software database from being in conflict with the firmware database. If an XDID/E&M card unit is in busy state, the SSD message H.A004 is printed. If the unit is in barred state, the SSD message H.A003 is printed.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

DID/DOD

This feature provides the same feature interactions as the following DID/DOD features:

- End of Selection, End of Selection Busy
- Provision of Tones

- Selectable DN Size
- Partial Dial Timing
- Seizure Acknowledgment
- DID Restricted Class of Service
- DID to TIE Connection, and
- Enhanced Night Service.

Japanese DID trunk

For Japanese DID trunk support, DID to TIE (DTOT) package 176 must be removed due to tariff restrictions.

Federal Communications Commission (FCC) Compliance for DID Answer Supervision

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XDOD units, it may lead to incorrect call status. Therefore, equipping this package is not recommended.

Trunk Failure Monitor

When a BAR message indicating a problem situation is received, a TRK501 message is printed on the TTY, the uppermost key lamps light up on the attendant console, and the trunk is placed in the BUSY state to prevent the trunk from being seized for new outgoing calls. The reception of an UNBAR message indicates that the problem situation has been cleared. A TRK502 message is printed on the TTY, the lamps on the attendant console are darkened, and the trunk is idled.

Note: BARA CLS must be configured on the XDID trunk for the described process to occur.

XDID/DOD and XFCOT

Software support for European XDID/DOD cards and software support for European XFCOT cards provide similar functionality in the following areas:

- Trunk Failure Monitor processing
- Downloading of PPM information

- Configuration and downloading of static pad setting for short line and long line, and
- Configuration download processing. Fields that are not filled due to configuration limitations are left blank and are not validated or interpreted by the firmware. The fields are treated as unused fields.

The DTCR (Digit Collection Ready) prompt has replaced the DTRA (Digitone Receiver Attached) prompt in LD 14.

Feature packaging

The Extended DID/DOD Software Support feature requires the following packages:

- Meridian 1 Superloop Administration (XCT1) package 205, which has the following requirements:
 - Intelligent Peripheral Equipment (XPE) package 203
 - International Supplementary Features (SUPP) package 131
 - ISDN Supplementary Features (ISDNS) package 161
 - PPM/Message Registration (MR) package 101
 - Trunk Failure Monitor (TFM) package 182.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – In the Customer Data Block, allow DID to TIE connections.
- 2 LD 16 – Define a DID/DOD trunk route for Germany and Switzerland.
- 3 LD 14 – Define an XDID card unit.

LD 15 – In the Customer Data Block, allow DID to TIE connections.

Prompt	Response	Description
REQ:	NEW CHG	Add or change.
TYPE:	NET	ISDN and ESN Networking options
...		
- DITI	YES	DID to TIE connections are allowed.

LD 16 – Define a DID/DOD trunk route for Germany and Switzerland.

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data.
TYPE	RDB	Route Data Block
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	DID	Trunk Type Direct Inward Dial
ICOG	IAO	Incoming Outgoing trunk Incoming And Outgoing
ACOD	xxxxxxx	Access Code for the trunk route
CNTL	YES	Change Controls or timers
TIMR		Trunk Timers
	EOD 10112	End-of-Dial timer

	GTI 128	Incoming Guard timer
	GTO 128	Outgoing Guard timer
	ICF 0	Incoming Flash timer
	OGF 0	Outgoing Flash timer
	DSI 360000	Disconnect Supervision timer
NEDC	ETH	Near End Disconnect Control Either end control
FEDC	ETH	Far End Disconnect Control Either end control
...		
MR	PPM XLD	Message Registration Buffered PPM signals to be counted on this route M&MM Lead non-buffered is used.
PRDL	BSY	Partial Dial timing Busy signal is sent on timeout
EOS	BSY	End Of Selection signal EOS and busy signals are enabled
ACKW	(NO) YES	Acknowledgement seizure signal
BTT	100	Busy Tone Time

LD 14 – Define an XDID card unit.

Prompt	Response	Description
REQ	NEW CHG	Create a New Data Block. Change an existing Data Block.
TYPE	DID	Direct Inward Dial trunk data block.
...		

XTRK	XDID	Extended (Intelligent Peripheral Equipment [IPE]) Direct Inward Dialing trunk.
...		
SIGL	EAM	Ear And Mouth (E&M) signaling (note that this prompt uses the letter “A”, instead of the “&” which is more commonly used in the abbreviation of Ear and Mouth).
STRI	IMM	Immediate Start arrangement Incoming.
STRO	IMM	Immediate Start arrangement Outgoing.
...		
CLS		Class of Service. The Class of Service parameters to be downloaded onto the XDID card unit.
	(LOL) SHL	Enter (LOL for long line) or SHL for short line static loss pad selection.
	(BARD) BARA	Barring (Denied) Allowed.
...		
DTCR	(NO) YES	Digit Collection Ready. Incoming digit collection ready; (do not) send acknowledgment when digit collection resources (DTR, MFC sender/receiver) are ready and attached.

Feature operation

No specific operating procedures are required to use this feature.

Extended Flexible Central Office Trunk Software Support

Contents

This section contains information on the following topics:

Feature description	293
Operating parameters	298
Feature interactions	299
Feature packaging	300
Feature implementation	301
Feature operation	303

Feature description

This feature provides software support for the following Extended Flexible Central Office Trunk (XFCOT) cards to meet the requirements of the following countries:

- NT5K70AA (German 8D)
- NT5K71AA (German 4D)
- NT5K82AA (Swiss)
- NT5K90AA (Danish PPM)
- NT5K90BA (Danish non-PPM)
- NT5K93AA (Norwegian PPM)

- NT5K93BA (Norwegian non-PPM)
- NTAG03AA (Dutch COT)
- NTAG04AA (Dutch DID/COT)
- NT5K18BA (New Zealand)
- NT5K99AA (Spanish PPM), and
- NT5K99BA (Spanish non-PPM).

The NT5K18AA (UK XFCOT) is not affected by the software changes introduced to support the XFCOT packs.

The following supervision, based on loop start signaling, is supported:

Battery Supervision Central Office Trunk (COT)

A battery supervised COT uses polarity detectors to provide seize, answer and disconnect supervision on all outgoing calls, and disconnect supervision on incoming calls. The supervision is performed by reversing the polarity from the Public Switched Telephone Network (PSTN) line. The battery supervised COT is configured in LD 14 with BAT.

ARF Supervision Central Office Trunk

ARF is an Ericson type series Public Exchange which provides disconnect supervision on both incoming and outgoing loop start Central Office trunk calls; on outgoing calls, seize supervision is also provided. Supervision is based on battery reversal detection. The signaling used to provide this supervision is called ARF signaling. The ARF supervised COT is configured in LD 14 with ARF.

Tone Supervised Central Office Trunk with downloadable Busy Tone parameters

A tone supervised COT has a busy tone detector on each unit. Busy tone is provided by the PSTN when the far end releases from outgoing and incoming trunks. The tone supervised COT is configured in LD 14 with BTS. This tone supervision depends on the busy tone frequency and cadence characteristics, as configured on a card basis using the Busy Tone ID (BTID) prompt in LD 14.

Loop Break Supervised Central Office Trunk

This type of signaling provides disconnect supervision by detecting a calibrated battery removal from the PSTN. The loop break COT supervision is configured in LD 14 with LBS.

Unsupervised Central Office Trunk

An unsupervised COT has neither polarity, battery, nor busy tone detector. Thus, no answer or disconnect supervision is provided for incoming or outgoing calls. A trunk is configured as unsupervised in LD 14 using other than BAT, LBS, ARF, or BTS.

Autoguard

Autoguard provides seize supervision on outgoing trunk calls. Autoguard is configured in LD 14 with SEIZ = YES.

Extended Flexible Central Office Trunk Software Support also provides the following capabilities:

- **Trunk Barring.** The XFCOT card can detect signaling from the PSTN that a trunk is barred, and that any call on the trunk must be dropped. The trunk unit is then marked software busy (busy barred) so that no outgoing calls may be made. A TRK514 message is printed on the TTY. A STAT (status) command in LD 32 or 36 yields a “Busy Barred” status. When the PSTN signals that the trunk unit may be unbarred, the software idles the trunk unit and a TRK515 message is printed on the TTY. Barring is configured on a per unit basis in LD 14 against a CLS of BARA. The BARA CLS is downloaded onto the XFCOT card.

- Static Loss Pad Selection. Trunk pad selection controls transmission loss. A pad may be inserted within or outside an XFCOT trunk card to allow a call to terminate on a station or another trunk. Two pad types are available to support long line or short line. The pad types are configured in LD 14 on a per unit basis, against a Class of Service of SHL for short line or a Class of Service of LOL for long line. The SHL or LOL is downloaded onto the XFCOT card.
- Enabling and disabling of Periodic Pulse Metering (PPM). The user configures PPM on a per route basis; the software configures the trunk on a per unit basis.
- Enabling and disabling of Buffered Periodic Pulse Metering (PPM), on a per trunk basis.
- A PPM ID that designates PPM parameters. This is configured in LD 14 against the PPID prompt. This value is downloaded onto the XFCOT firmware so that the appropriate PPM parameter may be selected.
- A four-unit card. The NT5K71AA four-unit quad density card has been introduced to meet German requirements.
- Mixed Central Office Trunk and Direct Inward Dialing on the same XFCOT card. In LD 14, the XFCOT card may be configured as being either COT or DID.
- ALS signaling. ALS, available only on the NTAG04AA (Dutch DID/COT) unit, is combined COT/DID signaling. Additions to the ground start signaling have been added for XFCOT support. On the near end, a partial release message is sent instead of a full release message. On an outgoing call, the number reception is accepted and interpreted by the software. Number reception is a battery reversal signaling from the CO, indicating that it has received sufficient dialing information. The ALS signaling type is configured in LD 14 against the SIGL prompt.

- Balance impedance adjustment. It is possible to download the balance and termination impedance configured by a craftsperson for a NT5K90AA (Danish PPM) or NT5K90BA (Danish non-PPM) unit. The termination impedance is defaulted to value of 600 ohms. The balance impedance may be configured in LD 14 using the BIMP prompt, as 600 ohms or 3COM (three-component).
- Flash hook signaling, for features requiring a flash hook operation. The flash hook signal instructs a pack to send a flash hook signal to the PSTN. The features that require a flash hook are Malicious Call Trace and Centrex Switchhook Flash.

Error reporting and auditing is also provided. New problem reports are defined so that the XFCOT card can notify the software when the dialing speeds or companding laws are not supported by the hardware. If these new error reports are received from the XFCOT card, an error message is printed on the TTY. A channel and card parameter download audit is performed during initialization and when LD 30 is run as a midnight routine to ensure that the software configuration is the same as the configuration stored in the hardware. If a discrepancy is detected, the software information is stored in the hardware, and an error message is printed on the TTY.

For PPM recording, two type 5 messages have been defined to report hardware problems. These are the TRK Event: Partial Metering Detection Failure message, and the TRK Event: Fatal Metering Detection Failure message. Also, a type 12 channel configuration message and a type 13 channel audit configuration message have been introduced. The type 12 message provides the hardware with certain card configuration information, so that the card may be able to inform the software when certain configurations are not supported on the pack, and perform message filtering based on the software configuration. The type 13 message provides configuration download messages during the midnight routine.

The following table summarizes the downloaded software configurations that each XFCOT card supports.

Table 5
Downloaded configurations for XFCOT cards

XFCOT card	Hardware I.D. supported	Signaling supported	Downloaded SUPN supported	Periodic Pulse Metering (PPM)
NT5K18AA	01, 13, 14	COT (GRD, LGR, LDC)	SUPN	per pack
NT5K16BA	00, 01	COT (LOP, GRD)	BTS	per pack & unit
NT5K70AA	00	COT (LOP)	BTS	per unit
NT5K71AA	00	COT (LOP)	BTS	per unit
NT5K82AA	00	COT (LOP)	BTS, LBS, BAR	per pack & unit
NT5K90AA	00	COT (LOP)	BTS, ARF	per unit
NT5K90BA	00	COT (LOP)		none
NT5K93AA	00	COT (LOP)	BTS	per pack & unit
NT5K93BA	00	COT (LOP)	BTS	none
NT5K99AA	00	COT (LOP)	BTS	per unit
NTAG03AA	00	COT (LOP)	BTS	per pack & unit
NTAG04AA	26, 27	COT (ALS) DID (EAM)		per pack & unit

Operating parameters

The flash hook implementation for the Centrex Switchhook Flash feature does not provide flexible timing, as is provided by non-XFCOT packs. The timing is hard-coded onto the pack at 90 milliseconds.

The new XFCOT trunks cannot support the PPM frequency characteristics, configured as the PPM ID, for each trunk. The PPM ID is configured for the first trunk configured for the pack, and cannot be changed unless all trunks are removed from the pack and then reconfigured. The same restrictions apply to the busy tone indication ID.

Only static pad selection is supported on the new XFCOT cards. Pad selection on a per call or per event basis is not supported.

Loop Start Supervisory Trunks and Japanese Central Office Trunks are not supported on the new XFCOT cards.

The B34 Codec support is not provided by this feature. The B34 Codec configured on a card allows the software to download an actual loop value for pads, rather than long line or shot line notations.

Periodic Clearing is not supported on the new XFCOT cards.

Feature interactions

Dial Tone Detector

A Dial Tone Detector notifies the software that a dial tone has been received for an outgoing call. With the XFCOT cards, dial tone detection is not attempted until a SEIZE ACKNOWLEDGE signal is received for those supervisions that require such a signal.

European XDID/DOD

Software support for European XDID/DOD cards and software support for European XFCOT cards provide similar functionality in the following areas:

- Trunk Failure Monitor or barring
- Downloading of PPM information
- Configuration and downloading of static pad setting for short line and long line, and
- Configuration download processing. Fields that are not filled due to configuration limitations are left blank and are not validated or interpreted by the firmware. The fields are treated as unused fields.

Federal Communications Commission (FCC) Compliance for DID Answer Supervision

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XFCOT units, it may lead to incorrect call status. Therefore, equipping the FCC package is not recommended.

Trunk Failure Monitor

When a BAR message indicating a problem situation is received, a trunk message is printed on the TTY, the uppermost key lamps light up on the attendant console, and the trunk is placed into BUSY state to prevent the trunk from being seized for new outgoing calls. The reception of an UNBAR message indicates that the problem situation has been cleared. A message is printed on the TTY, the lamps on the attendant console are darkened, and the seized trunk is idled. Note that BARA Class of Service must be configured on the trunk for the described processing to occur.

UK XFCOT (NT5K18AA)

For the UK XFCOT card, the NT5K18AA, there are no changes in configuration and operation except in the following areas:

- For static pad setting, the configuration for short line and long line has been changed from TRC to SHL for short line, and NTC to LOL for long line.
- The PPM configuration is done on a per route basis.
- Only one value is now downloaded for the PPM ID, on all UK cards.
- Only COT trunks are supported on the NT5K18AA. The NTAG04AA card supports COT and DID trunks.
- The balance impedance may now be configured on the NT5K90AA (Danish PPM) or NT5K90BA (Danish non-PPM) card.

Feature packaging

Meridian 1 Superloop Administration (XCT1) package 205.

Dependencies: Intelligent Peripheral Equipment (XPE) package 203; PPM/ Message Registration (MR) package 101; Trunk Failure Monitor (TFM) package 182; and Trunk Hook Flash (Centrex) (THF) package 157.

Feature implementation

LD 14 – Configure the trunk parameters for the new XFCOT cards.

Prompt	Response	Description
...		
CDEN	4D 8D	Card Density, where: 4D = Quad density, and 8D = Octal density.
...		
SIGL	ALS	ALS signaling on COT trunk with ground start (applies to the NTAG04AA unit only).
BIMP	(3COM) 600	Three-component complex impedance. 600 ohms.
...		
SEIZ	(NO) YES	Automatic Guard Detection for outgoing trunk.

PPID	(0)-15	<p>PPM country ID.</p> <p>Must be configured if PPM is enabled on the route. One PPID type per card. Trunks must be removed from a card to change PPID.</p> <p>Choose from one of the following PPM IDs, according to country:</p> <p>(0) – UK (50 Hz). 1 – France (50 Hz). 2 – France (12 Hz). 3 – Germany (16 kHz). 4 – Switzerland (12 kHz). 5 – Denmark (12 kHz). 6 – Norway (16 kHz). 7 – Belgium (16 kHz). 8 – Spain (12 kHz). 9 – Portugal (12 kHz). 10 – Holland (50 Hz). 11-15 – Reserved for future use.</p>
BTID	(0)-15	<p>Busy Tone Country ID.</p> <p>Must be configured for BTS supervised XCOT trunk.</p> <p>One BTID type per card. Trunks must be removed from card to change BTID.</p> <p>Choose from one of the following Busy Tone IDs, according to country:</p> <p>(0) – CCITT. 1-2 – Reserved fro future use. 3 – Germany. 4 – Switzerland. 5 – Denmark. 6 – Norway. 7-9 – Reserved for future use. 10 – Holland. 11-15 – Reserved for future use.</p>

<p>CLS</p> <p>(SHL) LOL</p> <p>(XBAT) BAT</p> <p>(XARF) ARF</p> <p>(XLBS) LBS</p> <p>(XBTS) BTS</p> <p>(BARD) BARA</p> <p>SUPN</p> <p>(NO) YES</p> <p>STVP</p> <p>BAT</p> <p>ARF</p> <p>LBS</p> <p>BTS</p>		<p>Class of Service options.</p> <p>Enter SHL for short line (LOL for long line) static loss pad selection.</p> <p>Enter BAT for battery supervised COT; (XBAT) for no battery supervision.</p> <p>Enter ARF for ARF supervised COT; (XARF) for no ARF supervision.</p> <p>Enter LBS for loop break supervised COT; (XLBS) for no loop break supervision.</p> <p>Enter BTS for tone supervised COT; (XBTS) for no tone supervision.</p> <p>Enter BARA to allow barring; (BARD) to deny barring.</p> <p>Enter SUPN = NO or the appropriate supervision type.</p> <p>Entering any of the following prompts will now override the previously configured type.</p> <p>Enter BAT for battery supervised COT.</p> <p>Enter ARF for ARF supervised COT.</p> <p>Enter LBS for loop break supervised COT.</p> <p>Enter BTS for tone supervised COT.</p> <p>Note: The XBAT, XARF, XLBS, and XBTS prompts are no longer applicable.</p>
<p>Note: SHL/LOL, BARA/BARD remain appropriate responses for the CLS prompt.</p>		

Feature operation

No specific operating procedures are required to use this feature.

Extended Multifrequency Compelled Sender/Receiver

Contents

This section contains information on the following topics:

Feature description	305
Operating parameters	307
Feature interactions	307
Feature packaging	307
Feature implementation	308
Feature operation	309

Feature description

This feature provides combined Multifrequency Compelled Signaling (MFC) and MFE signaling for SOCOTEL, using the Extended Multifrequency Compelled Sender/Receiver NT5K21AA card. This card is based on the XDTR card NT8D16AB.

Although the NT5K21AA card provides both MFC and MFE signaling, it may only be configured as one or the other: it is not possible to configure certain units as MFC and other units as MFE, on the same card. If there is a requirement for both MFC and MFE signaling, then two NT5K21AA cards may be configured – one for MFC and one for MFE.

In support of the NT5K21AA card, the system software has been modified as follows:

- Four DS-30X channels are provided for simultaneous generation and detection (forward and backwards) of MFC digits
- Four DS-30X channels are provided for alternate generation and detection of MFE digits (software selectable)
- A DS-30X channel of A10 formatted signaling is provided for communication between the system CPU and the NT5K21AA pack
- A-law and μ -law PCM encoding schemes are both supported
- Any one of 16 tone output levels may be specified for each channel
- Any one of four levels may be specified as a minimum receiver acceptance level
- Special MFC functions, such as pulse or automatic mode, are provided
- Card-ID information, configured during the manufacture of the NT5K21AA pack, is stored in the EEPROM message
- Hardware self-test and troubleshooting capabilities, including loop-back of PCM channels at the NT5K21AA, are provided by maintenance software, and
- The standard faceplate Enable/Disable Status Indicator LED is provided.

Most of the existing command structure for signaling has been maintained, with the following exceptions:

- During RESET, the NT5K21AA card is configured as either MFC or MFE, and as either A-law or μ -law
- More comprehensive self-test results are provided
- The minimum receiver acceptance level (MFL) is downloaded, and
- An extended range is provided for the MFC digit level (MFL).

Operating parameters

Both A-law and μ -law, which are software selectable, are supported. But when a Companding Law is selected in LD 97, it is supported on a system basis.

System parameters have to be downloaded on the NT5K21AA card in the following cases:

- When the NT5K21AA card is enabled in LD 32 and 54
- During service changes and initialization
- When a new NT5K21AA unit is defined in LD 13, and
- When an NT5K21AA card is moved to another card, in LD 13.

The default system parameters for downloading are NT5K21AA card type MFC, $M\mu$ -law companding law, and a Minimum Receiver Acceptance level of -36 dB.

The following Card-LAN interface capabilities are supported by the NT5K21AA card:

- Periodic Intelligent Peripheral Equipment (IPE) polling of the status of the NT5K21AA card
- Requesting of card-ID, card type, and firmware version for auto-configuration, and
- Requesting of configuration data, including the DS-30X signaling type, during power up and RESET.

The auto-configuration of the NT5K21AA card is not supported on Small Systems and CS 1000S systems.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

- Intelligent Peripheral Equipment (XPE) package 203.

- Multifrequency Compelled Signaling (MFC) package 128.
- Multifrequency Signaling for SOCOTEL (MFE) package 135.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 97 – Download the system parameters, and define the Multifrequency Minimum Receiver Level (MFRL).
- 2 LD 94 – Create the MFC/MFE Signaling Level tables.
- 3 LD 13 – Create the MFC/MFE unit data block.
- 4 LD 16 – Create the route data block.
- 5 LD 14 – Create the trunk data block, and define the range of Multifrequency Digit Level (MFL).

LD 97 – Download the system parameters, and define the Multifrequency Minimum Receiver Level (MFRL).

Prompt	Response	Description
...		
MFRL	0-(2)-3	Multifrequency minimum Receiver Level for XMFC/XMFE (NT5K21) for Superloop only. 0 = -28 dBM. 1 = -32 dBM. 2 = -36 dBM (the default). 3 = -40 dBM.

LD 94 – Create the MFC/MFE Signaling Level tables.

LD 13 – Create the MFC/MFE unit data block.

LD 16 – Create the route data block.

LD 14 – Create the trunk data block, and define the range of Multifrequency Digit Level (MFL).

Prompt	Response	Description
<p>...</p> <p>MFL</p>	<p>(0)-15</p>	<p>Multifrequency digit level. Expanded from 0-7 to 0-15 for Superloop only. Enter the MFC digit level required for signals to the Public Switched Telephone Network (PSTN).</p> <p>Superloop codes and values:</p> <p>0 = -8 dBm. 1 = -11 dBm. 2 = -12 dBm. 3 = -13 dBm. 4 = -14 dBm. 5 = -15 dBm. 6 = -16 dBm. 7 = -31 dBm. 8 = -4 dBm. 9 = -5 dBm. 10 = -6 dBm. 11 = -7 dBm. 12 = -9 dBm. 13 = -10 dBm. 14 = spare. 15 = spare.</p> <p>Note: Levels 0-7 are already defined.</p>

Feature operation

No specific operating procedures are required to use this feature.

Extended Tone Detector Global Parameters Download

Contents

This section contains information on the following topics:

Feature description	312
Operating parameters	313
Feature interactions	313
Feature packaging	314
Feature implementation	314
Feature operation	317

Feature description

With Extended Tone Detector (XTD) Global Parameters Download feature, you can download various parameters to customize your XTD card to a particular environment.

The XTD card provides tone detection for both dual-tone multifrequency (DTMF) and dial tone (DT) detection. DTMF signaling transfers information through the use of in-band audio tones. Dial tone detection prevents the outpulsing of digits before the Public Switched Telephone Network (PSTN) is able to accept them, preventing both misrouted calls and the loss of dialed digits.

For UK Extended Tone Detector (XTD) cards (NT5K20AA and NT5K20AB), you can download the following parameters:

- A-law/M μ -law for the Extended DTMF (XDTR) portion of the card
- first stage dialtone detection (DT).

For the global XTD pack, NT5K48AA, you can download the following messages and parameters:

- flexible first stage dialtone detection
 - frequency band (expanded operation)
 - minimum detect level
 - minimum validation time
 - break duration
 - cadence type
- flexible second stage dialtone detection
 - second stage configuration, and
- flexible XDTR minimum accept level
- Detect Second Stage Dialtone message

Using Detect Second Stage Dialtone, the NT5K48AA can distinguish between first and second stage dialtone detection parameters.

To configure the first and second stage dialtone detection parameters, use Dial Tone Detectors (DTD) and associated prompts in LD 97. Using these DTD prompts, the administrator can create up to eight different XTD tables, each containing the required parameters. In LD 13, a table is associated with each XTD card. These parameters are downloaded onto each XTD card.

To configure the flexible XDTR minimum accept level parameter, use the Digital Receiver (DTR) and the minimum accept level (MINL) prompts in LD 97. With MINL, you can define the minimum accept level for digitone receivers on a per-system basis. Use the XTD Global Parameters Download feature to download the minimum accept level parameter onto each XTD and DTR card.

Operating parameters

The global NT5K48AA card supports the first stage dialtone detection of the NT5K20AA and the NT5K20AB cards. Although you can use the NT5K20AA and the NT5K20AB with the NT5K48AA, these UK cards do not support second-stage dialtone detection, because they cannot interpret the Detect Second Stage Dialtone message (second stage dialtone detection is not used for the UK market).

Since there is only one parameter for the second stage dialtone detector (the craftsperson, in LD 97, enters a value between 0-15 to indicate which of the 16 options to use), the parameters for second stage dialtone detection hardware operation are hardcoded with limited flexibility. When introducing second stage configuration to a country with an undefined configuration, you must modify NT5K48AA .

The default values for all parameters are for the Swiss standards. However, if equipped with the UK Program (UK) package 190, the UK recommended default values are used.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Intelligent Peripheral Equipment (XPE) package 203; and Meridian 1 Superloop Administration (XCT1) package 205.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 97 – Configure all the first- and second- stage dial tone detection parameters (TYPE = DTD).
- 2 LD 97 – Configure the flexible XDTR minimum accept level parameter (TYPE = DTR).
- 3 LD 13 – Define the protected data block of the XTD card.
- 4 LD 16 – Define the route protected data block of the XTD card.

LD 97 – Configure all the first- and second- stage dial tone detection parameters (TYPE = DTD).

Prompt	Response	Description
...		
TYPE	DTD	First- and second-stage dialtone detection parameters.
XTDT	(0)-7	Extended Tone Detection Table. XTDT table number in which the parameters are stored. Table 0 can be changed but must not be removed. Table 0 always exists and is initialized to default values.
DFQ	0-(4)-15	Dial Tone Frequency band for 1st dial tone, which is the number of the dial tone frequency band chosen in the hardcoded frequency table. With United Kingdom (UK) package 190 the default value for DFQ = 0.

MDL	10-(20)-40	Minimum Detect Level for 1st dial tone in dBm, which is the absolute value of the minimum detect level. Odd input is rounded down. With United Kingdom (UK) package 190 the default value for MDL = 30 (-30 dBm).
MVT	100-(400)-1600	Minimum Validation Time for dial tone in milliseconds. Input that is not a multiple of 100 is rounded down to the next multiple of 100. With United Kingdom (KUK) package 190 the default value for MVT = 300.
BRK	(0)-240	Break Duration (maximum) for 1st dial tone in milliseconds. Input that is not a multiple of 16 is rounded down to the next multiple of 16.
CAD	(0)-15	Cadence type for 1st dial tone, which is the number of the cadence pattern in the hardcoded table.
SSC	(0)-15	Second Stage Configuration, which is the configuration number for the second stage dial tone detection to be set in the firmware.

LD 97 – Configure the flexible XDTR minimum accept level parameter (TYPE = DTR).

Prompt	Response	Description
...		
TYPE	DTR	First- and second-stage dial tone detection parameters.
MINL	3-(42)-48	Minimum accept level for Digitone Receivers in dBm, which is the absolute value of the minimum accept level. Input that is not a multiple of 3 is rounded down to a valid multiple of 3. With United Kingdom (UK) package 190 the default value for MINL = 45 (-45 dBm).

Refer to Table 6 for recommended configuration values for each country. The default values given in parenthesis are for non-UK countries.

Table 6
Recommended parameters according to country

Country	DFQ	MDL	MVT	BRK	CAD	SSC	MINL
Germany	1	-16 dBm	1000 ms.	0 ms.	0	—	-45 dBm
France	0	-24 dBm	1000 ms.	30 ms.	0	0	-30 dBm
Sweden	1	-28 dBm	1000 ms.	60 ms.	0	—	-28 dBm
Norway	1	-32 dBm	1400 ms.	0 ms.	0	—	-45 dBm
Switzerland	4	-28 dBm	1000 ms.	0 ms.	0	—	-30 dBm
Spain	2	-32 dBm	1000 ms.	0 ms.	0	0	-30 dBm
UK (330/440)	0	-30 dBm	500 ms.	0 ms.	0	—	-45 dBm
UK (33/50)	3	-30 dBm	900 ms.	0 ms.	0	—	-45 dBm
Denmark	1	TBD	TBD	0 ms.	0	—	-45 dBm
Holland	0	TBD	TBD	TBD	0	—	-30 dBm
New Zealand	1	TBD	TBD	TBD	0	—	-45 dBm

LD 13 – Define the protected data block of the XTD card.

Prompt	Response	Description
...		
XTDT	(0)-7	Extended Tone Detector Table Number, prompted when TYPE = XTD. If a table other than 0 is entered, it must have already been configured in LD 97.

LD 16 – Define the route protected data block of the XTD card.

Prompt	Response	Description
...		
XTDT	(0)-7	Extended Tone Detector Table Number, prompted with Meridian 1 Superloop Administration (XCT1) package 205. Must be the same value as defined in LD 13. If a table other than 0 is entered, it must have already been configured in LD 97.

Feature operation

No specific operating procedures are required to use this feature.

Fast Tone Digit Switch

Contents

This section contains information on the following topics:

Feature description	319
Operating parameters	320
Feature interactions	320
Feature packaging	320
Feature implementation	320
Feature operation	320

Feature description

The QPC609 Fast Tone and Digit Switch (FTDS) card, along with the associated software, can reduce call setup time by as much as 50 percent with features such as Basic/Network Alternate Route Selection (BARS/NARS), Stored Number Redial, Speed Call, and System Speed Call. With the use of an on-board buffer memory, the calling efficiency of end users is greatly improved.

The QPC609 can be operated in two different modes as defined by the customer: either with 100 milliseconds (ms) Dual-tone Multifrequency (DTMF) bursts or with 50 ms DTMF bursts. The software can load up to 32 digits into the buffer in a single time slice, and can outpulse the digits at a maximum rate of 10 digits per second.

Operating parameters

Tone Digit Switch cards QPC197 and QPC251 cannot coexist with the QPC609 or NT8D17 within the same system.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Fast Tone and Digit Switch (FTDS) package 87 has no feature package dependencies.

Feature implementation

LD 17 – Change the duration of Digitone burst.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. System parameters.
PARM	(NO) YES	(Do not) change system parameters.
- DTRB	50 60 70 (100)	Digitone burst time in milliseconds.

Feature operation

No specific operating procedures are required to use this feature.

FCC Compliance for DID Answer Supervision

Contents

This section contains information on the following topics:

Feature description	321
Operating parameters	325
Feature interactions	326
Feature packaging	327
Feature implementation	327
Feature operation	327

Feature description

This feature is designed to meet the requirements in the United States, Section 68.314(h) of Part 68, and the DOC requirements in Canada, Section 3.22 of CSO3 Part 1, for answer supervision of redirected telephone calls to ensure proper billing.

This feature is designed specifically for telephone calls coming in through Direct Inward Dialing (DID) trunks. Answer supervision for all other types of telephone calls is not affected. This feature works in conjunction with the following types of calls:

- Direct Inward Dialing (DID) calls terminating at the system and forwarded to a Recorded Announcement (RAN).
- Direct Inward Dialing (DID) calls forwarded by the system through the public switched network (PSN) to another number in the Public Exchange/Central Office (CO), or to another system.

On North American COT, FEX, and WATS trunks, Central Offices do not always return answer supervision. When no answer supervision is returned, the system software uses the end-of-dial timer for non-Digitone trunks (EOD timer), or the end-of-dial timer for Digitone trunks (ODT timer) to verify call connection. For Federal Communications Commission (FCC) compliance, the EOD and ODT timers will still be used for incoming DID calls, except that EOD is capped at 20 seconds even if configured for more.

This feature handles incoming DID calls over Data Terminal Interface (DTI), Integrated Services Digital Network (ISDN), and analog trunks. Outgoing calls over Central Office (CO) and TIE trunks are also handled. System components involved include trunks, the system, and the CO.

The following explains how the system components handle answer supervision.

- Analog, DTI, and ISDN incoming trunks: These are covered as long as they are DID incoming trunks. For incoming analog and DTI trunks, answer supervision or pseudo-answer supervision is returned by the system to the CO, if necessary. For incoming ISDN trunks, the connect message is returned instead.
- Analog, DTI, and ISDN outgoing trunks: For incoming DID calls, the answer and disconnect supervisor (SUPN) of the outgoing trunk is forced to NO. The EOD or ODT timer simulates the return of answer supervision.

- For DID calls terminating at the system, the system returns answer supervision based on the terminating condition. For DID calls forwarded to Public Switched Networks (PSN) or private networks, the system returns answer supervision based on the condition of the outgoing trunk (whether answered or timed out).
- CO: The system provides the pseudo-answer for DID calls because the system cannot return answer supervision.

DID calls terminating at the system

The requirements for a DID call terminating at the system to return answer supervision to the incoming DID trunk are shown in the following table. The ASUP prompt in LD 16 is kept for other types of calls, but the system software enforces the correct settings to return answer supervision if a Recorded Announcement (RAN) is used for DID calls, regardless of the value originally specified in the service change.

Table 7
Returning Answer Supervision for DID calls terminating at the system

DID call terminating status	Answer supervision returned with FCC Compliance
Answered by the called DID station	Yes
Answered by an attendant	Yes
Routed to dialing prompt	Yes
Routed to Meridian Mail	Yes
Routed to Recorded Announcement, including invalid number, not in service, and not assigned announcements	Yes
Routed to Recorded Announcement by Automatic Call Distribution (ACD), including invalid number, not in service, and not assigned announcements	Yes

DID call terminating status	Answer supervision returned with FCC Compliance
Not answered	No
Busy signal	No
Recorder signal	No

Calls forwarded to Public Switched Network

Because it is uncertain whether or not the far end will return answer supervision, the system uses the EOD and ODT timers. If the system has not detected the return of answer supervision upon timeout of the outgoing CO trunk, the system sends pseudo-answer supervision to the incoming DID trunk. This timer is set in LD 16 on a per-route basis. When a CO trunk is configured, system software forces the value of SUPN to NO. Consequently, system software does not expect the return of answer supervision, and returns answer supervision in the following cases:

- The system receives answer supervision from the outgoing CO trunk before the EOD or ODT timer of the outgoing route expires.
- The system does not receive answer supervision from the outgoing trunk and the EOD or ODT timer of the outgoing route expires; pseudo-answer supervision is generated.

Note: There are still some cases in which the SUPN value for CO trunks is assigned to YES if the CO supports a reverse battery mechanism.

With FCC Compliance, a more stringent mechanism is introduced to apply SUPN = NO in LD 14 to all CO trunks, even those configured as polarity sensitive. Service-changeable EOD or ODT timers are always used for incoming DID calls to enforce the return of answer supervision. In this case:

EOD = 128-19,968 milliseconds (ms) (default time is 13,952 ms), and

ODT = 256-16,128 ms (default time is 4,096 ms).

The EOD timer expires at 20 (20,000 ms) for FCC Compliance. For outgoing DID calls, the EOD upper limit is 32,640 ms.

DID calls forwarded to private networks

Answer supervision is not always returned on TIE trunks because some TIE trunks leased from public carriers are connected to COs that do not support answer supervision.

Currently, the system provides the SUPN prompt (LD 14) to specify the availability of answer supervision on certain types of trunks, including TIE, CAM, Common Control Switching Arrangement (CCSA), and CAA (CCSA Automatic Number Identification [ANI]). If SUPN is YES, and it is an outgoing trunk, the system does not return answer supervision to the incoming DID trunk unless answer supervision is received from that outgoing trunk. If the user specifies NO, the system returns pseudo-answer supervision upon EOD or ODT timeout. Such implementation causes short billing and overcharge problems.

To solve this problem, a treatment similar to the one implemented on CO trunks is used on the trunks in this category. The system enforces SUPN = NO without changing the SUPN value.

For incoming DID calls routed to private networks, SUPN is enforced to NO to ensure the return of answer supervision on the outgoing TIE, CO, FEX, WATS, CAM, CAA, and CCSA trunks. If answer supervision is not returned when the end of dial timeout occurs, the system disregards the original value of SUPN set by the user and forces the return of answer supervision.

When the call comes from a DID trunk, the following outgoing trunks are affected: TIE, CO, FEX, WATS, CAM, CAA, and CCSA.

Operating parameters

Allowing system equipment to be operated in such a manner as to not provide proper answer supervision signaling is in violation of Part 68 rules.

This equipment returns answer supervision signals to the public switched telephone network (PSTN) when:

- answered by the called station
- answered by the attendant

- routed to a Recorded Announcement that can be administered by the Customer Premises Equipment (CPE) user, and
- routed to a dial prompt.

This equipment returns answer supervision on all DID calls forwarded back to the PSTN. Permissible exceptions are when:

- a call is unanswered
- a busy tone is received, and
- a reorder tone is received.

Feature interactions

Extended DID/DOD Software Support - Europe

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XDOD units, it may lead to incorrect call status. Therefore, equipping this package is not recommended.

Extended Flexible Central Office Trunk Software Support

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XFCOT units, it may lead to incorrect call status. Therefore, equipping the FCC package is not recommended.

Feature Group D and Japan DID trunks

Feature Group D trunks and Japan (JPN) DID trunks are not affected by this feature.

ISDN trunks

Both incoming and outgoing Integrated Services Digital Network (ISDN) trunks are affected by this feature.

- For ISDN incoming DID trunks, the connect message is returned when answer supervision is returned or when the end of dial timer expires.
- For ISDN outgoing trunks, the end of dial timer is added to the protocol to simulate the EOD timer when a connect message is not returned from the far end; the system generates a pseudo-answer supervision to send to the incoming trunk.

Intercept Recorded Announcement

With this feature, incoming DID calls that are intercepted to a Recorded Announcement (RAN) are provided with answer supervision.

Feature packaging

This feature requires Federal Communications Commission Compliance for DID Answer Supervision (FC68) package 223.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

FCC Compliance for Equal Access

Contents

This section contains information on the following topics:

Feature description	329
Operating parameters	331
Feature interactions	332
Feature packaging	332
Feature implementation	332
Feature operation	334

Feature description

This feature brings the system into compliance with the Equal Access portion of the Federal Communication Commission (FCC) 68 ruling. This calls for the optional restriction of two types of direct-dialed Equal Access toll calls, while allowing all other Equal Access dialing sequences (with the exception of operator cut-through) and call processing operations.

The two types of Equal Access calls that may be restricted are:

- North American toll calls (1+NPA+NXX+XXXX), where NPA = Number Plan Area, NXX = any three digits with N being any digit except 0 or 1, and XXXX = any four digits, and
- International toll calls (011+CC+NN), where CC = Country Code and NN = National Number.
FCC compliant dialing plans.

Table 8
FCC compliant dialing plans.

Dialing Format	Destination
Allow: 10XXX+0	Operator of carrier specified by XXX.
10XXX+0+(NPA)+NXX+XXXX	Operator function of carrier specified by XXX.
10XXX+0+SAC+NXX+XXX	Subscribed carrier specified by XXX.
10XXX+01+CC+NN	Operator function of carrier specified by XXX.
Allow/Deny: 10XXX+1+(NPA)+NXX+XXXX	Carrier specified by XXX.
10XXX+011+CC+NN	Carrier specified by XXX.
where: XXX = any three digits, XXXX = any four digits, NPA = Number Plan Area, NXX = any three digits with N being any digit except 0 or 1, CC = Country Code, NN = National Number.	

This feature provides two methods of restricting Equal Access toll calls, General Carrier Restriction (GCR), and Selective Carrier Restriction (SCR). These restrictions, configured in LD 16, require that the originating set have a Network Class of Service of Equal Access. The Equal Access restriction for an NCOS group is configured in LD 87.

GCR permits a configuration of allowing or denying all North American Equal Access toll calls and all international Equal Access toll calls. This GCR restriction is based on call type only, and does not take into account the dialed Carrier Identification Code. SCR uses the New Flexible Code Restriction (NFCR) feature to place a more selective restriction on Equal Access toll calls, based on the dialed Carrier Identification Code (CIC). So, for example, Equal Access toll calls for a carrier with a CIC of 434 could be denied, while Equal Access toll calls for a carrier with a CIC of 225 could be allowed.

GCR is the simplest method to implement and requires no additional memory. It is therefore recommended that GCR be used if there is no need to restrict Equal Access toll calls based on carrier usage. SCR is more difficult to set up and requires additional memory. Use this method only if there is a strong need to restrict Equal Access toll calls based on carrier usage.

Since both methods can be active at the same time, the optimum solution in some cases would be to implement a combination of GCR and SCR. If, for example, a requirement exists to restrict all North American Equal Access toll calls and only certain international Equal Access toll calls, based on carrier usage, then GCR could be configured to handle the North American Equal Access toll calls while SRC could be configured to handle the international Equal Access toll calls.

Operating parameters

The same requirements for normal calls using the New Flexible Code Restriction (NFCR) feature apply to calls made under the Selective Carrier Restriction method, except that Equal Access operator calls (10XXX0) are allowed to be completed while Equal Access international toll calls (10XXX011) are denied.

This feature could require extra memory when operating under the Selective Carrier Restriction method (as much as 15.5K words of protected data storage when fully configured). Insufficient memory may limit the number of CIC codes which may be restricted.

This feature only supports COT, FEX, WAT, DID, and TIE routes with Standard Signaling.

This feature does not support network signaling, since the intention is to restrict Equal Access calls directly terminating at the Central Office and not at another network node.

This feature does not restrict calls made by an attendant.

The # sign is not outpulsed by the system, as recommended in the FCC Bellcore North American Dialing Plan.

The operator cut-through dialing sequence of 10XXX#, which is recommended in the FCC Bellcore North American Dialing Plan, is not supported on the system.

Feature interactions

New Flexible Code Restriction

The New Flexible Code Restriction (NFCR) feature has been modified to allow for the restriction of Equal Access international toll calls (10XXX+011+CC+NN) while not restricting Equal Access operator calls (10XXX+0).

Feature packaging

This feature is not packaged, however the following packages are required to make it operational: Network Class of Service (NCOS) package 32 is required for both the General Carrier Restriction and Selective Carrier Restriction methods; and New Flexible Code Restriction (NFCR) package 49 is required for the Selective Carrier Restriction method.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Apply Equal Access call restriction to this route.
- 2 LD 87 – Specify whether Equal Access with a NCOS group is to be associated or not.

LD 16 – Apply Equal Access call restriction to this route.

Prompt	Response	Description
...		
EQAR	(NO) YES	Enable Equal Access Restrictions. Prompted when TKTP = CO, FEX, WAT, or ISA, and ICOG = OGT, or IAO.
- GCR	(NO) YES	General Carrier Restriction to restrict Equal Access calls.
-- NTOL	(DENY) ALLOW	North American toll calls (that is, 1+ calls).
-- ITOL	(DENY) ALLOW	International toll calls (that is, 011+ calls).
- SCR	(NO) YES	Selective Carrier Restriction to restrict Equal Access calls. Prompted when EQAR = YES, and New Flexible Code Restriction is enabled. NTOL and ITOL must both be ALLOW.

LD 87 – Specify whether Equal Access with a NCOS group is to be associated or not.

Prompt	Response	Description
...		
- EQA	(NO) YES	Equal Access (is not) is associated with this NCOS group.

Feature operation

The dialing sequence for Equal Access calls on the system is:

- Access Code (either trunk or NARS/BARS)
- Carrier Access Code (CAC). The CAC is comprised of the Equal Access code (10) and the Carrier Identification Code (CIC) (any three digits). The CIC specifies the carrier that will handle the call,
- Telephone number.

The dialing sequence can contain two special characters, the asterisk (*) and the number sign (#). The * sign within a dialing invokes a three-second pause in the call processing procedure, and has no bearing on call restriction routines. The # sign within a dialing sequence signifies the end of the dialing sequence, and that it can be examined by call restriction routines. The only exception occurs when all international Equal Access toll calls have been restricted on a switch. In this case, direct-dialed Equal Access operator calls may not terminate with the # sign (in order to avoid possible fraud when calls are placed from trunks with Digitone Class of Service).

Note: The asterisk (*) used to introduce a pause while outpulsing digits is supported on analog and DTI trunks, but not supported on ISDN trunks. On ISDN trunks, if the OPAO feature is enabled, the asterisk (*) is outpulsed as a called party digit.

First-second Degree Busy Indication

Contents

This section contains information on the following topics:

Feature description	335
Operating parameters	335
Feature interactions	335
Feature packaging	336
Feature implementation	336
Feature operation	336

Feature description

This feature provides an attendant with an indication of whether a party is first degree or second degree busy. If party A is established on a call to party B, and the attendant tries to connect to party A, party A is considered to be first degree busy. If party C is camped-on or call waiting to party A, party A is then considered to be second degree busy.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged in International Supplementary Features (SUPP) package 131.

Feature implementation

LD 15 – At the OPT prompt, deny/allow Attendant Busy Display.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	ATT_DATA	Attendant console options
...		
- OPT	(ABDD) ABDA	Attendant Busy Display (denied) allowed.

Feature operation

The first degree busy indication is as normal. For second degree busy indication, normal busy tone is given to the attendant, and the display -O (meaning Occupied Second Degree) is given on the last four right-hand spaces of the console display.

Flexible Attendant Call Waiting Thresholds

Contents

This section contains information on the following topics:

Feature description	337
Operating parameters	338
Feature interactions	338
Feature packaging	338
Feature implementation	339
Feature operation	341

Feature description

When there are no calls waiting in the attendant queue, the Call Waiting Lamp on all attendant consoles is dark. The lamp is lit as soon as the first call arrives that can not be presented to a console.

When the number of calls waiting in the attendant queue exceeds the upper threshold, defined by the CWCL prompt in LD 15, the Call Waiting Lamp (CWL) state on all attendant consoles is changed from lit to flash (60 impulses per minute).

When the number of calls waiting in the attendant queue drops below the lower threshold, defined by the CWCL prompt in LD 15, the CWL state on all attendant consoles is changed from flash to lit.

When there are no more calls waiting in the attendant queue, the CWL is turned off.

The Flexible Attendant Call Waiting Thresholds (FACWT) feature allows the thresholds to be defined as a percentage of the active consoles, consoles which are not in Position Busy or Night Service, or as a fixed number. The feature is activated on a customer basis by responding with FACA (Flexible Attendant Call Waiting Thresholds Allowed) to the OPT (Option) prompt in LD 15.

Operating parameters

The upper threshold must be greater than or equal to the lower threshold.

The maximum number of attendants multiplied by the threshold maximum percentage must equal less than 65 535 (due to storage requirements).

Feature interactions

Attendant Overflow Position

The Attendant Overflow Position is not counted as an active attendant.

Recall to Same Attendant

The Recall to Same Attendant (RTSA) feature has precedence over the Flexible Attendant Call Waiting Thresholds feature. If either RSAA or RSXA options are selected, RTSA has precedence over FACWT in determining the Call Waiting Lamp state. If one or more RTSA calls are waiting in the attendant queue, RTSA will set the Call Waiting Lamp state to wink (30 impulses per minute).

RTSA calls are not included when the FACWT feature determines the number of calls waiting.

Feature packaging

The Flexible Attendant Call Waiting Thresholds is packaged under International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – The Customer Data Block service change accepts the options FACD and FACA to be defined as a customer option. The range and usage of the CWCL thresholds is defined by the FAC option selected. To allow the calls waiting thresholds to be defined as percentages respond to the OPT prompt with FACA. To allow the calls waiting thresholds to be defined as number of calls respond to the OPT prompt with FACD.
- 2 LD 21 – Print Routine 2 is modified to include OPT FACD or FACA setting and the new CWCL range settings in the Customer Data Block printout.
- 3 LD 93 – As for the Customer Data Block, the CWCL threshold usage is changed with the selection of a FAC option in the Customer Data Block.

LD 15 – The Customer Data Block service change accepts the options FACD and FACA to be defined as a customer option. The range and usage of the CWCL thresholds is defined by the FAC option selected. To allow the calls waiting thresholds to be defined as percentages respond to the OPT prompt with FACA. To allow the calls waiting thresholds to be defined as number of calls respond to the OPT prompt with FACD.

Note: If OPT is changed from FACD to FACA, or from FACA to FACD, a new value must be set for CWCL in LD 15 or the default values (0 0) will be used. The values of the call waiting thresholds for the tenant level in LD 93 are set equal to the customer level LD 15 values. A service message is output when the values are set.

Prompt	Response	Description
REQ:	CHG NEW	Modify or create data block.
TYPE:	ATT_DATA	Attendant console options

CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
...		
- OPT	(FACD) FACA	Options for customer: (Flexible Attendant Call Waiting Thresholds Denied), Flexible Attendant Call Waiting Thresholds Allowed. (Denies), Allows the attendant Call Waiting thresholds to be defined as a percentage of active attendants.
...		
- CWCL	xxxyyy	Call Waiting Lamp thresholds Where xxx defines the lower threshold and yyy defines the upper threshold.
	(0)-255(0)-255	Valid ranges for number of calls when FACD is entered in response to OPT.
	(0)-1000(0)-1000	Valid ranges for percentages when FACA is entered set in response to OPT.

LD 21 – Print Routine 2 is modified to include OPT FACD or FACA setting and the new CWCL range settings in the Customer Data Block printout.

Prompt	Response	Description
REQ	PRT	Request: Print data block.
TYPE	CDB	Customer Data Block
CUST	xx	Customer number, as defined in LD 15

LD 93 – As for the Customer Data Block, the CWCL threshold usage is changed with the selection of a FAC option in the Customer Data Block.

Note: The lower and upper call waiting thresholds must be redefined whenever they are changed between number of calls and percentage definition. Respond to the CWCL prompt with the new definitions.

Prompt	Response	Description
REQ	CHG NEW PRT	Request: Modify, create or print data block.
TYPE	CPGP	Console Presentation Group Parameters.
CUST	xx	Customer number, as defined in LD 15
CPG	1-63	Console Presentation Group: ACG (Attendant Console Group) number.
...		
AODN	...	
CWCL	xxxyyy (0)-255(0)-255 (0)-1000(0)-1000	Call Waiting Lamp thresholds Where xxx defines the lower threshold and yyy defines the upper threshold. Valid ranges for number of calls when FACD is set in response to OPT in LD 15. Valid ranges for percentages when FACA is set in response to OPT in LD 15.

Feature operation

If the customer has the FACA option selected in the Customer Data Block (LD 15) the thresholds are defined as a percentage of the number of active attendants. The thresholds are specified on a customer and tenant Console Presentation Group (CPG) level basis. If the Flexible Attendant Call Waiting Thresholds Denied (FACD) option is selected, the thresholds are defined as fixed numbers and the operations remain the same as when this feature is not used.

When the FACA option is used, the CWL state is updated each time the number of calls waiting or the number of active attendants changes. Any integer between 0-1000 can be set for the Call Waiting thresholds percentage. The following tables illustrate the operation when FACA is selected and the lower limit is defined as 100 percent of active attendants and the upper limit is defined as 200 percent of active attendants (CWCL 100 200).

Table 9
Upper and lower limits of calls waiting versus number of active attendants

Number of active attendants	Number of calls waiting in queue to achieve 100% lower limit	Number of calls waiting in queue to achieve 200% upper limit
1	1	2
2	2	4
3	3	6

Table 10
CWL state versus number of active attendants

Number of active attendants	Number of calls in queue												CWL state
	0	1	2	4	6	8	6	4	3	2	1	0	
1	D	L	L	F	F	F	F	F	F	F	L	D	CWL state
2	D	L	L	L	F	F	F	F	F	L	L	D	
3	D	L	L	L	L	F	F	F	L	L	L	L	

Legend: D = Dark, L = Lit, F = Flash.

Flexible Attendant Directory Number

Contents

This section contains information on the following topics:

Feature description	343
Operating parameters	343
Feature interactions	344
Feature packaging	344
Feature implementation	344
Feature operation	344

Feature description

The Flexible Attendant Directory Number (FADN) specifies the Directory Number (DN) that provides access to the attendant, replacing the usual 0. The DN may be any DN in the numbering plan, but it must be used only for the attendant and in all situations in which 0 is normally used.

Operating parameters

The attendant DN may be used only for the attendant. One attendant DN is allowed per customer and all attendants must have the same DN.

Feature interactions

Directory Number Expansion

The attendant DN can have up to seven digits if the Directory Number Expansion (DNXP) package is equipped.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 15 – Define or change the attendant Directory Number.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	ATT_DATA	Attendant console options
...		
- ATDN	xxx...x	Number dialed to reach the attendant (the default is 0).

Feature operation

No specific operating procedures are required to use this feature.

Flexible Busy Tone Timer

Contents

This section contains information on the following topics:

Feature description	345
Operating parameters	345
Feature interactions	345
Feature packaging	346
Feature implementation	346
Feature operation	346

Feature description

The feature provides a flexible length of time that a caller on a Direct Inward Dialing (DID) route hears busy or overflow tone, when it is normally encountered. The time that the tone is presented is overlay programmable from 2 to 254 seconds.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged in the International Supplementary Features (SUPP) package 131.

Feature implementation

LD 16 – Set data for Flexible busy/overflow time to implement the flexible Busy Tone Timer feature:

Prompt	Response	Description
...		
BTT	2-(30)-254	Enter busy/overflow time to be returned on DID routes in seconds.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Dial Tone Detection

Contents

This section contains information on the following topics:

Feature description	347
Operating parameters	348
Feature interactions	348
Feature packaging	348
Feature implementation	349
Feature operation	349

Feature description

The Flexible Dial Tone Detection (FDTD) feature permits the system to wait for and detect a Second Dial Tone (SCDT) before automatic or manual dialing of outgoing toll calls. The wait-for-tone position in the digit outpulsing is user configurable, thus providing flexible digit validation. This feature is an enhancement to the Dial Tone Detection (DTD) feature.

The break-in outpulsing can occur after a defined digit sequence, or after a defined number of digits have been outpulsed. Digit outpulsing is halted and the Dial Tone Detector is reconnected. With the FDTD feature, it is no longer necessary to use the * to create pauses in outpulsing.

This feature has the following three options:

Dial Tone Position (DTP)

With the DTP option an Outgoing Access Code (OAC) is selected. Then FDTD verifies the dialed digits against the OAC (for example, country code) of up to four digits. When DTP is set, only the OAC digits are outputted before the DTD is reconnected. The DTP is the position immediately after the OAC. Up to four OACs can be specified.

Count Detection (CNT)

With the CNT option, the system will send a pre-defined number of digits (up to fifteen) before digit outputting is halted and the DTD is reconnected. Digit counting is done either one digit at a time, or as a string if fast Tone and Digit Switch (TDS) outputting is set up.

Digit Sequence (DGTS)

With the DGTS option, a table of up to 245 entries could be created of unique one-to-four digit sequences where the DTD should be reconnected after.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged under Dial Tone Detector (DTD) package 138.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Set data for Flexible busy/overflow time.
- 2 LD 56 – Create tone and ringing parameters for one or more customers.

LD 16 – Set data for Flexible busy/overflow time.

Prompt	Response	Description
...		
DTD	(NO) YES	Dial Tone Detection (is not) is to be performed on this route.
SCDT	(NO) YES	Secondary dial tone (will not) will be used on route.

LD 56 – Create tone and ringing parameters for one or more customers.

Prompt	Response	Description
...		
TYPE	FDTD	Flexible Dial Tone Detection data.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Direct Inward Dialing

Prior to the introduction of the Flexible Direct Inward Dialing (FDID) feature, hotels were required to purchase a large number of DID numbers that matched the number of hotel guest rooms. These DID DNs must be coordinated with the local exchange and become permanent in the system.

The FDID feature allows hotels to assign a temporary DID number to a guest room using a Property Management System (PMS) or Background Terminal (BGD).

Please refer to *Hospitality Features: Description and Operation* (553-3001-353) for complete information.

Flexible Feature Code Boss Secretarial Filtering

Contents

This section contains information on the following topics:

Feature description	353
Operating parameters	353
Feature interactions	354
Feature packaging	356
Feature implementation	356
Feature operation	357

Feature description

The Flexible Feature Code Boss Secretarial Filtering (FFCSF) feature allows a set, designated as a “secretary” set, to filter calls coming in to a “boss” set. A boss or secretary set can be any Meridian 1 proprietary set or 16-button Dual-tone Multifrequency (DTMF) set. Filtering is a form of call screening, in which the calls coming into the boss set are presented to the secretary set to be answered and possibly transferred back to the boss set.

A boss set can have only one secretary set, while a secretary set can have an unlimited number of boss sets.

Operating parameters

A set cannot simultaneously be configured as a boss set and a secretary set.

The FFCSF Flexible Feature Code must be unique and not conflict with the customer dialing plan.

Secretary DNs which are programmed on a boss set cannot already be part of the customer's DN plan, nor conflict with it.

The FFCSF feature cannot be applied to sets having Multiple Appearance DNs.

In a networking environment, a boss set and secretary set must be on the same node.

Easy Change (ECHG) requests cannot be made against the Secretarial Filtering (SFLT) and Secretarial Forwarding DN (SFDN) prompts in LDs 10 and 11.

Feature interactions

Attendant Blocking of Directory Number

The FFC Boss Secretary Filtering feature will be overridden. If an Attendant Blocking of DN attempt is made for a set that has the Boss Secretary Filtering feature active, the dialed DN will be blocked if idle. If it is busy, busy tone will be heard.

Attendant-Extended Calls

Attendant-extended third-party calls to a boss set will be subject to filtering if filtering on the boss set is active for all calls. If filtering is allowed for external calls only, the attendant will be filtered only if the third party is external.

Call Forward All Calls

Although Call Forward All Calls and FFCSF can be equipped on the same set, they cannot both be active at the same time. There is no precedence of one over the other; it is not possible to activate one if the other is active on the set.

Call Forward Busy Call Waiting

A Call Forward Busy or Call Waiting to a boss set with filtering active is routed to the secretary set.

Call Forward and Busy Status

If the secretary set is a Meridian 1 proprietary telephone, or a compact digital set, it can be equipped with a Call Forward and Busy Status (BFS) key/lamp pair, to perform the following:

- monitor the status of the Call Forward feature on a boss set
- activate/deactivate the Call Forward feature on a boss set
- monitor whether or not a boss set is busy on a call, and
- override the Call Forward All Calls feature on a boss set, in order to place a call to the boss set.

However, you can only perform the above functions while the secretary telephone rests in an unattended state, since BFS and FFCSF cannot activate simultaneously.

To activate or deactivate the Call Forward feature on the boss telephone from the secretary telephone, you must set the BFS_CFW prompt in the LD 15 overlay to “YES”.

Camp-On

When an attendant is attempting to Camp-on a call to a boss set with filtering active, the call is routed to the secretary set, if the filtering is active for all calls. If filtering is active for external calls only, the call is routed to the secretary set if the call is an external call.

Hot Line Private Line

FFCSF takes precedence over Private Line and Hot Line.

Hunting

A boss set with filtering activated is passed over by Hunting; the next hunt sequence is to the secretary set.

Lockout, DID Second Degree Busy, and MFE Signaling Treatment

Flexible Feature Code Boss Secretarial Filtering takes precedence over lockout and second degree busy.

Network Intercom

Hot Type I calls override this feature (for instance, Hot Type I calls are not filtered by FFC Boss Secretarial filtering). The call terminates on the Boss' set and is not forwarded to the secretary.

FFC Boss Secretarial Filtering takes precedence over enhanced Hot Type D calls. In this case, if FFC Boss Secretarial Filtering is active, calls terminate on the secretary's set.

Voice Call

A call to a Voice Call key on a boss set with filtering active is not filtered to the secretary set.

Feature packaging

This feature is packaged under Boss Secretarial Filtering (FFCSF), package 198.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 or LD 11 – Respond to the Secretarial Filtering (SFLT) prompt.
- 2 LD 57 – Define the Secretarial Filtering Access Code.

LD 10 or LD 11 – Respond to the Secretarial Filtering (SFLT) prompt.

Prompt	Response	Description
...		
SFLT	(NO) BOSS SEC	<p>Secretarial Filtering, prompted with Boss Secretarial Filtering (FFCSF) package 198.</p> <p>Designate a telephone by entering either BOSS for boss set, SEC for secretary set, or NO for no designation.</p> <p>SEC, (NO), and <CR> take you to the next prompt.</p>

- SFDN	xxxx	Secretarial Forwarding DN of secretary set to which filtered calls should be forwarded, prompted if response to SFLT = BOSS.
--------	------	--

LD 57 – Define the Secretarial Filtering Access Code.

Prompt	Response	Description
...		
SFAC	xxxx	Secretarial Filtering Access code.

Feature operation

The FFCSF feature may be accessed from the boss set and secretary set using the same Flexible Feature Code (FFC) followed by a control digit.

On a boss set, the following control digits can be dialed:

- 7, to activate filtering for all external calls
- 8, to activate filtering for all external and internal calls, and
- 9, to cancel filtering.

Confirmation tone is given to the boss set after filtering has been successfully activated or deactivated, or if filtering was already activated. Afterwards, a special dial tone (the same as the one used to indicate that Call Forward is active on a set) is provided to the boss set whenever it goes off-hook, as an audible reminder that the feature is active.

If filtering could not be activated by the boss set due to one of the following conditions, overflow tone is returned:

- the secretary set assigned to the boss set is not attended, or
- Call Forward All Calls is active on the boss set.

On a secretary set, the following control digits may be dialed:

- 8 – to place the secretary set in attended state, allowing calls to be filtered to it from a boss set.
- 9 – to place the secretary set in unattended state and to disable the boss set filtering.

In either case, confirmation tone is returned to the secretary set.

Flexible Feature Codes

Contents

This section contains information on the following topics:

Feature description	359
Operating parameters	361
Feature interactions	362
Feature packaging	365
Feature implementation	366
Feature operation	375

Feature description

Flexible Feature Codes (FFCs) are user-defined numbers of up to four digits that can be used in place of existing Special Prefix (SPRE) codes. With DN Expansion (DNXP) package 150, Flexible Feature Codes (FFCs) can be up to seven digits long. The Flexible Feature Code (FFC) feature allows customers to define different dialing codes for different features. There is no limit to the number of FFCs per prompt as long as each one is unique.

This feature allows the use of digits 0 through 9, and the asterisk (*) and octothorpe (#) to activate features. Special Prefix (SPRE) dialing feature is still supported, with or without the FFC feature enabled. However, the Special Prefix (SPRE) must be assigned in LD 15 in order for FFCs to operate for those features that also use SPRE codes.

The FFC package allows analog (500/2500 type) telephones to activate these features:

- Automatic Wake Up (AWU)
- Electronic Lock (ELK)
- Override, and
- Remote Call Forward (RCFW).

Customers define one or more codes at their discretion in LD 57 (FFC). For Service Change updates, refer to *Software Input/Output: Administration* (553-3001-311).

The basic FFC operation allows a telephone to access features normally available by dialing SPRE codes. FFCs are not supported, however, on a Meridian 1 proprietary telephone that is attempting a call pickup on a Dial Intercom ringing call.

A telephone can access a feature using FFC only if that telephone can currently access the same feature using SPRE dialing.

Any telephone, that does not currently have SPRE access, receives intercept treatment when dialing FFCs. Telephone operation remains the same (only the codes are different) so that the FFC code is dialed instead of the SPRE code. Therefore, each feature enabled must have an FFC individually defined.

When FFCT is YES in LD 57, the system returns a confirmation tone to the user after completing some feature operations.

The confirmation tone is the same as the special dial tone.

FFC allows analog (500/2500 type) telephones to Override established calls, based on the telephone's programmed Class of Service. Analog (500/2500 type) telephones can also activate and deactivate Call Forward by dialing a single FFC.

The confirmation Tone for FFC allows analog (500/2500 type) telephones and Meridian 1 proprietary telephones to receive a special tone when certain functions are complete. Confirmation Tone is returned following these events:

- Automatic Wake Up (any function)
- Call Forward (deactivate)

- Electronic Lock (any function)
- Ring Again (activate or deactivate)
- Room Status (any function)
- Speed Call Controller (add to Speed Call list), and
- Store Number (erase).

Confirmation Tone for FFC is returned when a predefined string is used as the end-of-dialing indicator for the following activities:

- Call Forward (activate)
- Permanent Hold (any function)
- Speed Call (store)
- Store Number (store), and
- Flexible Feature Code (any verification).

Confirmation Tone is provided for Speed Call store after the End-of-Dial string, such as the octothorpe (#), is entered.

Operating parameters

The SPRE feature must exist in order for FFC to operate.

The FFCs selected must be unique numbers up to seven digits long. They cannot conflict with any Directory Number (DN) already in the dialing plan.

LD 57 can allow no more than 100 FFCs to be modified in a single pass through Service Change.

Customers using the octothorpe (#) as part of their dialing plan can use a predefined string of digits for end-of-dialing indicators.

Changes to the Station Control Passwords (SCPWs) do not take effect until after a data dump and SYSLOAD. Configuring the system or enabling the feature changes SCPL = 0 in LD 15 to any length. This change takes effect immediately. Any other change to SCPL in LD 15 requires a data dump and SYSLOAD before taking effect. When the Station Control Password Length (SCPL) is changed, all associated passwords change accordingly at the next data dump and SYSLOAD. Changing SCPL from three to five automatically inserts leading zeros before all existing three-character passwords. Conversely, changing SCPL from five to three automatically truncates the leading characters of all existing five-character passwords.

Feature interactions

Attendant Blocking of Directory Number

If a Flexible Feature Code is dialed after pressing the Semi-automatic Camp-on (SACP) key to initiate an Attendant Blocking of DN attempt, overflow tone will be provided and the attempt cancelled.

Automatic Wake Up

Telephones can activate Automatic Wake Up (AWU) features for their own station with Common Controlled Switching Arrangement Class of Service.

The Automatic Wake Up feature may be active at the same time as Multiple Wake Up.

The attendant query function is not supported for Multiple Wake Up.

Multiple Wake Up from Attendant Consoles is not supported.

The Background Terminal (BGT) is not supported for Multiple Wake Up.

If one Automatic Wake Up time has been set using the Automatic Wake Up Activate (AWUA) FFC, only three additional Multiple Wake Up calls may be entered using the Multiple Wake Up Activate (MWUA) FFC.

Call Forward All Calls

When FFC is configured for a customer, #1 automatically becomes the FFC DN for both Call Forward Activate (CFWA) and Call Forward Deactivate (CFWD). When the same DN is used for both CFWA and CFWD, FFC toggles the Call Forward activated/deactivated state of the telephone. When Call Forward is activated for a telephone, entering #1 automatically deactivates Call Forward, no matter what follows #1. When Call Forward is deactivated for a telephone, the result of entering #1 depends on what follows:

- If the telephone goes on hook immediately, Call Forward is activated for the telephone to its previous call forward number.
- If a valid DN is entered after #1, call forward is activated for the telephone to that valid DN.
- If an invalid DN is entered after #1, call forward remains deactivated for the telephone.

Call Forward Attendant and Network-Wide Remote

If the Outpulsing of Asterisk and Octothorpe (OPAO) package is equipped, the octothorpe (#) is treated as a dialed digit and does not signal the end of dialing. From one to three end-of-entry characters are defined in LD 15.

Call Pickup Call Pickup, Directed

FFC codes are not supported on a Meridian 1 proprietary telephone during an attempt to pick up a Dial Intercom ringing call.

China – Flexible Feature Codes - Outgoing Call Barring

Flexible Feature Codes containing a “*” or an “#” will always be allowed by Outgoing Call Barring (OCB). Therefore, FFCs which can be used to make a call should be entirely numeric if barring of them is required.

Some FFCs are equivalent to Special Prefix functions and these will be subject to barring based on the equivalent Special Prefix codes, even if the FFC is entirely numeric.

Controlled Class of Service

If Electronic Lock (ELK) is activated, the CCRS Class of Service is used whether Controlled Class of Service (CCOS) is active or not. ELK takes precedence over CCOS. If ELK is deactivated, the set is treated as per existing operation.

When FFC ELKA and a password is entered, this set will use the CCRS Class of Service configured in LD 15. The CCRS Class of Service will always be used whether or not CCOS is currently controlling the set's Class of Service. When FFC ELKD and a password is entered, the set will use the appropriate Class of Service associated with this set. If CCOS is enabled for the set, the associated customer Class of Service is used (that is, CCRS, ECC1, or ECC2). If CCOS is not enabled for this set, the set's own Class of Service is used.

When FFC ELK is deactivated, the set reverts back to the Class of Service as it should be without FFC ELK, instead of always reverting back to the set's Class of Service (that is, if CCOS is enabled, it will use the customer's Class of Service; if CCOS is not enabled, it will use the set's Class of Service).

Intercept Treatment

If Intercept Treatment has been specified for a call to a vacant number (CTVN), the Digit Display (DDs) on the attendant console is affected by Flexible Feature Codes (FFCs). If no FFC has been defined, the dialed digits are displayed up to and including the first digit that fails to match any Directory Number (DN). If one or more FFCs have been defined, the dialed digits are displayed, up to and including the first digit that fails to match any FFC.

ISDN QSIG/EuroISDN Call Completion

Analog (500/2500 type) set can use Flexible Feature Codes (FFCs) to activate Call Completion to Busy Subscriber requests.

Pretranslation

Flexible Feature Codes must be accessible through a Pretranslation Table entry in order for users to activate features in this manner.

The Flexible Feature Code (FFC) feature will not be affected if the FFCs begin with “*” or “#”, since before translation begins if the first digit is an “*” or “#” pretranslation will not be done. If any digits follow the FFC code, the first of the digits that follows will be pretranslated.

Special Prefix

Users are still able to use Special Prefix (SPRE) dialing (if the feature is enabled) with or without FFC defined.

Speed Call, System

With Flexible Feature Code (FFC), a confirmation tone is provided for Speed Call store after the end-of-dial (EOD) string is entered.

Feature packaging

Flexible Feature Codes (FFC) package 139 requires Controlled Class of Service (CCOS) package 81 only if Electronic Lock (ELK) is desired.

In addition, the SPRE dialing feature must be enabled for FFC functions.

2500 Telephone Features (SS25) package 18, and 500 Set Dial Access to Features (SS5) package 73 are required to support the following features:

- Call Forward
- Speed Call Controller
- Speed Call User
- Permanent Hold
- Call Park, and
- System Speed Call.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Set parameters for Flexible Feature Code.
- 2 LD 10 – Set Station Control Password Length for analog (500/2500 type) telephones.
- 3 LD 11 – Set Station Control Password Length for Meridian 1 proprietary telephones.
- 4 LD 57 – Define numbers for Flexible Feature Code.

LD 15 – Set parameters for Flexible Feature Code.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CCS	Controlled Class of Service options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- CCRS	aaa	Controlled Class of Service (CCOS) (assigned when Electronic Lock (ELK) is activated), where: aaa = UNR (Unrestricted), TLD (Toll Denied), CTD (Conditionally Toll Denied), CUN (Conditionally Unrestricted), SRE (Semi-restricted), FRE (Fully Restricted), FR1 (Fully Restricted Level 1), FR2 (Fully Restricted Level 2).
TYPE	FFC	Flexible Feature Code Options.

- SCPL	x	Station Control Password Length (SCPL), 0-8. Entering 0 disables ELK and Remote Call Forward (RCFW) features at next data dump and SYSLOAD.
- FFCS	(NO) YES	(Do not) change FFC end-of-dialing indicator.
-- STRL	x	String length 1-3 (prompted only if FFCS = YES).
-- STRG	aaa	Character string to be used (up to string length; prompted only if FFCS = YES).

LD 10 – Set Station Control Password Length for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
SCPW	xx...xx X	Station Control Password (must be same length as SCPL in LD 15; enter X to delete password).
CLS	CCSA	Enable CCOS for Electronic Lock (ELK) and Remote Call Forward (RCFW).

LD 11 – Set Station Control Password Length for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
SCPW	xx...xx X	Station Control Password. Must be the same length as SCPL in LD 15. Enter X to delete the password. Delete the password only if SCPL = 0; otherwise receive an error code for no password to fit the SCPL.
CLS	CCSA	Enable CCOS for ELK and Remote Call Forward (RCFW).

LD 57 – Define numbers for Flexible Feature Code.

Prompt	Response	Description
REQ	NEW CHG OUT	Build new FFC data block, change FFC data block, remove FFC code.
TYPE	FFC	Flexible Feature Codes.
CUST	xx	Customer number, as defined in LD 15
FFCT	(NO) YES	FFC Confirmation Tone.
CEPT	(NO) YES	Conférence Européen des Postes Tel defaults are (not) allowed, to be defined (prompted only if REQ = NEW).
REP*	n <CR>	Single-character replacement for * and # in CEPT defaults. Create defaults only.
ALL	(NO) YES	(Do not) remove all FFCs (prompted only if REQ = OUT).

CODE	aaaa	FFC type.
	ALL	All prompts.
	<CR>	No prompts.
- ADMN	xxxx	Set-based Administration sequence code.
- AFTO	xxxx	DSN Flash Precedence code.
- AREM	xxxx	Automatic Set Removal code.
- ASRC	xxxx	Automatic Set Relocation code.
- ATDA	xxxx	Autodial Activate code.
- ATDD	xxxx	Autodial Deactivate code.
- ATVF	xxxx	DSN Immediate Precedence code.
- ATVM	xxxx	DSN Priority Precedence code.
- ATPP	xxxx	DSN Flash Override Precedence code.
- AUTH	xxxx	Authorization code.
- AVNR	xxxx	DSN Routine Call code.
- AWUA	xxxx	Automatic Wake Up Activate code.
- AWUD	xxxx	Automatic Wake Up Deactivate code.
- AWUV	xxxx	Automatic Wake Up Verify code.
- BNRA	xxxx	Busy Number Redial code.
- BNRD	xxxx	Busy Number Redial Deactivate code.
- CCFA	xxxx	Customer Call Forward code.
- CCFD	xxxx	Customer Call Forward Deactivate code.
- CDRC	xxxx	Call Detail Recording Charge Account code.
- CFDD	xxxx	Call Forward Destination Deactivation.

- CFHO	xxxx	Call Forward/Hunt Override code.
- CFWA	xxxx	Call Forward All Calls Activate code.
- CFWD	xxxx	Call Forward All Calls Deactivate code.
- CFWV	xxxx	Call Forward All Calls Verify code.
- COND	xxxx	Conference Diagnostics code.
- CPAC	xxxx	Park Access Call code.
- CPP	xxxx	Calling Party Privacy code.
- CPPO	xxxx	Calling Party Privacy Override code.
- CPRK	xxxx	Park Call code.
- CSHF	xxxx	Centrex Switchhook Flash code.
- C6DS	xxxx	Six-Party Conference code.
- CWGA	xxxx	Call Waiting Activate code.
- CWGD	xxxx	Call Waiting Deactivate code.
- DEAF	xxxx	Deactivate Ring Again and FWD codes.
- DPVS	xxxx	Data Port Verification code.
- ELKA	xxxx	Electronic Lock Activate code.
- ELKD	xxxx	Electronic Lock Deactivate code.
- EOVR	xxxx	Enhanced Override code.
- FDIS	xxxx	Forced Disconnect code.
- GHTA	xxxx	Group Hunt Termination Allowed code.
- GHTD	xxxx	Group Hunt Termination Disallowed code.
- GRHP	xxxx	Group Hunt Pilot DN

-- USE	(GPHT)	Initiate Group Hunting.
-- LSNO	nnn	List number.
-- HTYP	aaa	Hunting type.
-- CFBA	(NO) YES	Call Forward Busy Activate
- GRPF	xxxx	Group Call code.
- GRCL	xxxx	Group Call List number.
- HIDN	xxxx	Hospitality Identification (Hospitality Management) code.
- HOLD	xxxx	Permanent Hold code.
- ICFA	xxxx	Internal Call Forward Activate code.
- ICFD	xxxx	Internal Call Forward Deactivate code.
- ICFV	xxxx	Internal Call Forward Verify code.
- INST	xxxx	Set-based Administration Installer code.
- HREL	xxxx	Hospitality Relocation (Hospitality Management) code.
- ICPA	xxxx	Intercept Computer Interface Activate code.
- ICPD	xxxx	Intercept Computer Interface Deactivate code.
- ICPO	xxxx	Intercept Computer Interface Override code.
- ICPP	xxxx	Intercept Computer Interface Print code.
- IMS	xxxx	Integrated Message System access code.
- ITXX	xxxx	For "1xx" Special Services (up to four digits) CO route.
-- RTXX	xxxx	CO route number for the "1xx" service.
- LILO	xxxx	Log In-Log Out for 500/2500 ACD sets code.
- MLIO	xxxx	Multi-language I O code.

- MNT	xxxx	Enter set-based Maintenance sequence code.
- IMS	xxxx	Integrated Message System Access code.
- LILO	xxxx	Log-in, Log-out code for analog (500/2500 type) ACD telephones.
- MNTC	xxxx	Maintenance Access code.
- MSBA	xxxx	Make Set Busy Activate code.
- MSBD	xxxx	Make Set Busy Deactivate code.
- MTRC	xxxx	Malicious Call Trace code.
- MWRA	xxxx	Multiple Wake Up Repeat Activate code.
- MWUA	xxxx	Multiple Wake Up Activate code.
- MWUD	xxxx	Multiple Wake Up Deactivate code.
- NRDY	xxxx	Not Ready Activate or Deactivate code for analog (500/2500 type) ACD telephones.
- OVRD	xxxx	Override/Priority Override code.
- OCBA	xxxx	Outgoing Call Barring feature code.
- OCBD	xxxx	Outgoing Call Barring Deactivate code.
- OCBV	xxxx	Verify the Outgoing Call Barring feature code.
- PCAA	xxxx	Personal Call Assistant Activate code.
- PCAD	xxxx	Personal Call Assistant Deactivate code.
- PCAV	xxxx	Personal Call Assistant Verify code.
- PGAP	xxxx	Answer Parallel Paging code.
- PGIP	xxxx	Initiate Parallel Paging code.
- PGSP	xxxx	Initiate Serial Paging code.

- PLDN	xxxx	Pilot DN code.
-- USE	aaaa	Use (aaaa = GPHT, SCLU, or SCLC).
-- LSNO	nnnn	List Number.
-- HTYP	aaa	Hunting Type (aaa = (LIN) or RRB)
-- CFWI	(NO) YES	Call Forward All Calls have priority over Group Hunting.
-- MQUE	aaaa	Limit to calls Queued against pilot DN (aaa = (ALL), 0, 1, or ACTM).
- PONW	xxxx	Priority Override Network Wide.
- PUDN	xxxx	Pick Up Directory Number code.
- PUGR	xxxx	Pick Up Group code.
- PUGR	xxxx	Pick Up Group code.
- PURN	xxxx	Pick Up Ringing Number code.
- RCFA	xxxx	Remote Call Forward Activate code.
- RCFD	xxxx	Remote Call Forward Deactivate code.
- RCFV	xxxx	Remote Call Forward Verify code.
- RDLN	xxxx	Redial Last Number code.
- RDNE	xxxx	Redial Number Erase code.
- RDSN	xxxx	Redial Saved Number code.
- RDST	xxxx	Redial Store code.
- RGAA	xxxx	Ring Again Activate code.
- RGAD	xxxx	Ring Again Deactivate code.
- RGAV	xxxx	Ring Again Verify code.
- RMST	xxxx	Room Status code.

- RPAN	xxxx	Radio Paging Answer Call code.
- RPAX	xxxx	Radio Paging Access code.
- SADS	xxxx	Scheduled Access Restriction Disable code.
- SAEN	xxxx	Scheduled Access Restriction Enable code.
- SALK	xxxx	Scheduled Access Restriction Lock code.
- SAUN	xxxx	Scheduled Access Restriction Unlock code.
- SCPC	xxxx	Station Control Password Change code.
- SFAC	xxxx	Secretarial Filtering Access code.
- SPCC	xxxx	Speed Call Controller code.
- SPCE	xxxx	Speed Call Erase code.
- SPCU	xxxx	Speed Call User code.
- SSPU	xxxx	System Speed Call User code.
- TFAS	xxxx	Trunk Answer from Any Station code.
- TNDN	xxxx	Enter the DN-to-TN conversion utility code.
- TRMD	xxxx	Terminal Diagnostics code.
- TRVS	xxxx	Trunk Verification code.
- USER	xxxx	Set-based Administration User code.
- USCR	xxxx	User Selectable Call Redirection.
- USTA	xxxx	User Status code.
- VTLF	xxxx	Virtual Office Terminal Logoff.
- VTLN	xxxx	Virtual Terminal Login.

Feature operation

For some features, the user can dial a different FFC to activate or deactivate a feature or to verify some feature operations. The tone for each event (activate, deactivate, verify) is the same as the default Confirmation Tone (special dial tone).

The Electronic Lock and Remote Call Forward FFCs are described here because Electronic Lock is packaged with Flexible Feature Codes and affects Remote Call Forward.

For information about using FFCs for other features, see the individual feature descriptions.

Electronic Lock

Electronic Lock (ELK), packaged with FFC, provides an SCPW for changing the status from the telephone. The SCPW also protects against changes to the Remote Call Forward (RCFW) feature. Entering a password length of 0 in LD 15 (SCPL) disables password control for both ELK and RCFW. Operating ELK requires enabling CCOS package 81.

To change the Class of Service from a telephone:

- 1 Dial the Electronic Lock Activate (ELKA) code.
- 2 Dial the SCPW. The telephone's Class of Service is changed to the CCRS value defined in LD 15.

To return the telephone to the originally defined Class of Service:

- 1 Dial the Electronic Lock Deactivate (ELKD) code.
- 2 Dial the SCPW. The telephone's Class of Service is changed to the values defined in LD 10 and LD 11.

Because the Class of Service defined for CCRS in LD 15 is usually lower than the Class of Service defined in LD 10 or LD 11, the Class of Service for a telephone is lowered by dialing the Electronic Lock Activate (ELKA) FFC and the password associated with that telephone. The user can activate from a remote telephone by dialing the ELKA FFC, the SCPW and the Directory Number to be changed. The same operation can deactivate the feature, using the Electronic Lock Deactivate (ELKD) code programmed in LD 57.

ELK operation has the following requirements:

- CCOS allowed, with CCSA Class of Service in LD 10 and LD 11, and CCRS defined in LD 15
- Set the password length in LD 15, at the SCPL prompt
- Add passwords in LD 10 and LD 11, at the SCPW prompt, and
- FFCT = YES in LD 57.

To change the SCPW for ELK:

- 1 Select a free extension.
- 2 Dial the SCPC code.
- 3 Dial the SCPW for your telephone.
- 4 Dial the new password.
- 5 To confirm, dial the new password again.
- 6 Hang up or press **Rls**.

Flexible Orbiting Prevention Timer

Contents

This section contains information on the following topics:

Feature description	377
Operating parameters	377
Feature interactions	378
Feature packaging	378
Feature implementation	378
Feature operation	378

Feature description

The Orbit Prevention feature prevents an infinite loop from being created in a network-wide Call Forward configuration resulting from set A being call forwarded (all calls) to set B at another node, which in turn has been call forwarded back to set A. A check is provided through the Flexible Orbiting Prevention Timer (FOPT) that prohibits any set from call forwarding more than one call off-node for a period of 14 seconds.

The Orbit Prevention feature allows the Flexible Orbiting Prevention Timer (FOPT), to be service changeable from 0 to 30 seconds (even numbers only). If a value of 0 is defined, then Orbit Prevention is disabled and call forwarding is not inhibited in any way.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 15 – Enter an even value between 0-30 seconds, at the FOPT prompt to define the Orbit Prevention Timer.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	NET	ISDN and ESN Networking Options.
...		
- FOPT	0-(14)-30	Flexible Orbiting Prevention Timer. The number of seconds in two-second intervals that CFW should be suspended on a set that has just forwarded a call off node. If an odd number is entered, the number is rounded up to the next even number, and the message "FOPT ROUNDED TO xx" is printed.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Tone and Digit Switch Control

Contents

This section contains information on the following topics:

Feature description	379
Operating parameters	381
Feature interactions	381
Feature packaging	381
Feature implementation	382
Feature operation	383

Feature description

This feature allows the system to generate the many tones and cadences required for call processing in various countries. The system must be equipped with Flexible Tone and Digit Switch (TDS) circuit packs. One TDS pack is inserted in each network shelf in place of a network circuit pack.

The TDS packs are pre-overlay programmed with certain basic tone characteristics (frequencies, levels and cadences) which are then combined in various ways to produce the following tones:

- ACD ring-again ringback tone
- busy tone
- call forward dial tone
- call forward message-waiting dial tone

- camp-on confirm tone
- control dial tone
- dial tone
- dial-0 recall tone
- hold confirmation tone
- listed DN tone
- message waiting dial tone
- overflow tone
- preemption tone
- ringback tone
- test tone

These tones are also service changeable in LD 56. When call processing requires a particular tone, software sends the code defining that tone to the TDS pack. The TDS pack then generates the tone.

A number of other tones and associated cadences are available from the TDS but are assigned by software in LD 56. These are:

- agent observe tone
- call waiting tone
- intrusion tone
- override tone

The following tones are likely to be defined as bursts, but are still software controlled:

- ATV completion busy tone
- observe blocking tone
- off-hook queuing tone
- set relocate tone
- terset messaging alert tone

- terset messaging OK tone
- terset status update tone

Three exceptions to the categories of tones described so far are special dial tone, expensive route warning tone, and precedence call waiting tone. These tones are flexible only in their sound and not in their cadence.

Also included are distinctive or precedence ringing for analog (500/2500-type) and digital telephones. Refer to LD 56 in *Software Input/Output: Administration* (553-3001-311) for the identification of these tones and cadences.

The tone and ringing requirements of the customer determine which TDS is required.

This feature also provides the following:

- an additional make/break ratio is available for ten pulses per second dialpulsing
- variable inter-digit pause time is flexible and can be assigned in LD 56 for digitone and dialpulse digits
- two additional DTMF outpulsing rates are available and assigned in LD 17

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged under Flexible Tones and Cadences (FTC) package 125.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Modify the system hardware and software parameters.
- 2 LD 56 – Modify or change customer's tone and ringing parameters.

LD 17 – Modify the system hardware and software parameters.

Prompt	Response	Description
...		
PARM	(NO) YES	Change system parameters.
ABCD	(NO) YES <CR>	16-Button DTMF operation is (is not) enabled. Original value is left unchanged.
DTRB	100	100 millisecond bursts of DTMF with 100 millisecond interdigit pause.
	50	50 millisecond bursts of DTMF with 50 millisecond interdigit pause.
	60	60 millisecond bursts of DTMF with 90 millisecond interdigit pause.
	70	70 millisecond bursts of DTMF with 70 millisecond interdigit pause.

LD 56 – Modify or change customer's tone and ringing parameters.

Prompt	Response	Description
...		
TYPE	FTC	Flexible tone and ringing.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Trunk to Trunk Connections

Contents

This section contains information on the following topics:

Feature description	385
Operating parameters	400
Feature interactions	402
Feature packaging	405
Feature implementation	405
Feature operation	407

Feature description

The Flexible Trunk to Trunk Connections (FTT) feature controls trunk to trunk connections for Transfer, Supervised Conference, and unsupervised Conference, based upon the Station's Class of Service. This feature is used with or without the Trunk Barring (TBAR) feature. The Flexible Trunk to Trunk Connections feature provides the following options at a set level:

- allows trunk to trunk connections for Transfer and Conference
- denies trunk to trunk connections for Transfer and Conference
- allows trunk to trunk connections for Supervised Conference only, and denies trunk to trunk connections for Transfer and unsupervised Conference

The Conference feature allows additional parties to join an established call. One internal Directory Number must always be involved in the Conference call for a Supervised Conference. A system user can conference two or more trunks and then drop out of the conference, leaving the other trunks connected. This is an unsupervised Conference.

When Flexible Trunk to Trunk Connections is used in conjunction with the Trunk Barring feature, **one** of the following options may be selected:

- Additional set level restrictions can be added to the existing Customer level Trunk Barring.
- The restrictions placed by Trunk Barring, based upon the set's Flexible Trunk to Trunk Connections Class of Service, can be lifted.
- All set based trunk to trunk connections can be controlled for Conference and Transfer, depending upon the set's Flexible Trunk to Trunk Connections Class of Service, whether or not the route is barred by TBAR.

The functionality of the Flexible Trunk to Trunk Connections feature is activated by Flexible Trunk to Trunk Connections Options (FTOP prompt) in the Customer Data Block and controlled by the Station's Class of Service. The options that are available at a Customer level are dependent upon whether or not Trunk Barring (package 132) is configured.

Functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured

When Flexible Trunk to Trunk Connections is used without Trunk Barring configured, the following Classes of Service are provided at a set level:

- When CLS = FTTU, Flexible Trunk to Trunk Connections Unrestricted, trunk to trunk connections are allowed for both Conference and Transfer. Flexible Trunk to Trunk Connections Unrestricted (FTTU) is the default value.

- When CLS = FTTR, Flexible Trunk to Trunk Connections Restricted (FTTR), trunk to trunk connections are denied for both Conference and Transfer.
- When CLS = FTTC, Flexible Trunk to Trunk Connections Conditional, trunk to trunk connections are allowed for Supervised Conference. Trunk to trunk connections are denied for Transfer and unsupervised Conference. Flexible Trunk to Trunk Connections Conditional (FTTC) is the default for new sets.

When Flexible Trunk to Trunk Connections is used without Trunk Barring configured, the following Flexible Trunk to Trunk Connections Options are available at a Customer level:

- When FTOP = FRES, Flexible Trunk to Trunk Connections Restricted, the Flexible Trunk to Trunk Connections feature does not function. The customer can still configure the set's Class of Service; however, the Class of Service does not take effect. Flexible Trunk to Trunk Connections Restricted (FRES) is the default value.
- When FTOP = FTLY, Flexible Trunk to Trunk Connections Only, trunk to trunk connections are controlled exclusively by the Flexible Trunk to Trunk Connections feature, based upon the set's Class of Service.

Figure 6 on page 388 illustrates the functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured.

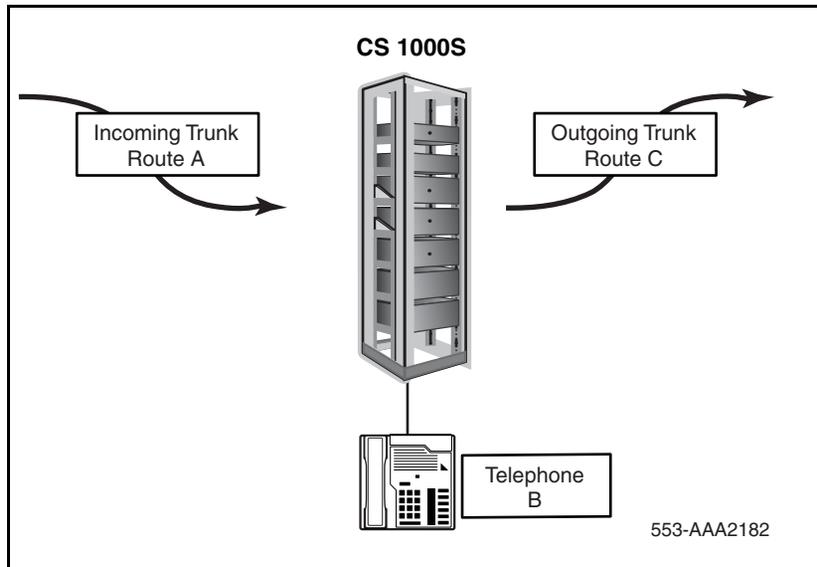
In Figure 6, Set B is established with Trunk Route A and initiates a transfer or a conference with Trunk Route C.

Flexible Trunk to Trunk Connections Options (FTOP) = Flexible Trunk to Trunk Connections Only (FTLY)

Referring to Figure 6, when Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), the following is true:

- Telephone B can complete the Call Transfer between Trunk Routes A and C, as long as no other restrictions apply.
- Telephone B can conference Trunk Routes A and C and then disconnect. In this case, Trunk Routes A and C remain connected, as long as no other restrictions apply.

Figure 6
Functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured



When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the following is true:

- Telephone B cannot transfer Incoming Trunk Route A to Outgoing Trunk Route C.
- Telephone B cannot complete the conference involving Trunk Routes A and C.

With Class of Service set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), a consultation connection initiated by telephone B to Trunk Route C is not affected by Flexible Trunk to Trunk Connections.

Referring to Figure 6, when Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), the following is true:

- Telephone B cannot complete the Call Transfer from Trunk Route A to Trunk Route C.
- Telephone B can complete the Supervised Conference with Trunk Routes A and C, as long as no other restrictions apply. If Set B drops out of this conference, Trunk Routes A and C are disconnected.

Table 11 is a matrix that summarizes the possible selections for Station Class of Service and Flexible Trunk to Trunk Connections Options available for Flexible Trunk to Trunk Connections without Trunk Barring configured.

Table 11
CLS and FTOP Matrix for Flexible Trunk to Trunk Connections
without Trunk Barring configured

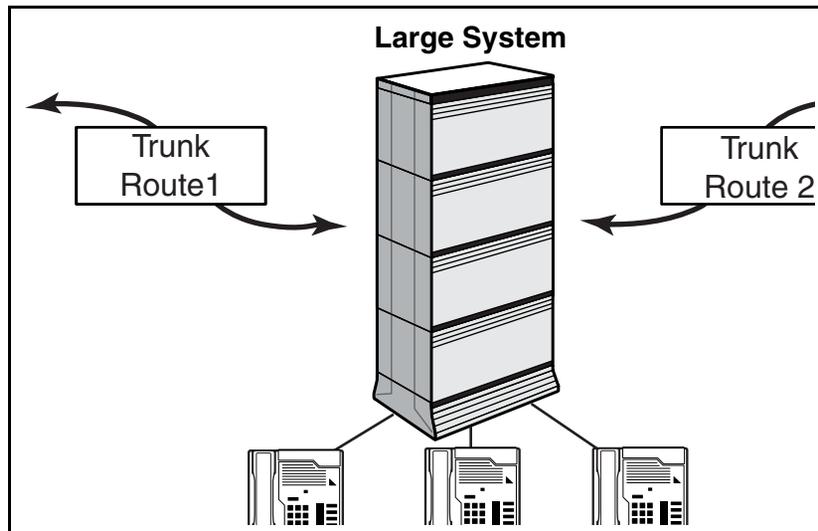
Station Classes of Service (LDs 10 and 11)	Customer Level Options (LD 15)	
	FTOP = FRES (Default)	FTOP = FTLY
CLS = FTTU (Default for existing sets)	No effect on Class of Service. Existing restrictions still apply.	Allows trunk to trunk connections for both Transfer and Conference.
CLS = FTTR	No effect on Class of Service. Existing restrictions still apply.	Blocks all trunk to trunk connections for Transfer and Conference.
CLS = FTTC (Default for new sets)	No effect on Class of Service. Existing restrictions still apply.	Allows trunk to trunk connections for Supervised Conference only. Denies trunk to trunk connections for Transfer and unsupervised Conference.

Functionality of Flexible Trunk to Trunk Connections for Supervised Conference

For Supervised Conference, at least one internal set must be involved in the conference. With the Flexible Trunk to Trunk Connections feature configured, if the last set that drops out of the conference has Class of Service set to Flexible Trunk to Trunk Connections Restricted (FTTR) or Flexible Trunk to Trunk Connections Conditional (FTTC), the call is disconnected. If the last set that drops out of the conference has Class of Service (CLS) set to Flexible Trunk to Trunk Connections Unrestricted (FTTU), the call is not disconnected.

Figure 7 illustrates the functionality of Flexible Trunk to Trunk Connections for Supervised Conference.

Figure 7
Flexible Trunk to Trunk Connections for Supervised Conference



Referring to Figure 7, Telephones A, B, and C have Class of Service set to Flexible Trunk to Trunk Connections Unrestricted (FTTU), Flexible Trunk to Trunk Connections Restricted (FTTR), and Flexible Trunk to Trunk Connections Conditional (FTTC) respectively. Telephones A, B, and C and Trunk Routes 1 and 2 are involved in a conference.

- If A is the last internal telephone to drop out of the conference, the call is not disconnected by the Flexible Trunk to Trunk Connections feature, as Class of Service is set to Flexible Trunk to Trunk Connections Unrestricted (FTTU) for A. Other restrictions, however, may cause the call to disconnect. This is an unsupervised conference. The present functionality is maintained.
- If B is the last internal telephone to drop out of the conference, the call is disconnected, as Class of Service is set to Flexible Trunk to Trunk Connections Restricted (FTTR) for B.
- If C is the last internal telephone to drop out of the conference, the call is disconnected, as Class of Service is set to Flexible Trunk to Trunk Connections Conditional (FTTC) for C.

Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured

Trunk Barring provides the option of denying a direct or modified connection between Customer defined routes. Trunk Barring works with Route Access Restriction Tables (ARTs), as defined in LD 56.

When the Flexible Trunk to Trunk Connections feature is used with Trunk Barring (TBAR) configured, additional flexibility in controlling the trunk to trunk connections for Transfer and Conference is provided.

If Flexible Trunk to Trunk Connections is implemented with the Trunk Barring feature, the following four options are available at a customer level:

- When FTOP = FRES, Flexible Trunk to Trunk Connections Restricted, the Flexible Trunk to Trunk Connections feature does not function. The customer can still configure the set's Class of Service; however, the Class of Service does not take effect. Flexible Trunk to Trunk Connections Restricted (FRES) is the default value.

- When FTOP = TBFT, Trunk Barring Flexible Trunk to Trunk Connections, additional restrictions are applied, depending upon the set's Class of Service. Trunk to trunk connections barred by TBAR always remain restricted. Connections not barred by TBAR utilize the set's Class of Service.
- When FTOP = FTTB, Flexible Trunk to Trunk Connections Trunk Barring, Flexible Trunk to Trunk Connections lifts TBAR restrictions for routes barred by TBAR, based upon the set's Class of Service. Flexible Trunk to Trunk Connections does not apply any new restrictions for non-barred routes.
- When FTOP = FTLY, Flexible Trunk to Trunk Connections Only, trunk to trunk connections for Transfer or Conference that are on barred and non-barred routes are controlled exclusively by the Flexible Trunk to Trunk Connections feature.

The Flexible Trunk to Trunk Connections feature provides the same Class of Service options at a set level with or without Trunk Barring configured. (CLS = FTTU, FTTR, FTTC).

Flexible Trunk to Trunk Connections Options (FTOP) = Trunk Barring Flexible Trunk to Trunk Connections (TBFT)

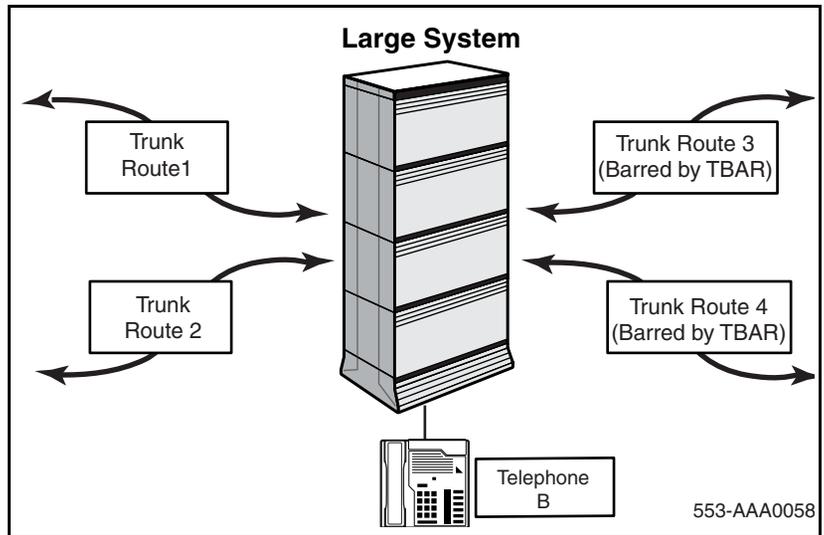
Figure 8 illustrates Flexible Trunk to Trunk Connections functionality with Trunk Barring configured and FTOP set to TBFT in LD 15.

In Figure 8, B is established on a call with Trunk Route 1. Trunk Routes 1 and 2 are not barred by TBAR, but Trunk Routes 3 and 4 are barred connection to any other route. Trunk Routes 1, 2, 3, and 4 are both incoming and outgoing.

Referring to Figure 8, when Flexible Trunk to Trunk Connections Options is set to Trunk Barring Flexible Trunk to Trunk Connections (**TBFT**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), the following is true:

- B can complete the Call Transfer between Trunk Routes 1 and 2.
- B can conference Trunk Routes 1 and 2 and then disconnect. In this case, Trunk Routes 1 and 2 remain connected, as TBAR does not bar the connection between the two trunks.
- B cannot complete Transfer or Conference from Trunk Routes 1 or 2 to Trunk Routes 3 or 4, as these trunk routes are barred by TBAR.

Figure 8
Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = TBFT



Referring to Figure 8, when Flexible Trunk to Trunk Connections Options is set to Trunk Barring Flexible Trunk to Trunk Connections (**TBFT**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the following is true:

- B cannot complete Transfer or Conference with Trunk Routes 1 and 2, even though the connectivity between the trunks is allowed by TBAR. This Class of Service functions as though the two trunks are blocked by the Trunk Barring feature.
- B cannot complete Transfer or Conference from Trunk Routes 1 and 2 to Trunk Routes 3 or 4, as these trunks are barred by TBAR.

Referring to Figure 8, when Flexible Trunk to Trunk Connections Options is set to Trunk Barring Flexible Trunk to Trunk Connections (**TBFT**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), the following is true:

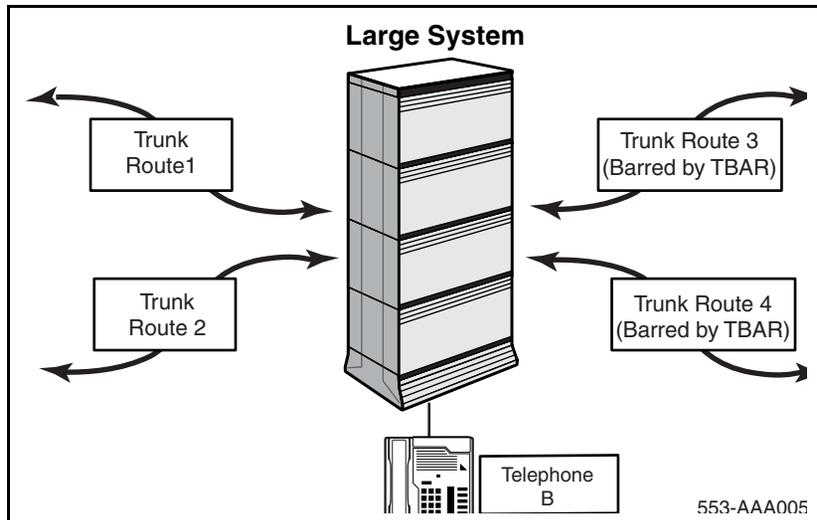
- B cannot complete the Call Transfer from Trunk Route 1 to Trunk Route 2

- B can complete the Supervised Conference with Trunk Routes 1 and 2. If Set B drops out of this conference, Trunk Routes 1 and 2 are disconnected.
- B cannot complete both Transfer and Conference from Trunk Routes 1 or 2 to Trunk Routes 3 or 4, as these trunks are barred by TBAR.

Flexible Trunk to Trunk Connections Options (FTOP) = Flexible Trunk to Trunk Connections Trunk Barring (FTTB)

Figure 9 illustrates Flexible Trunk to Trunk Connections functionality with Trunk Barring configured and FTOP set to FTTB.

Figure 9
Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB



In Figure 9, Routes 1, 2, 3, and 4 are both incoming and outgoing. Access to different trunks is given as follows:

- From Trunk Route 1, connection is allowed to Trunk Routes 2, 3, and 4.
- From Trunk Route 2, connection is allowed to Trunk Routes 1, 3, and 4.

- From Trunk Route 3, connection is denied to Trunk Routes 1, 2, and 4.
- From Trunk Route 4, connection is denied to Trunk Routes 1, 2, and 3.

In short, any call from/to Trunk Route 1 or Trunk Route 2 is allowed. Any call from Trunk Route 3 and Trunk Route 4 is denied to all other trunk routes.

Referring to Figure 9, when the Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Trunk Barring (**FTTB**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), all TBAR restrictions for Transfer and Conference are lifted.

On a TBAR unrestricted trunk, B receives a call on incoming Trunk Route 1. The call is established. B initiates a call with any of the Trunk Routes 2, 3, or 4.

When TBAR does not restrict connection from Trunk Route 1 to any other trunk route:

- B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, B receives a call on incoming Trunk Route 3. The call is established. B initiates a call with any of the Trunk Routes 1, 2, or 4.

In this case, TBAR restricts connection from Trunk Route 3 to any other trunk route. However, as B has CLS set to FTTU, the TBAR restriction is lifted for B. Therefore:

- B can transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4
- B can conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.

Referring to Figure 9, when the Flexible Trunk to Trunk Connections Options (FTOP) is set to Flexible Trunk to Trunk Connections Trunk Barring (**FTTB**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the existing TBAR functionality is retained.

On a TBAR unrestricted trunk, B receives a call on incoming Trunk Route 1, which is a TBAR unrestricted trunk. The call is established. B initiates a call with any of the Trunk Routes 2, 3, or 4.

When TBAR does not restrict connection from Trunk Route 1 to any other trunk route:

- B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, B receives a call on incoming Trunk Route 3. The call is established. B initiates a call with any of the Trunk Routes 1, 2, or 4.

In this case, TBAR restricts connection from Trunk Route 3 to any other trunk route. As B has Class of Service set to FTTR, the TBAR restriction is not lifted for this set.

- B cannot transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4.
- B cannot conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.

Referring to Figure 9, when the Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Trunk Barring (**FTTB**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), TBAR restrictions for Supervised Conference are lifted. TBAR restrictions for Transfer and unsupervised Conference are maintained.

On a TBAR unrestricted trunk, B receives a call on incoming Trunk Route 1. The call is established. B initiates a call with any of the Trunk Routes 2, 3, or 4.

When TBAR does not restrict connection from Trunk Route 1 to any other trunk route:

- B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, B receives a call on incoming Trunk Route 3. The call is established. B initiates a call with any of the Trunk Routes 1, 2, or 4.

When TBAR restricts connection from Trunk Route 3 to any other trunk routes:

- B cannot transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4.

However, as B has Class of Service set to FTTC, the TBAR restriction is lifted for Supervised Conference. Therefore:

- B can conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.
- Once B drops out of the conference, the two remaining TBAR trunks are disconnected.

Since all telephones that are already present in the system default to a Class of Service of Flexible Trunk to Trunk Connections Unrestricted (FTTU), when the Customer Option is changed to Flexible Trunk to Trunk Connections Trunk Barring (FTTB), TBAR restrictions for all telephones are lifted for Conference and Transfer. Therefore, the Class of Service must be changed to Flexible Trunk to Trunk Connections Restricted (FTTR), in order to maintain the existing TBAR functionality. The telephone sets that are new to the system default to a Class of Service of FTTC.

Flexible Trunk to Trunk Connections Options (FTOP) = Flexible Trunk to Trunk Connections Only (FTLY)

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), trunk to trunk connections are allowed for both Conference and Transfer, irrespective of whether or not TBAR is activated.

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), trunk to trunk connections are denied for both Conference and Transfer, irrespective of whether or not TBAR is activated.

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), trunk to trunk connections are allowed for Supervised Conference only. Trunk to trunk connections for Transfer and unsupervised Conference are denied, irrespective of whether or not TBAR is activated.

Table 12 is a matrix that summarizes the possible selections for Station Class of Service and Flexible Trunk to Trunk Connections Options available for Flexible Trunk to Trunk Connections when Trunk Barring is configured.

Table 12
CLS and FTOP Matrix for Flexible Trunk to Trunk Connections
with TBAR configured

Station Classes of Service (LDs 10 and 11)	Customer Level Options (LD 15)			
	FTOP = FRES (Default)	FTOP = TBFT	FTOP = FTTB	FTOP = FTLY
CLS = FTTU (Default for existing sets)	Existing TBAR functionality.	Existing TBAR functionality.	Lifts all TBAR restrictions for Transfer and Conference.	Allows Transfer and Conference, irrespective of whether or not TBAR is activated, unless other restrictions exist.
CLS = FTTR	Existing TBAR functionality.	Blocks all trunk to trunk connections for both Transfer and Conference.	Existing TBAR functionality.	Blocks all trunk to trunk connections for Transfer and Conference.
CLS = FTTC (Default for new sets)	Existing TBAR functionality.	Allows trunk to trunk connections for Supervised Conference on non-TBAR routes. Denies Transfer and unsupervised Conference on all trunk to trunk connections not blocked by TBAR.	Lifts TBAR restrictions for Supervised Conference only. Maintains TBAR restrictions for unsupervised Conference and Transfer.	Blocks trunk to trunk connections for Transfer and unsupervised Conference. Allows trunk to trunk connections for Supervised Conference.

Operating parameters

Flexible Trunk to Trunk Connections is configured at a set level, by defining the Class of Service (CLS) prompt in LDs 10 or 11.

All existing telephone sets default to a Class of Service of Flexible Trunk to Trunk Connections Unrestricted (FTTU) upon initial software conversion. When new telephone sets are added and configured, they default to a Class of Service of Flexible Trunk to Trunk Connections Conditional (FTTC).

In the Customer Data Block, Flexible Trunk to Trunk Connections Options can be set to Trunk Barring Flexible Trunk to Trunk Connections (TBFT) and Flexible Trunk to Trunk Connections Trunk Barring (FTTB) only when the Trunk Barring is configured. Flexible Trunk to Trunk Connections Options (FTOP) is set to the default, Flexible Trunk to Trunk Connections Restricted (FRES), to maintain the existing functionality.

A telephone with a Class of Service of Flexible Trunk to Trunk Connections Restricted (FTTR) cannot initiate a Conference call to an outgoing trunk, although it can be included in a conference. If this type of telephone is the last set to disconnect from the conference, the call is ended. The established trunks are released.

If a conference is on hold and an additional telephone attempts to join the conference over a barred trunk route and through a telephone that has Class of Service set to Flexible Trunk to Trunk Connections Restricted (FTTR), then Flexible Trunk to Trunk Connections does not permit a consultation connection. This is as per the existing operation.

If more than two trunks are involved in a call and all internal calls drop from the conference, Flexible Trunk to Trunk Connections does not affect the Conference disconnection.

Multiple Appearance, Single Call Arrangement DNs allow a single call to be active on the DN, regardless of its number of appearances. If the Single Call Ringing DN is established in a call, another appearance of the DN can enter into the call, if the Privacy feature is not in effect, by going off hook or by pressing the Multiple Appearance Single Call DN key. Flexible Trunk to Trunk Connections restrictions for Conference are applicable in such a case.

As per the existing operation, answer and disconnect supervision is a requirement for Transfer and Conference.

Flexible Trunk to Trunk Connections does not support Basic Rate Interface (BRI) telephone sets or attendant console operations.

Flexible Trunk to Trunk Connections supports Analog and ISDN trunks. R2MFC and AC15 signaling is also supported. Flexible Trunk to Trunk Connections does not support Service trunks, such as Recorded Announcement (RAN), Paging (PAG), Dictation (DIC), Music (MUS), and Automatic Wake Up Recorded Announcement (AWR).

Call Redirection features are not supported with Flexible Trunk to Trunk Connections.

With Flexible Trunk to Trunk Connections, unless the Trunk to Trunk Connection feature is configured, two outgoing trunk connections are blocked for Transfer and unsupervised Conference.

Customer Controlled Routing (CCR), Meridian Link, and Application Module Link (AML) applications are not affected by the Flexible Trunk to Trunk Connections feature.

Note: When adding a new telephone, the default Class of Service is Flexible Trunk to Trunk Connections Conditional (FTTC). This could impact an application's ability to conference or transfer a call to an outgoing trunk. In the case where this functionality is required, the Class of Service must be changed on the set to Flexible Trunk to Trunk Connections Unrestricted (FTTU).

Flexible Trunk to Trunk Connections blocks the initiation of Conference. Applications, such as Break In, Barge In, Bridging, and Overriding, are not supported.

Feature interactions

Access Restrictions

Access Restrictions limits terminal access to the exchange network, private network, and certain features and services. During the call origination process, access checks are made by the system on the following:

- Class of Service of an individual terminal
- Trunk Group Access Restrictions (TGAR) code of a terminal, if a direct trunk access code is dialed or as an optional feature when a Basic Alternate Route Selection (BARS) or Network Alternate Route Selection (NARS) access code is dialed
- area code and exchange code, if dialed by terminals with toll denied or conditional toll denied Class of Service, using direct trunk access codes and Code Restriction Tables
- Network Class of Service (NCOS) of a terminal, if Basic Alternate Route Selection (BARS)/Network Alternate Route Selection (NARS) or Coordinated Dialing Plan (CDP) access codes are dialed, or if direct trunk access codes are dialed and New Flexible Code Restriction (NCFR) tables are programmed

Previously restricted connections by any feature other than Trunk Barring cannot be lifted or avoided by the Flexible Trunk to Trunk Connections feature. Basically, all existing restrictions apply with the exception of Trunk Barring restrictions.

Call Transfer

If Flexible Trunk to Trunk Connections allows a telephone to transfer to an outgoing trunk, Access Restrictions can still block the transfer. If a telephone is denied transfer by the Flexible Trunk to Trunk Connections feature, then the transfer is blocked regardless of Access Restrictions.

For a transfer to be completed, both Access Restrictions and Flexible Trunk to Trunk Connections must allow the transfer.

Conference

If the Flexible Trunk to Trunk Connections feature allows a telephone to conference to an outgoing trunk, then Conference is allowed unless it is blocked by other existing restrictions. If a telephone disconnects from a conference, Flexible Trunk to Trunk Connections restrictions verify whether the telephone is allowed to transfer the call between the two trunks. If allowed, this unsupervised conference is completed, unless and until barred by another feature.

Attendant Console Operations

Flexible Trunk to Trunk Connections does not support attendant console operations. If an attendant attempts to extend an originating trunk connection on a route barred by the Trunk Barring feature, overflow tone is provided. The Flexible Trunk to Trunk Connections feature does not lift this restriction.

Although attendant consoles have a Conference key, Flexible Trunk to Trunk Connections does not apply any restrictions.

Basic Alternate Route Selection **Network Alternate Route Selection** **Coordinated Dialing Plan** **Flexible Numbering Plan**

Regardless of the method of dialing used to originate the call with the outgoing trunk, Flexible Trunk to Trunk Connections restrictions apply for Transfer and Conference.

Call Redirection

Call Forward features

When a telephone performs Call Forward to an external trunk and receives an incoming trunk call, it may result in a trunk to trunk connection. The Flexible Trunk to Trunk Connections Station Class of Service is not applied when forwarding incoming trunk calls to a barred route.

Call Pickup

The new Station's Classes of Service, introduced by the Flexible Trunk to Trunk Connections feature, do not impose any restrictions on Call Pickup.

Meridian Mail Trunk Access Restriction

Flexible Trunk to Trunk Connections limitations do not apply to Meridian Mail Trunk Access Restriction (MTAR). Irrespective of the Station's Class of Service, external calls are prevented from being transferred/conferenced to Meridian Mail.

Multi-Party Operations - Call Join

The functionality of Flexible Trunk to Trunk Connections applies to conferences made by the Call Join operation.

No Hold Conference

When a Meridian 1 proprietary telephone is established with a trunk call and a No Hold Conference is initiated, Trunk Barring restrictions do not apply, and the conference is completed. However, if the last internal telephone involved in the No Hold Conference has a Class of Service of Flexible Trunk to Trunk Connections Conditional (FTTC) or Flexible Trunk to Trunk Connections Restricted (FTTR), then the call is disconnected if that telephone drops out of the conference.

Scheduled Access Restrictions

With the Flexible Trunk to Trunk Connections feature configured, existing restrictions are not avoided. Additional restrictions imposed by Flexible Trunk to Trunk Connections Classes of Service are introduced when Scheduled Access Restrictions is configured.

Toll Operator Break In

The Flexible Trunk to Trunk Connections Classes of Service have no impact on Toll Operator Break In.

Trunk Access From Any Station

There is no limitation with the new Flexible Trunk to Trunk Connections Station Classes of Service that can restrict the station from picking up the call by Trunk Access From Any Station (TAFAS).

Trunk to Trunk Connection

Flexible Trunk to Trunk Connections takes precedence over the Trunk to Trunk Connection feature.

Virtual Network Services

Flexible Trunk to Trunk Connections does not apply any restrictions to existing Virtual Network Services (VNS) functionality.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Configure Flexible Trunk to Trunk Connections options.
- 2 LD 10 – Configure Flexible Trunk to Trunk Connections for analog (500/2500 type) sets.
- 3 LD 11 – Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets.

LD 15 – Configure Flexible Trunk to Trunk Connections options.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	NET	Trunk and network options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

...		
FTOP		Flexible Trunk to Trunk Connections Options.
	(FRES)	FTT feature is inactive.
	TBFT	FTT adds new restrictions on connections not barred by TBAR.
	FTTB	FTT lifts TBAR restrictions for routes barred by TBAR. FTT cannot add any new restrictions for non-barred routes.
	FTLY	All set based trunk to trunk connections for Transfer and Conference are controlled by FTT only.
...		

LD 10 – Configure Flexible Trunk to Trunk Connections for analog (500/2500 type) sets.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	500/2500 type telephone data block.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
CLS	(FTTC)	Flexible Trunk to Trunk Connections Conditional (default for new sets).
	FTTU	Flexible Trunk to Trunk Connections Unrestricted (default).
	FTTR	Flexible Trunk to Trunk Connections Restricted.
...		

LD 11 – Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
CLS	(FTTC)	Flexible Trunk to Trunk Connections Conditional (default for new sets).
	FTTU	Flexible Trunk to Trunk Connections Unrestricted (default for existing sets).
	FTTR	Flexible Trunk to Trunk Connections Restricted.
...		

Feature operation

No specific operating procedures are required to use this feature.

Flexible Voice/Data Terminal Number

Contents

This section contains information on the following topics:

Feature description	409
Operating parameters	410
Feature interactions	411
Feature packaging	412
Feature implementation	412
Feature operation	415

Feature description

The Flexible Voice/Data Terminal Number feature allows both bearer (B) channels on the M2000 series Meridian 1 proprietary sets to be available for either voice or data calls on a dynamic (per-call) or static basis. This feature has been developed exclusively for VISIT equipment functionality.

With the dynamic capabilities of this feature, a user has access to two simultaneous voice or two simultaneous data connections on the Time Compression Multiplexing (TCM) loop. This capability is practical for users with various desktop multimedia applications, such as VISIT video, that require various combinations of voice and data connections on a per-call basis.

Dynamic voice/data Terminal Numbers (TNs) have two Directory Numbers (DNs) to place and receive calls. The primary voice DN is assigned to key 00 on the telephone. Another key is assigned to the data DN. This key is designated as the data mode key. All data calls are placed and received using this key. Any other secondary DN keys assigned to a dynamic voice/data TN can place and receive voice calls only.

With the static capabilities of this feature, each B-channel on the set is configured as either voice or data. This provides the opportunity for two voice or two data B-channels on the same TCM loop. This configuration doubles the density of the digital line card (XDLC). Since the TN has either a voice or data Class of Service, calls placed from any DN key on the set are either voice or data.

Operating parameters

There are no restrictions against placing data calls on hold.

When a Terminal Number (TN) is in the voice mode, the short hunting feature is terminated when a Data Mode (DTM) key is encountered.

Data calls to a dynamic voice/data TN are not redirected. All TN redirection features such as Call Forward All Calls and Hunting are applicable to voice calls only. If a data call is not presented to the DTM key the call is given reorder tone.

A Data Mode (DTM) key can be assigned to M2000 series proprietary sets with the exception of the M2006 set.

Data Directory Numbers (DNs) for dynamic voice/data TNs cannot have Multiple Appearance DN (MADNs).

A dynamic voice/data TN can only have one data DN.

No audible progress tones, such as dial tone or ringback, are provided for data calls to or from dynamic TNs. Only Time Compression Multiplexing (TCM) progress messages are sent for data calls. Audible progress tones are provided for voice calls.

If set relocation takes place, upper and lower TNs of a Time Compression Multiplexing (TCM) loop are relocated together. This occurs even if upper and lower TNs were assigned as dynamic or static. A relocated lower TN (0-15) must be in voice mode. Following relocation, both TNs maintain their prior voice or data settings.

When a service change is performed on a dynamic TN in data mode, it is automatically changed to voice mode.

To prevent improper setup, the new Class of Service Flexible Terminal Number Allowed (FLXA) must be specified to assign Data Class of Service to a lower TN or Voice Class of Service to an upper TN.

Feature interactions

Call Forward All Calls Call Forward, Internal Calls

Voice calls directed to a dynamic voice/data Terminal Number are forwarded, if either of these features are enabled. Data calls, to a dynamic voice/data TN, are not forwarded.

Call Redirection

If a call is not presented to the Data Mode (DTMK) key, the call is given reorder tone.

Call Waiting Camp-On

These features are not supported on data calls to a dynamic voice/ data TN.

Call Waiting and Camp On are supported for voice calls to dynamic voice/ data TN. However, no tone is inserted during a Camp On attempt if the Terminal Number is in a busy data mode.

Message Waiting Forward Busy Call Forward Busy

Voice calls directed to a call processing busy dynamic voice/data TN are redirected using Message Waiting Forward Busy or Call Forward Busy provided these features are configured for the TN. Data calls to dynamic voice/data TNs are not redirected.

Voice Call

If a dynamic TN has a single appearance DN key that terminates on a Voice Call (VCC) key, the called party hears a single beep if occupied on another DN. However, if the called party is a dynamic TN in data mode, the DN key lamp flashes. A beep is not provided.

Feature packaging

The Flexible Voice/Data Terminal Number feature is contained in M2000 Digital Sets (DSET) package 88.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 11 – Assign the Static Voice Terminal Number.
- 2 LD 11 – Assign the Static Data Terminal Number.
- 3 LD 11 – Assign the Dynamic Terminal Number.

LD 11 – Assign the Static Voice Terminal Number.

Prompt	Response	Description
REQ:	NEW CHG	New, or Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	FLXA VCE	Flexible voice/data allowed. FLXA is only required if voice TN unit is less than 15. (FLXD) = Flexible voice/data denied (default). This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA, Voice Class of Service (VCE) can be assigned to the upper TN unit (16 - 31).

LD 11 – Assign the Static Data Terminal Number.

Prompt	Response	Description
REQ:	NEW CHG	New, or Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	FLXA DTA	Flexible voice/data allowed. FLXA is only required if data TN unit is greater than 15. (FLXD) = Flexible voice/data denied (default). This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA, Data Class of Service (DTA) can be assigned to the lower TN unit (0 -15).

LD 11 – Assign the Dynamic Terminal Number.

Note: Terminal Numbers with Voice Class of Service and Flexible Voice/Data Allowed can become dynamic voice/data Terminal Number by assigning a secondary SCR/SCN key at the DTMK prompt. The DN specified with this key becomes the data DN.

Prompt	Response	Description
REQ:	NEW CHG	New, or Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	FLXA VCE	Flexible voice/data allowed. (FLXD) = Flexible voice/data denied. This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA Voice Class of Service (VCE) can be assigned to the upper TN unit (16 - 31) and Data Class of Service (DTA) can be assigned to the lower TN unit (0 -15). A Single Call Ringing (SCR) key can be designated a Data Mode (DTMK) key.
DTMK	xx	Key assignment for Data Mode Key. This key must be a single appearance SCR/SCN key and cannot be assigned key 00.
- KEY	00 aaa xxxx	Prime Directory Number Key, where aaa = SCR, SCN, MCR or MCN and xxxx = Voice Directory number
- KEY	xx SCR yyyy xx SCN yyyy	Single Call Ringing Single Call Non Ringing Data Mode Key, where xx = key number and yyyy = Data Directory Number.

When call processing switches between voice and data mode on the dynamic Terminal Number, some Class of Service option data is automatically modified. In data mode, the dynamic TN has options Warning Tone Denied (WTD) and Maintenance Telephone Denied (MTD). When switched back to voice mode, the original settings for these options is automatically restored, and the Class of Service is not printed.

Feature operation

No specific operating procedures are required to use this feature.

Forced Camp-On and Priority Override

Contents

This section contains information on the following topics:

Feature description	417
Operating parameters	417
Feature interactions	418
Feature packaging	419
Feature implementation	419
Feature operation	421

Feature description

Forced Camp-On is similar to the regular station-to-station Camp-On, except that it can be done without an internal or external call on hold. When used with Priority Override, the capability is called Enhanced Override.

Priority Override allows an established call to be broken into and another call presented to the desired party. Before Break-In occurs, a warning tone is given to all parties involved in the established call. The set performing the override must have a priority level equal to or higher than the set being overridden.

Operating parameters

Priority Override and Forced Camp-On can operate independently of each other.

All stations involved in an established call being broken into must have Warning Tone Allowed (WTA) Class of Service.

Priority Override and Forced Camp-On cannot be applied to telephones involved in any of the following:

- non-established call
- conference call
- attendant call
- Release Link attendant call
- attendant call through Centralized Attendant Service or a Primary Rate Access/Integrated Services Digital Network trunk
- Automatic Call Distribution (ACD) call
- data call
- parked call
- call waiting call
- held call
- operator Call Back or toll operator Break-In call
- Make Set Busy active, or
- Do Not Disturb active.

External trunks cannot perform priority override. They can be overridden only if they are the undesired party of an established call being broken into.

Feature interactions

Multi-party Operations

With Multi-Party Operations (MPO), when a consultation call is made on a set equipped with Priority Override, a control digit has to be dialed from the set to perform a recall and return the call on hold.

Override

When Priority Override is activated, it replaces normal override. Once Priority Override has been performed on a set, its Digit Display shows the DN of the overriding set.

Feature packaging

Priority Override/Forced Camp-On (POVR) is packaged under package 186.

Dependencies:

- Flexible Feature Codes (FFC) package 139
- Multi-party Operations (MPO) package 141

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10, LD 11 – Respond to CLS prompt with CPFA to allow Camp-On to another set, or CPFD to deny such Camp-On. Respond to PLEV prompt with a value between 1 and 7, to set the priority level for this set.
- 2 LD 11 – Respond to the KEY prompt with a key number, followed by EOVR, to define an Enhanced Override key for each Meridian 1 proprietary telephone.
- 3 LD 14 – Trunks to be involved in such Camp-On override calls must have Warning Tone Allowed (WTA) Class of Service allowed.
- 4 LD 15 – To select either automatic or manual forced Camp-On for a customer, respond to the AFCO prompt with either YES (automatic) or NO (manual).
- 5 LD 16 – At the PLEV prompt, specify priority levels for trunk routes.
- 6 LD 57 – The Enhanced Override flexible feature code must be defined by responding to the EOVR prompt with an appropriate FFC digit sequence to be assigned that function.

The following are additional to the definitions required for telephone configuration without this feature.

LD 10, LD 11 – Respond to CLS prompt with CPFA to allow Camp-On to another set, or CPFD to deny such Camp-On. Respond to PLEV prompt with a value between 1 and 7, to set the priority level for this set.

Prompt	Response	Description
...		
CLS	(CPFA) CPTD	Forced Camp-On from another set (allowed) denied.
PLEV	0-(2)-7	Priority Level, prompted with Priority Override/Forced Camp-On (POVR) package 186. 2 = set can override sets of level 1 and 2, and can be overridden by sets of level 2-7.

LD 11 – Respond to the KEY prompt with a key number, followed by EOVR, to define an Enhanced Override key for each Meridian 1 proprietary telephone.

Prompt	Response	Description
...		
KEY	xx EVOR	Key number; Enhanced Override.

LD 14 – Trunks to be involved in such Camp-On override calls must have Warning Tone Allowed (WTA) Class of Service allowed.

Prompt	Response	Description
...		
CLS	(WTA) WTD	Warning Tone (allowed) denied.

LD 15 – To select either automatic or manual forced Camp-On for a customer, respond to the AFCO prompt with either YES (automatic) or NO (manual).

Prompt	Response	Description
...		
AFCO	(NO) YES	(Manual) Automatic Forced Camp-On, prompted with Priority Override/Forced Camp-On (POVR) package 186.

LD 16 – At the PLEV prompt, specify priority levels for trunk routes.

Prompt	Response	Description
...		
PLEV	0-(2)-7	Priority Level, prompted with Priority Override/Forced Camp-On (POVR) package 186. 2 = set can override sets of level 1 and 2, and can be overridden by sets of level 2-7

LD 57 – The Enhanced Override flexible feature code must be defined by responding to the EOVR prompt with an appropriate FFC digit sequence to be assigned that function.

Prompt	Response	Description
...		
- EOVR	xxxx	Enhanced Override (manual Forced Camp-On followed by Priority Override).

Feature operation

Forced Camp-On is activated automatically (if Automatic Forced Camp-On is defined), or it can be activated manually using the Enhanced Override (EOVR) key on Meridian 1 proprietary telephones or the Enhanced Override Flexible Feature Code on analog (500/2500 type) telephones. If the EOVR key is pressed again or the Enhanced Override Flexible Feature Code dialed again, Priority Override is activated.

If Forced Camp-On is not equipped, the first depression of the EOVR key, or the first dialing of the Enhanced Override Flexible Feature Code activates Priority Override.

To activate Priority Override, the user of an analog (500/2500 type) telephone dials the Override Flexible Feature Code, while the user of a Meridian 1 proprietary telephone presses the Override key (OVR). Priority Override can also be activated using the Enhanced Override Flexible Feature Code or the Enhanced Override key (EOVR), as described previously.

Forward No Answer Call Waiting Direct Inward Dialing

Contents

This section contains information on the following topics:

Feature description	423
Operating parameters	423
Feature interactions	424
Feature packaging	424
Feature implementation	424
Feature operation	424

Feature description

The Forward No Answer Call Waiting Direct Inward Dialing (FCWD) feature allows a Direct Inward Dialing (DID) call that encounters a busy set with Call Waiting Allowed to be routed to an attendant (or recalled to the night DN during Night Service), if it is not answered within a customer-defined period (between 2-126 seconds). If Return to Same Attendant is equipped, the call is routed to the first available attendant.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Call Waiting Redirection

With the Call Waiting Redirection feature also enabled, the Call Waiting Redirection feature takes precedence over the FCWD feature. The existing CFNA also takes precedence over the existing Attendant Recall of Call Waiting calls. Since the Call Waiting Redirection feature applies CFNA treatment to a Call Waiting call while the FCWD feature applies an attendant recall timer, the Call Waiting Redirection feature also has precedence over the FCWD timer.

Feature packaging

This feature is packaged under French Type Approval (FRTA), package 197.

Feature implementation

LD 15 – Respond to FCWD prompt with an even-numbered value between 0 and 126 seconds.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	RDR	Call Redirection.
...		
- FCWD	(0)-126	Number of seconds a DID call should wait on a set before being forwarded to the attendant, prompted with French Type Approval (FRTA) package 197. If (0) is chosen, the call is not forwarded to an attendant. Valid entries are even numbers between 1 and 126; odd numbers are rounded down.

Feature operation

No specific operating procedures are required to use this feature.

Generic XFCOT Software Support

Contents

This section contains information on the following topics:

Feature description	425
Operating parameters	426
Feature interactions	426
Feature packaging	429
Feature implementation	429
Feature operation	431

Feature description

The Generic XFCOT is a circuit card developed to meet the North American Transmission Plan, with the following functionalities:

- tone supervision
- battery supervision
- Periodic Pulse Metering (PPM)
- loopstart signaling

This feature provides the choice of Dynamic Pad Switching in the North American Environment for Central Office trunks (LD 97), enhances the trunk-to-trunk connection, and improves the use of disconnect supervision in features like ACD, Meridian Mail, DISA, Call Park, and Camp-On.

With this feature, a disconnect-supervised loopstart Central Office trunk follows normal XFCOT rules for trunk-to-trunk connection and disconnection.

Functionality is provided on the following IPE circuit cards:

- NTCK16AD for PPM/BAT/BTS
- NTCK16BD for BAT/BTS

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Automatic Call Distribution

This feature is used when a large number of incoming calls are to be answered by a designated group of telephone sets. Calls that cannot be answered immediately are put in an Automatic Call Distribution (ACD) queue.

ACD is allowed on disconnect supervised or unsupervised loopstart trunks. If a caller on an unsupervised loopstart trunk disconnects while the call is in an ACD queue, it is detected when the call is answered by an ACD agent.

With this development, caller disconnection is detected by disconnect-supervised loopstart trunk on an XFCOT card and disconnected callers are then dropped from the ACD queue.

Other ACD operations that require a disconnect-supervised COT such as INTERFLOW, NCFW and NITE RAN are now allowed on a disconnect-supervised loopstart trunk on an XFCOT card.

Call Park

Call Park feature allows an attendant or telephone user to place a call in parked state (connected to a parked DN) where it can be retrieved by any attendant console or station set. If the call is not retrieved after a customer-defined time, the call is recalled to the telephone user who parked it.

Call Park is allowed on disconnect-supervised or unsupervised IPE loopstart Central Office trunks. If a caller on an unsupervised loopstart trunk disconnects while the call is in parked state is detected when the parked call is recalled or answered.

Caller disconnection during park state is detected by a disconnect supervised loopstart trunk on an XFCOT card. The disconnected caller is then dropped from the parked DN.

Camp-On

The Camp-On feature allows an attendant to route one additional call to a busy DN so it can be rung when it becomes free. If the busy DN is not free after a customer-defined time, the call is recalled to the attendant.

A call from a loopstart disconnect supervised or unsupervised loopstart trunk can be camped on. If a caller on an unsupervised loopstart trunk disconnects while the call is camped on, it is detected when the call is recalled or answered.

Caller disconnection during Camp-On operation is detected by a disconnect-supervised loopstart trunk on an XFCOT card and the camped on call is dropped.

Digital Trunk Interface (DTI) Pad Switching

The DTI pad process intervenes when a DTI port is involved in a connection. It is independent from the normal pad and it handles the DTI port side and the other port side.

This process is changed to handle XFCOT units when the North American Transmission Plan is selected as XUT units.

Direct Inward System Access

This feature allows selected external users to access the system switch by dialing a special directory number, and to use some features of the system as an internal station.

A Direct Inward System Access (DISA) call is allowed on a disconnect supervised or unsupervised loopstart trunk. If a caller on an unsupervised loopstart trunk disconnects during a DISA operation, it is detected by a dial time out or when the call is answered.

Caller disconnection during a DISA operation is detected by a disconnect-supervised loopstart trunk on an XFCOT card and the operation can then be ended.

European XFCOT Software Support

This feature supports international IPE trunks with new functionalities such as supervision on loopstart trunk, PPM, and static pad switching.

The Generic XFCOT Software Support is a product improvement of this feature regarding the pad switching, the trunk-to-trunk disconnection, and the use of disconnect supervision for loopstart trunk in some features.

Meridian Mail

The Meridian Mail feature allows a caller to leave a voice mail message for a person unable to be reached. Once the caller is connected to the voice mail-there is a maximum duration allowed for the message after which the call is disconnected.

Meridian Mail is allowed on disconnect supervised or unsupervised loopstart trunks. If a caller on an unsupervised loopstart trunk disconnects while accessing Meridian Mail, the call is disconnected when the connection-time to the mail box exceeds the maximum duration.

Caller disconnection is detected by the disconnect-supervised loopstart trunk on an XFCOT card and the caller is then dropped from the queue for messaging service or from the mail box.

Periodic Clearing

Periodic Clearing is the sending of a periodic signal from the system to a Central Office when an incoming call has been answered but is not in an established state (for instance, ringing, held, parked). The connection is disconnected if the originator goes on-hook.

The Periodic Clearing condition is timed by the disconnect timer (DCTI) to prevent this situation from lasting for an extended time. When the DCTI timer expires the trunk is disconnected.

The Disconnect Timer can be used without having the feature Periodic Clearing configured particularly when the Central Office trunk has no disconnect supervision. It can be disabled by setting the DCTI to 0 in LD 16.

A loopstart trunk can be marked as disconnect supervised. When it has a class of service providing disconnect supervision, in Periodic Clearing condition the trunk is disconnected when the calling station releases the call.

Feature packaging

This feature is packaged under the following packages:

- Intelligent Peripheral Equipment (XPE) package 203
- International Supplementary Features (SUPP) package 131
- Meridian 1 Enhanced Conference, TDS and MFS (XCT0) package 204
- Meridian 1 Superloop Administration (XCT1) package 205 (unrestricted when the XPE package is equipped)

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 97 – Choose the North American Transmission Plan by answering YES to the NATP prompt.
- 2 LD 14 – Define the Periodic Pulse Metering parameters on a per country basis. This prompt is used to define a disconnect supervised loopstart trunk on an XFCOT.

LD 97 – Choose the North American Transmission Plan by answering YES to the NATP prompt.

Prompt	Response	Description
REQ	aaa	Request (CHG, END, PRT)
TYPE	LOSP	TYPE = LOSP (Loss Plan Tables)
NATP	YES	North American Transmission Plan for Generic XFCOT

LD 14 – Define the Periodic Pulse Metering parameters on a per country basis. This prompt is used to define a disconnect supervised loopstart trunk on an XFCOT.

Busy tone is provided by the PSTN when the far end releases from outgoing and incoming trunks. The tone supervised COT depends on the busy tone frequency and cadence characteristic of the particular country and is configured on a card basis by responding to the BTID prompt.

Prompt	Response	Description
REQ	NEW	New.
TYPE	COT	Central Office Trunk.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
XTRK	XCOT	Type is IPE COT.
CDEN	(8D)	Card density is 8D.
SIGL	LOP	Loop start signaling.
PPID	xx	Where xx is one of the following: 0 – United Kingdom (50 Hz) 1 – France (12 Khz) 2 – France (50 Hz) 3 – Germany, Egypt, Turkey, Venezuela, Indonesia, Finland (16 Khz) 4 – Switzerland, Ireland, Portugal, Italy, Spain, Lebanon, Turkey (12 Khz) 5 – Denmark (12 Khz) 6 – Norway, Belgium (16 Khz) 7 – Holland (50 Hz) 8 – Australia (two different packs) (12Khz/50 Hz) 9-15 – Reserved for future use.

BTID	xx	Enter the country busy tone ID as follows: 0-2 – Reserved for future use 3 – Germany, Ireland 4 – Switzerland 5 – Denmark 6 – Norway, Kuwait, Chile, Venezuela, Indonesia, Thailand, Korea 7 – Holland 8 – Australia, Mexico 9 – Ireland 10 – Taiwan, Brazil, Tortola, Mexico 11 – Singapore 12 – Argentina, Italy 13 – Lebanon, Italy 14 – Turkey 15 – Reserved for future use.
SUPN	YES (NO)	Trunk Supervision required (not required)
STYP	BTS BAT	Busy tone supervision enabled Loop break supervision enabled
CLS	(LOL) SHL (DIP) DTN (P10) P20 P12	Attenuation pads in (out). Digitone signaling (digipulse). Make-break ration for pulse dialing speed.

Feature operation

No specific operating procedures are required to use this feature.

Group Call

Contents

This section contains information on the following topics:

Feature description	433
Operating parameters	434
Feature interactions	435
Feature packaging	438
Feature implementation	438
Feature operation	439

Feature description

Group Call allows a user of a Meridian 1 proprietary telephone to place a call to up to ten Directory Numbers (DNs) simultaneously by activating a Group Call key. The called DNs must have been previously defined as members of a group.

Each customer within the system can have up to 64 groups assigned. Each group has up to 20 group members. Any DN in the system can be assigned as a member of a group, and a DN can be a member of more than one group. For Small Systems and CS 1000S systems, six members per group are allowed.

Each Multiple Appearance, MCR/MCN DN reduces the number of telephone sets that can be added to a Group Call. For example, if two telephones have the same MCR appearance of a DN, the number of telephones in the Group Call becomes 19. That is, each appearance of a DN counts as one member, up to a maximum of 20, of the Group Call.

Note: Multiple Appearance, SCR/SCN DNs count as one member of a Group Call, irrespective of its number of DN appearances.

Groups are defined through Service Change in LD 18. When a group is defined, each member of the group is assigned a member number. If network or conference blocking is encountered, members are assigned priorities for connection to the Group Call in the order of their group member numbers (member 0 has the highest priority). It is recommended that group members be assigned from different network loops to minimize the possibility of network blocking.

The Group Call key is used to originate a Group Call to all members of the group to which the Group Call key is assigned. The Group Call key for a given group can appear on more than one telephone. More than one Group Call key can be assigned to a group, but only one Group Call key can be active for a given group at any time. A telephone with a Group Call key need not be equipped with a Directory Number (DN) that is defined as a group member.

Activation of a Group Call key originates a call to all assigned members of the group. When the first member of the group answers, ringback tone is removed and a speech path is set up between the member and the originator of the call. As subsequent members answer, they are added to the call. The lamp associated with the Group Call key at the originator's telephone flashes until all members of the group have answered the call.

If a Directory Number (DN) is actively engaged in a call and a Group Call is originated for that DN, either the Group Call is camped on or Call Waiting is activated for the DN and a special warning tone is provided. The special warning tone consists of three rapid bursts of tone followed by 10 seconds of silence, then an additional three rapid bursts of tone.

An active Group Call is under complete control of the originator of the call. If the originator goes on hook, the call is completely broken down. Members who are taking part in a Group Call can disconnect from the call at any time, but once disconnected, they cannot be reconnected.

Operating parameters

A Group Call can be originated only from a Meridian 1 proprietary telephone with a Group Call key.

Group Call does not support data calls.

With the Extended Conference TDS (XCT) card (NT8D17), audio interference can occur if many of the call participants are on “older-style” analog (500/2500-type) sets. This problem does not occur when participants are on Meridian Digital Telephones or “newer-style” electronic analog (500/2500-type) sets. Analog (500/2500-type) sets produce more audio noise and degrade the sound quality of the conference as the number of participants exceeds 12-15 members. As the number of participants drops below this threshold, the sound quality of the Group Call returns to normal.

The maximum number of members per group is 20.

For Small Systems and CS 1000S systems, the maximum number of members per group is six.

The maximum number of groups per customer is 64.

Each group member DN must have a Warning Tone Allowed Class of Service.

Off-premise Extension (OPX) lines cannot be members of a group.

Calls to a DN that is active in a Conference call, or Group Call, are blocked.

Feature interactions

Automatic Line Selection

This feature is not selected for automatic Outgoing Line Selection or Non-Ringing Line Selection. It is selected for Incoming Ringing Line Selection.

Call Forward All Calls

A Group Call to a telephone with Call Forward active is forwarded one step only. The Call Forward number must be a valid DN.

Call Forward/Hunt Override Via Flexible Feature Code

It is not possible to use Call Forward/Hunt Override FFC as a Group Call DN.

Call Pickup

This feature can be used to answer a Group Call if it is activated by a valid telephone in the same Call Pickup group, or by using Directory Number (DN) Pickup or Group Pickup.

Call Pickup Network Wide

The Group Call feature does not allow a remote party in a Group Call list. Therefore, a Group Call cannot be picked up by a remote station. If during the network scanning a Group Call is found, it will be ignored and the network scanning will continue.

Call Transfer Conference

Neither Call Transfer nor Conference can be initiated during a Group Call. If an analog (500/2500 type) telephone user flashes the switchhook during an established Group Call, the user is dropped from the call.

Directory Number Delayed Ringing

When a group call is made to an SCN/MCN key with Directory Number Delayed Ringing (DNDR) defined, audible notification will be given after the DNDR delay has expired.

Display of Calling Party Denied

The calling party's display shows the DN of the last set to connect into the Group Call regardless of the Class of Service. The called set displays the Group Number only.

Hold

Only the originator of a Group Call can put the Group Call on hold.

Hot Line

Hot Lines can be members of a Group Call. They cannot, however, have a Group Call key.

ISDN QSIG/EuroISDN Call Completion

Call Completion cannot be applied to a Group Call.

Make Set Busy Individual Do Not Disturb

A Group Call to a telephone in Make Set Busy or Individual Do Not Disturb mode cannot be completed. The telephone will not be rung and is not counted as part of the Group Call (for instance, if all other members in the group have answered, the lamp next to the Group Call key on the originator's telephone lights steadily).

Network Intercom

When Directory Number Delayed Ringing (DNDR) is defined and an incoming call to set configured with Hot Type I or D Key and DNDR occurs, the set winks until the DNDR timer expires. After this timer expires, the set rings as normal.

Short Buzz for Digital Telephones

The special three-second buzz for Group Call is not affected by this feature.

Telephone features

The following features cannot be applied on a Group Call:

- Call Forward No Answer
- Call Forward Busy
- Call Forward/Hunt Override Via Flexible Feature Code
- Call Join
- Call Park
- Call Transfer
- Conference
- Hunting
- Privacy Release
- Ring Again

Feature packaging

This feature is packaged under Group Call (GRP), package 48 and has no feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 18 – Add or change a Group Call list.
- 2 LD 11 – Add or change Group Call for Meridian 1 proprietary telephones.
- 3 LD 20 – Print Group Call data.

LD 18 – Add or change a Group Call list.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	GRP	Group Call data block.
CUST	xx	Customer number, as defined in LD 15
GRNO	0-63	Number of the Group Call list.
STOR	xx yyy...y <CR>	Group member number (xx) and associated DN (yyy...y). End input of stored Group Call entries

LD 11 – Add or change Group Call for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx GRC yy	Add a Group Call key, where: xx = key number, and yy = Group Call list number (0-63).

LD 20 – Print Group Call data.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	GRP	Group Call data.
CUST	xx	Customer number, as defined in LD 15
GRNO	0-63 <CR>	Number of the Group Call group. Print data for all Group Call groups.

Feature operation

To make a Group Call:

- Press **Group Call**. All group members are automatically called. The LCD indicator beside the Group Call key flashes until all members have answered. Then it lights steadily.

To make a Group Call using a Flexible Feature Code, see the feature module “Dial Access to Group Calls” on page 83 of this document.

Group Hunt

Contents

This section contains information on the following topics:

Feature description	441
Operating parameters	453
Feature interactions	454
Feature packaging	462
Feature implementation	463
Feature operation	472

Feature description

Group Hunting is similar to the Hunting feature. If a call encounters a busy DN and a Group Hunting Pilot DN is specified, the call is routed to the next idle DN in a prearranged group. Unlike the existing Hunting feature, Group Hunting allows a customer to:

- Configure all members of a hunt group in one block instead of many different station data blocks.
- Prevent Group Hunt termination on any idle member through a Group Hunt Deactivate Flexible Feature Code (FFC) or through a GHD (Group Hunt Deactivate) key.
- Limit the hunting steps to the total number of DNs in the list.
- Initiate hunting by dialing or accessing a Group Hunt Pilot DN directly.
- Configure a DN to be a member of more than one hunt group.

Pilot DN

Pilot DNs are defined as PLDN Flexible Feature Codes (FFC) in LD 57. Pilot DNs are used in two ways:

- 1 If the USE prompt is set to GPHT, then the Pilot DN is defined to activate Group Hunting.
- 2 If the USE prompt is set to Speed Call List Controller (SCLC) or Speed Call List User (SCLU), then the Pilot DN is defined to access the Speed Call or System Speed Call lists that are associated with the Pilot DN.

Termination conditions

When a Group Hunt Pilot DN is dialed, Group Hunting searches the list associated with the Pilot DN, according to the hunt type specified, until one of the following conditions is met:

- 1 idle DN is encountered
- 2 Automatic Call Distribution (ACD) DN, Integrated Voice Messaging Service (VMS) DN, Message Center (MC) DN, Listed Directory Number (LDN), or attendant DN is encountered
- 3 route access code is encountered
- 4 ESN access code is encountered
- 5 Group Hunt Pilot DN is encountered
- 6 all DNs in the group are hunted to, or the maximum number of hunting groups is reached

If condition 1 or 2 is met, then incoming calls are completed to that DN. All DNs listed in condition 2 are associated with a queue. Remember the following when configuring these Group Hunt lists:

- These DNs always appear idle to a hunt cycle, regardless of their actual status. The hunt always redirects to the indicated destination, and never comes back into the Group Hunt list, therefore these calls are never queued against the Pilot DN.

- It is recommended that if these DN's must be used in a Group Hunt list, only one such DN be used. This DN must always be the last entry in the list.
- Also, linear hunting must be used. In this configuration, any redirected call is subject to the call processing treatment of the destination.
- Listed DN's can be configured as a last entry in a hunt group list, if linear hunting is used. The redirected call is presented to the associated LDN Incoming Call Indicator (ICI) key on the attendant console. The call can be transferred back to the Hunt Group Pilot DN; once transferred, it cannot be recalled to the attendant.
- Attendant DN's can be configured as a last entry in a hunt group list, if linear hunting is used. The call can be transferred back to the Hunt Group Pilot DN; once transferred, it cannot be recalled to the attendant.
- Automatic Call Distribution (ACD) DN's can be configured as a last entry in a hunt group list, if linear hunting is used. The call can be transferred back to the Hunt Group Pilot DN. If the ACD queue has the Hunt Group Pilot DN defined as the night DN, the call is transferred back into the hunt group list.

If termination condition 3 or 4 is met, that call termination depends on either the access code or the number that followed. Therefore, remember the following when configuring Group Hunt lists:

- Use only one access code for each Group Hunt list. The access code must always be the last entry in the list.
- Use linear hunting. In this configuration, any redirected call is subject to the call processing treatment of the destination.
- If an access code is used as a Group Hunt member, it must be entered as "access code and complete destination number" to ensure proper routing to the destination, not just the access code alone.
- Trunk optimization does not apply.

If termination condition 5 is met, the search ends for the current list and begins for the list associated with the new Pilot DN. A Pilot DN cannot be a member of its own Hunting Group.

If termination condition 6 is met, then incoming calls are placed in a queue in the order of arrival. They are then presented to the next DN's in the group as the members become available.

Direct Inward Dialing (DID) calls are placed in a Group Hunting queue only if the group is still in service. If the group is not in service (if all of its members have deactivated Group Hunting), DID calls are routed directly to the attendant.

Calls are removed from a Group Hunting queue when they are abandoned, when they are presented to an available member, or when they are attendant-extended calls and the slow answer recall timer has expired.

Ringback tone is heard by callers who wait in Group Hunting queues for service.

If the attempted DN for termination by Group Hunting is not a valid member or number, an error message (ERR 8985) prints, hunting terminates, and calls route to overflow tone as specified by the intercept treatment.

Hunt types

Two types of Group Hunt are provided: linear and round robin. Only one hunt type is allowed per Group Hunt List.

- **Linear:** Hunting starts at the first DN in the list and ends when one of the conditions mentioned in "Termination conditions" on page 442 is met.
- **Round Robin:** Hunting starts at the DN next in the list to the last DN that was hunted to. Hunting ends when one of the conditions mentioned in "Termination conditions" on page 442 is met.

Group Hunt Lists

Group Hunt lists are defined and modified in LD 18. The Pilot DN entered for each list must have been previously defined as a Group Hunt FFC in LD 57. When a Group Hunt list is defined, the members are assigned a member number as in configuring a Speed Call List. The maximum DN size of each member is 31 digits. The list members can have one of the following DN types:

- 1 Single or Multiple Appearance DN
- 2 Listed Directory Number
- 3 Attendant DN
- 4 Automatic Call Distribution (ACD-DN), VMS-DN, MC-DN
- 5 Route access code (route access code + number)
- 6 Electronic Switch Network (ESN) number (for example, access code + number)
- 7 Group Hunt Pilot DN
- 8 Radio Paging access code followed by a complete DN

Note: A Group Hunt list can also be modified through a Speed Call or System Speed Call Controller key, through an analog (500/2500 type) telephone feature Speed Call Controller, or through Group Hunting Speed Call or System Speed Call Controller Flexible Feature Codes (FFC).

Composition of Group Hunt lists

Authorized Group Hunt list members belong to one of the following categories:

- Set-associated DNs (DN type 1) — These DNs are associated with sets and/or keys in a stand-alone system. They are any of the following:
 - Single-appearance DNs
 - Multiple-appearance, single-call arrangement DNs
 - Multiple-appearance, multiple-call arrangement DNs

- If MADNs with multiple-call arrangement are to be used in Group Hunt lists, they must have only one Prime DN appearance.
- MADNs on analog (500/2500-type) sets with the MCRA class of service (Multiple-call arrangement) are not supported in Group Hunt lists. If one appearance of this MADN is busy, all other appearances are also considered busy by the Group Hunt Cycle.
- A set-associated DN can only be defined 96 times as a Group Hunt list member in the system.
- System-associated DNs (DN types 2, 3, 4, 7, 8) — These DNs are associated with other destinations than extensions in a stand-alone system.
- Routing-associated DNs (DN types 5, 6) — These DNs are associated with destinations outside the stand-alone system.

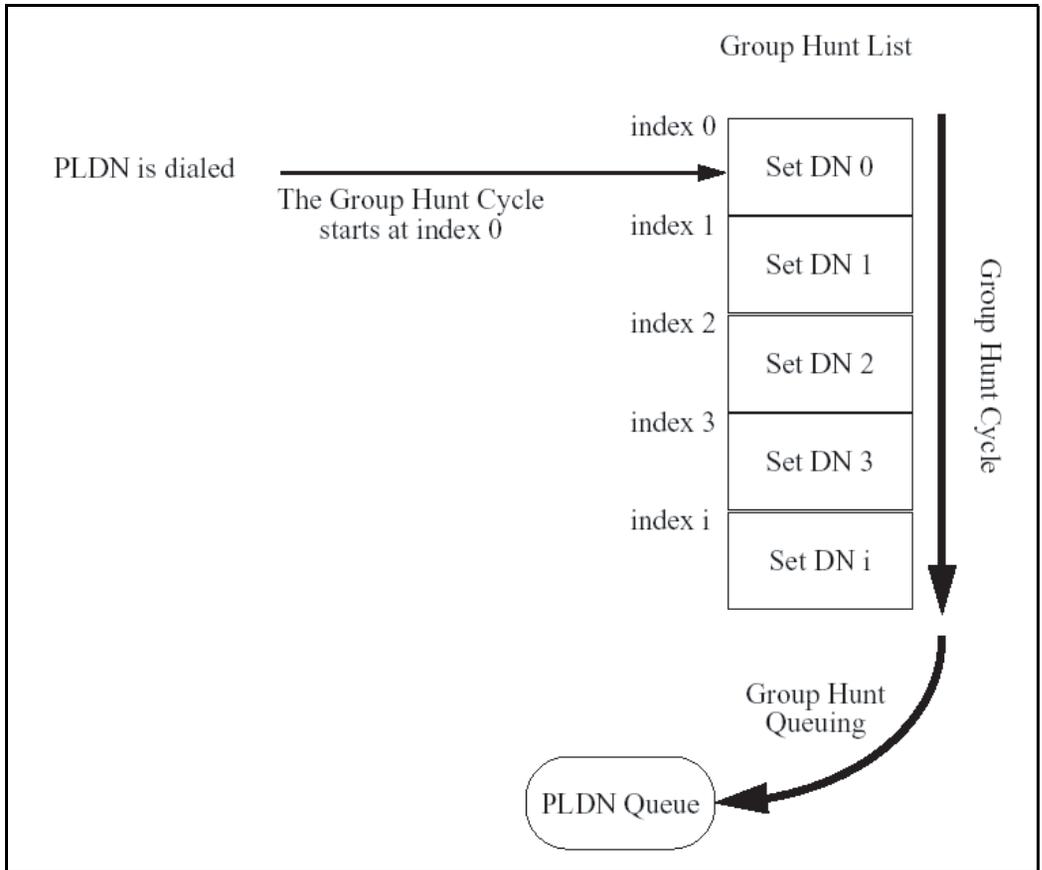
System- or routing-associated DNs always appear available during a Group Hunt cycle. Set-associated DNs do not appear available. Therefore, the Group Hunt cycle always redirects to system-associated and routing-associated DNs when they are met in the list, and the call is never queued against the Pilot DN.

If Linear Hunt is configured for a Group Hunt list that has system- or routing-associated DNs, make these DNs the last entries in the list. List members entered with a higher index are never reached because the system- or routing-associated DNs always route the call.

There are four supported Group Hunt lists:

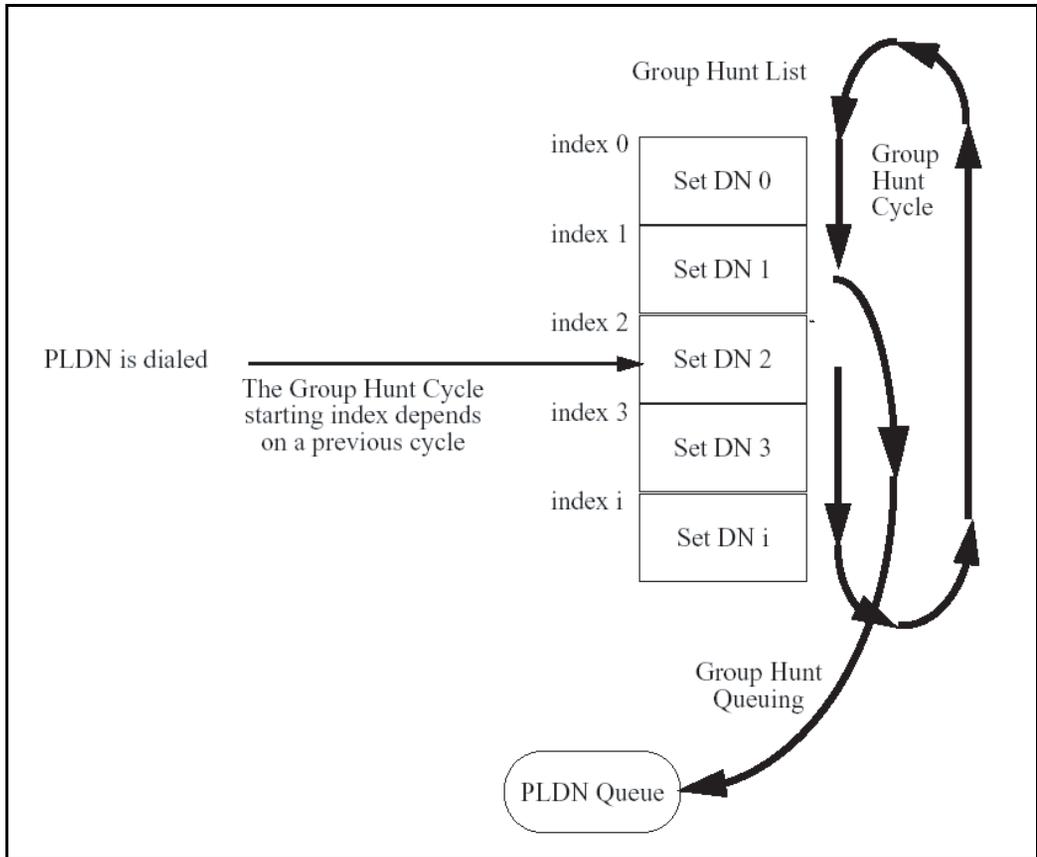
- Type I Group Hunt lists set-associated DNs — These use Linear Hunt type. When the user dials the PLDN, the Group Hunt Cycle offers the call to the first list member. If this member is not eligible, the next member is tried. This process continues until one is found, or until the complete list is searched. Figure 1 on page 447 describes the Group Hunt cycle for Type I Group Hunt lists.

Figure 1
Group Hunt cycle for Type 1 Group Hunt lists



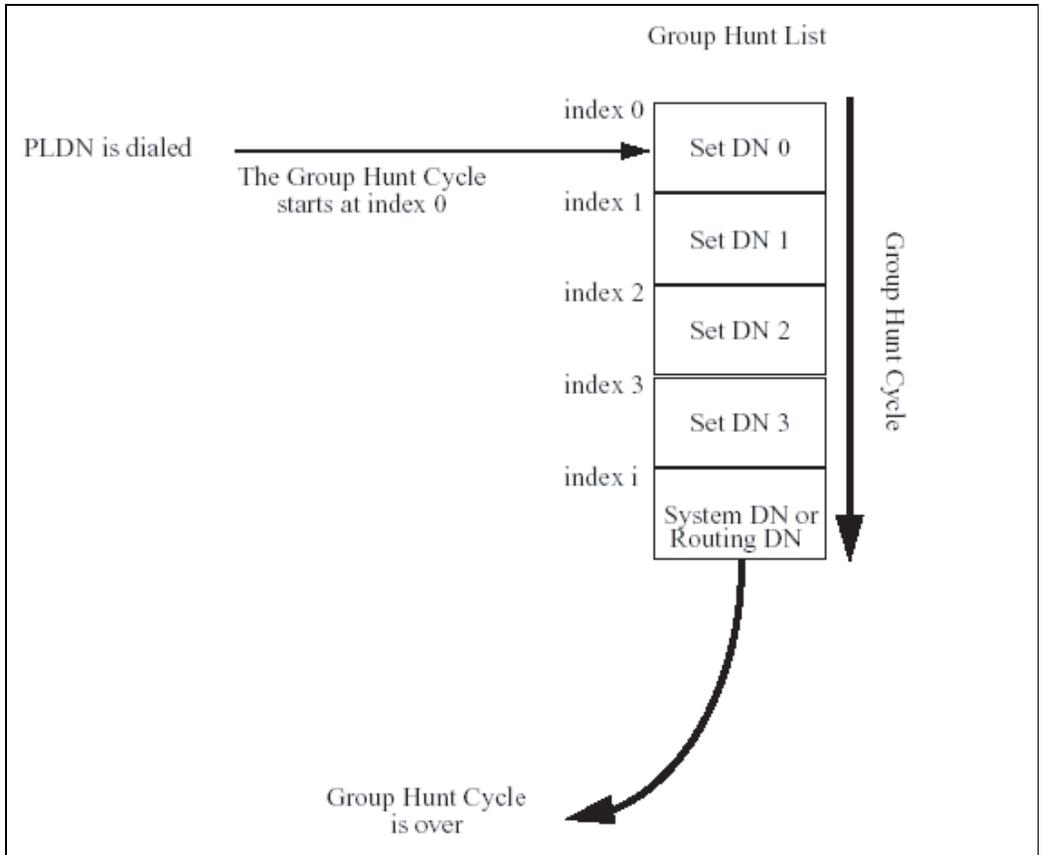
- Type II Group Hunt lists set-associated DN's — These use Round Robin Hunt type. When the user dials the PLDN, the Group Hunt Cycle offers the call to the index next to the last index that was hunted to in the previous cycle. If this member is not eligible, the next DN member is tried. This process continues until one is found, or until the whole list is searched. Figure 2 on page 448 describes the Group Hunt cycle for Type II Group Hunt lists.

Figure 2
Group Hunt cycle for Type II Group Hunt lists



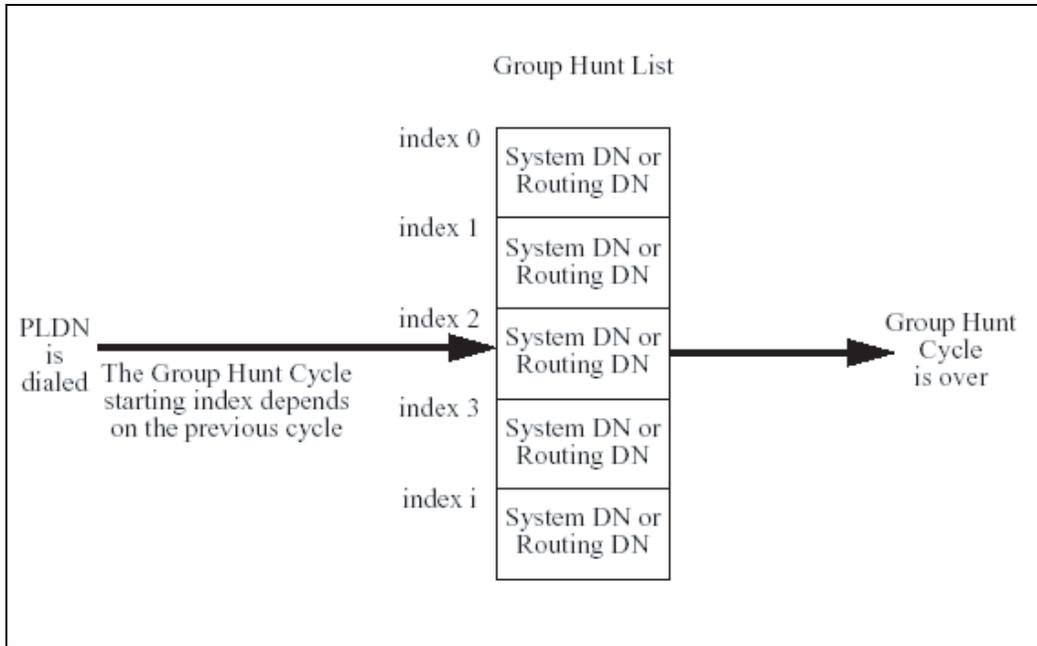
- Type III Group Hunt lists set-associated DNs except for the highest index position, which is filled with a system- or routing-associated DN — These use Linear hunt type. When the user dials the PLDN, the Group Hunt Cycle offers the call to the first list member. If this member is not eligible, the next member is tried. This process continues until one is found. If no member is found, the call is offered to the highest index position (System- or Routing-associated DN). There is no queuing. Figure 3 on page 449 describes the Group Hunt cycle for Type III Group Hunt lists.

Figure 3
Group Hunt cycle for Type III Group Hunt lists



- Type IV Group Hunt lists system- or routing-associated DN's of the same DN type — These use Round Robin hunt type. Once the PLDN has been dialed, the Group Hunt Cycle offers the call to the index next to the last index that was hunted to during the previous cycle. There is no further search in the list nor is there any queuing. Figure 4 on page 450 describes the Group Hunt cycle for Type IV Group Hunt lists.

Figure 4
Group Hunt cycle for Type IV Group Hunt lists



Note: The user must define the Group Hunt list to match one of the four list types.

Queuing

If all members of a Group Hunt list are busy, calls are queued against the Pilot DN of that Group Hunt list. Ring-back tone is provided. There are several options available to control the number of calls allowed to be queued against any given Pilot DN. These options are:

- Group Hunt Queuing Limitation allows the system administrator to select, through service change, the number of calls allowed to queue against the Pilot DN. The selection is made by responding to the Maximum Queue (MQUE) prompt in LD 57. The valid responses to this prompt are:
 - **0**: No calls allowed to queue.

- **1**: One call allowed to queue.
- **ALL**: No limit to the number of calls allowed to queue.
- **ACTM**: The number of calls allowed to queue must be less than or equal to the number of active Group Hunt list members.

Group Hunt Deactivate and Activate

Group Hunt Deactivate allows an idle Set-associated DN to be made non-eligible to Group Hunt calls. A Group Hunt Deactivate FFC code (GHTD) is available to both analog (500/2500-type) and digital sets. The Group Hunt Deactivate key (GHD) can be configured on digital sets.

1 Digital sets

- a** If the station user activates the DN key, dials the GHTD code and then dials PLDN, the DN is deactivated from the Group Hunt list associated with PLDN. An overflow tone is given if the operation is not successful.
- b** If the station user activates the DN key and dials the GHTD code, the DN is deactivated from all Group Hunt lists to which this DN belongs. An overflow tone is given if the operation is not successful.
- c** If the station user activates the GHD key (key lamp is dark), the Prime DN (defined on key 0) is deactivated from all Group Hunt lists to which this Prime DN belongs. The GHD key lamp is lit if the operation is successful. The GHTD code must be used to deactivate non-Prime DNs.

2 Analog (500/2500-type) sets

- a** If the station user goes offhook, dials the GHTD code, and then dials PLDN, the DN is deactivated from the Group Hunt list associated with PLDN. An overflow tone is given if the operation is not successful.
- b** If the station user goes offhook and dials the GHTD code, the DN is deactivated from all Group Hunt lists to which this DN belongs. An overflow tone is given if the operation is not successful.

If the DN is a Multiple-Appearance DN, all appearances of the DN are deactivated when a DN member executes one of the deactivation processes.

Group Hunt Activate allows an idle Set-associated DN to return to the active state from the Group Hunt Deactivate state. A Group Hunt Activate FFC code (GHTA) is available to both analog (500/2500-type) and digital sets. A Group Hunt Deactivate key (GHD) can be configured on digital sets.

1 Digital sets

- a If the station user activates the DN key, dials the GHTA code and then dials PLDN, the DN is activated again in the Group Hunt list associated with PLDN. Overflow tone is given if the operation is not successful.
- b If the station user activates the DN key and dials the GHTA code, the DN is activated again for all Group Hunt lists to which this DN belongs. Overflow tone is given if the operation is not successful.
- c If the station user activates the GHD key (key lamp is lit), the Prime DN (defined on key 0) is activated again for all Group Hunt lists to which this Prime DN belongs. The GHD key lamp is darkened if the operation is successful.

2 Analog (500/2500-type) sets

- a If the user goes offhook and dials the GHTA code, and then dials PLDN, the DN is activated again for the Group Hunt list associated with PLDN. An overflow tone is given if the operation is not successful.
- b If the station user goes offhook and dials the GHTA code, the DN is activated again for all Group Hunt lists to which this DN belongs. An overflow tone is given if the operation is not successful. The GHTA code must be used to activate non-Prime DNs.

If the DN is a Multiple-Appearance DN, all appearances of the DN are activated again when a DN member executes an activation processes.

Access to Group Hunt lists

A Group Hunt list can be accessed by dialing the associated Pilot DN, through:

- manual dialing
- automatic dialing (such as Autodial, Hotline, Speed Call)
- redirection (such as Call Transfer, Call Forward, Hunt)
- ACD Night Service
- ACD interflow/overflow
- trunk access

A Pilot DN can be accessed like any other DN in the network. Any network user can access all Group Hunt lists defined for a network from anywhere in the network. This allows a centralized Group Hunt list to be set up for all network users.

However, Group Hunting is not possible across the network because calls encountering access code entries are always directed to the destination and never return to the hunt queue.

Operating parameters

The Group Hunting feature does not support data calls.

Hunting is limited to the following:

- the total number of DN's in the group
- a maximum of 30 hunting groups for each hunting sequence (for multi-group systems)
- a maximum of 18 hunting groups for each hunting sequence (for all other systems)

Hunting can be limited to the total number of DN's in the group, to 30 hunting groups per hunting sequence for multi-group systems, or to 18 hunting groups per hunting sequence for all other systems.

A maximum of 31 digits can be entered in each list entry.

A maximum of 96 entries can be placed in each list.

A specific station can be defined within a group, among different groups, or a combination thereof a maximum of 96 times.

A maximum of 8000 Group Hunt lists can be defined on a system (programmable through the existing MSCL prompt in LD 17 and reduced by the number of defined Speed Call and System Speed Call lists.)

For larger applications, the ACD package must be equipped to optimize call control and call distribution.

It is recommended that the Group Hunt feature be primarily used with set-associated DNs.

A Group Hunt pilot DN cannot be a member of its own list.

Round Robin hunting should only be used if all entries in the Group Hunt list are the same type (for example, all set-associated DNs or system-associated DNs).

A Pilot DN can be accessed from a network TIE trunk. Also, members of the Group Hunt list can be located at remote nodes.

Feature interactions

Attendant Timed Recalls

Attendant-extended calls to a PLDN will recall to the attendant when the recall timer expires.

- If the call extends to an eligible member in the Group Hunt list, the Slow Answer Recall Timer of the customer applies.
- If the attendant-extended call is queued to the PLDN, the Call Waiting Timer of the customer applies.
- If the attendant-extended call is queued to the PLDN, the Call Waiting Recall Timer is started as explained above; when a list member becomes eligible and is offered the call, the timer re-starts with its Slow Answer Recall value.

If the call is extended to an eligible member that has Call Forward No Answer configured, the Flexible Call Forward No Answer Timer applies instead of the Slow Answer Recall Timer. Ringing in the Group Hunt list continues as long as allowed by CFNA.

Access Restrictions

If a routing-associated DN is programmed in a Group Hunt list, access restrictions apply, based on the Class of Service of the calling station or route, the TGAR of the calling station or route, or both.

Attendant Alternative Answering

A Pilot DN can be defined as an alternative DN. Calls forwarded to a Pilot DN as an alternative DN are directed to the next DN in the group.

Attendant Blocking of Directory Number

It is not possible to activate the Attendant Blocking of DN feature for a Pilot DN. If an attempt is made to block a PLDN, the attempt will be canceled and overflow tone will be returned. If a DN that is a member in a Group Hunt (or Hunt) list is blocked by the Attendant Blocking of DN feature, the DN is considered to be busy.

Attendant Break-in and Toll Operator Break-in

Attendant Break-in and Toll Operator Break-in will not be supported when dialing a Pilot DN directly.

Attendant Busy Verify

An attendant is not allowed to busy-verify when dialing a Pilot DN directly.

Attendant Overflow Position

A PLDN cannot be configured as an Attendant Overflow DN (AODN).

Call Forward All Calls

When Group Hunt attempts to terminate on a DN, which has Call Forward All Calls active, it will continue with the next DN in the group if the attempted DN is busy, or if the DN is idle and the response to the Call Forward Ignore (CFWI) prompt in LD 57 is NO. If the attempted DN is idle and the response to the CFWI prompt in LD 57 is YES, then the system terminates Group Hunt and ring stations associated with the DN.

Call Forward Busy

Group Hunting has priority over the Call Forward Busy feature.

If the DN to be terminate has FBA (Forward Busy Allowed) Class of Service is busy, then Group Hunting continues with the next DN in the group.

Call Forward by Call Type

A Pilot DN can be configured as the redirection DN (HUNT, FDN, EHT, EFD) for the CFCT feature. The interaction is the same as for the Call Forward No Answer feature.

Call Forward External Deny

A Pilot DN cannot be configured as the Call Forward All Calls redirection DN if the set has the CFXD capability allowed.

Call Forward/Hunt Override through Flexible Feature Code

Primary Line Directory Numbers (PLDNs) are not overridden by the Call Forward/Hunt Override Via FFC feature. Any attempt will be ignored and access denied treatment will result.

Call Forward No Answer

Call Forward No Answer (CFNA) can optionally be configured to use a Pilot DN. This option is available when the HUNT DN or the FDN is defined as a Pilot DN.

If an idle station attempted for termination has CFNA defined, then the station will be rung. If the station does not answer within the customer specified number of ring cycles, then Group Hunting will continue with the next DN in the group. The calling party will continue to hear ringback tone until one of the conditions mentioned in “Termination conditions” on page 442 (the last condition is not applicable in this case) is met, or until they release the call.

Call Forward No Answer, Second Level

Second Level Call Forward No Answer will not be applied to calls that are using Group Hunt.

Call Forward No Answer by Call Type

CFNA by Call Type can be configured to use a Pilot DN. This option is available when the EFD or EHT DN is defined as a Pilot DN.

When Group Hunting terminates on an idle station with Call Forward No Answer by Call Type active, treatment will be the same as in the case of CFNA.

Call Forward No Answer, Second Level

Second Level CFNA will not be applied to calls with Group Hunting active.

Call Detail Recording on Redirected Incoming Calls

For the Call Detail Recording on Redirected Incoming Calls feature, in the case of Group Hunt, the Pilot DN is the one before the last set in the redirection chain.

Call Transfer

Any call can be transferred to a Group Hunt Pilot DN. If there are no idle sets available for the call transfer, the call is queued to the Pilot DN and the caller receives ringback tone. If the call cannot be queued because the queue threshold has been reached, the caller receives busy tone.

Call Waiting

Call Waiting to a Pilot DN is not be supported.

Camp-on

Camping an incoming call on to a Pilot DN is not be supported.

Digit Display and Name Display

Until a call is answered, the calling party sees the dialed DN. When the call is answered, the caller sees the dialed DN appended with the DN and name of the calling party, if Calling Party Name Display (CPND) is equipped. The terminating set will always see the originating DN appended with a Pilot DN.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

Only basic DPNSS1 UDP calls are supported with Group Hunting. Interactions between DPNSS1 Supplementary Services and Group Hunting are not supported.

DPNSS1 Diversion

Only simple DPNSS1 calls support Group Hunting. All DPNSS1 supplementary services do not support Group Hunting.

Do Not Disturb

Do Not Disturb (DND) has priority over Group Hunting. Group Hunting will skip over sets with DND active.

Enhanced Night Service

If a Pilot DN is defined as one of the NITE DNs from the list associated with the Trunk Night Group, then incoming calls directed to the Pilot DN will be presented to the next idle DN in the hunt group.

Electronic Switched Network

Group Hunting can be applied to Network calls. An Electronic Switched Network (ESN) access code (trunk steering code), if encountered during Group Hunting, will terminate the hunting sequence.

Hunting

Group Hunting has priority over Hunting. If the DN attempted for termination by Group Hunting has HTA COS, and if it is busy, Group Hunting continues with the next DN in the group instead of following the DN's hunting configuration.

ISDN QSIG/EuroISDN Call Completion

Call Completion to Busy Subscriber cannot be applied to Pilot DN when no idle set is located during a Group Hunt call.

Last Number Redial Stored Number Redial

A Pilot DN will be stored as a Last Number Redial (LNR) and Stored Number Redial (SNR) number when it is dialed directly.

Make Set Busy

Make Set Busy (MSB) has priority over Group Hunting. Group Hunting will skip over sets with MSB active.

Multiple Appearance Directory Number

While Multiple Appearance DN's (MADN) single call arrangements are treated the same as Single Appearance DN's (SADN), MADN multiple call arrangements must be avoided in a Group Hunt list.

With MADN multiple call arrangement, the idle or busy status of the MADN is determined by the Terminal Number (TN) data block of the prime appearance of the called DN. If there is more than one prime appearance of the called DN, the idle or busy status is then selected from the last TN in the DN block for the MADN (DNB prompt in LD 22). This means that there can be idle appearances of the MADN, while the hunt cycle regards them as busy and attempts to terminate on the next idle member of the Group Hunt list.

If an MADN multiple call arrangement must be used, a supervisor set must be assigned to the hunt group. This supervisor set must be given the one and only prime appearance of the MADN. Any other appearance must have the MADN programmed as a secondary DN (any DN key other than 0). In this way, the supervisor set controls the status of the MADN and thus the Group Hunt treatment. If the supervisor set is busy, the hunt does not terminate on the MADN.

Multi-Party Operations

As per the existing Multi-Party Operations (MPO) feature, recovery of misoperation of Call Transfer will not be applied to incoming calls which are transferred on ringing to a Pilot DN by transferring parties who are waiting in GPHT queues for service.

Night Answer by Time of Day

If a Pilot DN is defined as one of the NITE DNs in LD 15, then incoming calls directed to the Pilot DN will be presented to the next idle DN in the group. At the instant of changeover (change from one night DN to another), Group Hunting, if still active, will keep on hunting for the next idle DN in the group.

Night Service

If a Pilot DN is defined as a NITE DN or trunk NITE DN, then incoming calls directed to the NITE DN or trunk NITE DN will be presented to the next idle station in the hunt group.

On Hold on Loudspeaker

Group Hunt to a loudspeaker DN can be programmed, but will be ignored if configured as Make Set Busy (MSB) by call processing.

Override Ring Again

Override and Ring Again will not be supported.

Recall to Same Attendant

Calls redirected from a Group Hunt list through the listed DN or flexible attendant DN, and transferred back to the Pilot DN, are recalled if the Slow Answer Recall Timer expires. However, in practical configurations, the hunt terminates on the entry with the listed DN or attendant DN before the Slow Answer Recall Timer expires; consequently, the call is not redirected to that DN and presented on the applicable ICI key on the console. Therefore, the call is never presented as a recall, so that Recall to the Same Attendant does not apply.

Recorded Announcement

Calls which are queued against the Group Hunt Pilot DN cannot receive Recorded Announcement.

Remote Call Forward

If Call Forward All Calls is activated remotely, the interaction with Group Hunting is the same as Call Forward All Calls.

Ring Again on No Answer

Ring Again on No Answer cannot be applied if the DN dialed was a Pilot DN.

Slow Answer Recall

Calls extended by the attendant to the Group Hunt Pilot DN are recalled to the same attendant, after the Slow Answer Recall timer expires. This only applies to a standalone configuration; Network Attendant Service (NAS) is not supported.

Tenant Service

If a Pilot DN is defined as a Tenant NITE DN, then incoming calls directed to the Pilot DN will be presented to the next idle DN in the hunt group.

Total Redirection Count

Group Hunt takes precedence over the Total Redirection Count feature, in that the TRCNT limit is not applied to a Group Hunt call.

Warning Tone

Warning Tone is not applied to queued calls, if the French Type Approval package (197) is not equipped. If the French Type Approval package (197) is equipped, a warning tone of Camp-on can be provided to the first active member of a Group Hunt list that has Warning Tone Allowed (WTA) Class of Service (COS). Any new call in the queue is announced to the next set in the hunt chain that has WTA COS.

16-Button Digitone/Multifrequency Operation

Group Hunt Pilot DN (GRHP) function will not be supported. Group Hunting and Speed Call DN Access can be accessed through the Autodial function.

Feature packaging

Group Hunt requires the following packages:

For markets other than France:

- Group Hunt/DN Access to SCL (PLDN) package 120, which has the following dependencies:
 - System Speed Call (SSC) package 34
 - International Supplementary Features (SUPP) package 131 where applicable
 - Flexible Feature Codes (FFC) package 139

For the French market only:

- French Type Approval (FRTA) package 197 and Group Hunt/DN Access to SCL (PLDN) package 120, which has the following dependencies:
 - System Speed Call (SSC) package 34
 - International Supplementary Features (SUPP) package 131
 - Flexible Feature Codes (FFC) package 139

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 22 – Verify that software package 120 is equipped.
- 1 LD 17 – Enter the number of Group Hunt lists allowed in the system.
- 2 LD 15 – Enter a Group Hunt PLDN.
- 3 LD 10 – Enter a Group Hunt Pilot DN (PLDN).
- 4 LD 11 – Enter a Group Hunting Denied (GHD) key and enter a Group Hunt PLDN. LD 11 is modified to disallow the removal of the last appearance of a Single Call Non-ringing (SCN), Single Call Ringing (SCR), Multiple Call Non-ringing (MCN), or Multiple Call Ringing (MCR) DN which is part of a Group Hunt list. This ensures the DN is removed from all Group Hunt lists prior to being removed from a set.
- 5 LD 12 – Enter a Group Hunt PLDN.
- 6 LD 14 – Enter a Group Hunt PLDN.
- 7 LD 18 – Create or modify Group Hunt lists. Responses are required to the following prompts when a Group Hunt list is modified, created, or removed. This overlay disallows the removal of a Group Hunt list if it is still associated with a PLDN that exists in LD 57. This ensures the PLDN is removed prior to removing the Group Hunt list.
- 8 LD 20 – Print the Group Hunt list. This includes PLDN entries.
- 9 LD 57 – Define, change, or print data associated with FFC.
- 10 LD 57 – Configure Flexible Feature Codes data block for Group Hunt Termination.

11 LD 81 – Count or list all stations equipped with the GHD key.

12 LD 83 – Display the GHD key data.

LD 22 – Verify that software package 120 is equipped.

Prompt	Response	Description
REQ	PRT	Print information.
TYPE	PKG	Type of information to print: equipped packages.

LD 17 – Enter the number of Group Hunt lists allowed in the system.

Prompt	Response	Description
REQ:	CHG	Change the Configuration Record.
TYPE:	PARM	System Parameters
...	...	
MSCL	0-8191	Number of Group Hunt lists allowed in the system.

LD 15 – Enter a Group Hunt PLDN. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW	Add new data.
TYPE:	NIT	Night Service Options
...		
- NIT1	x...x	First Night service by time of day DN can be defined as a PLDN.

LD 15 – Enter a Group Hunt PLDN. (Part 2 of 2)

- TIM1	...	Hour and Minute for First Night Service DN.
- NIT2	x...x	Second Night service by time of day DN can be defined as a PLDN.
- TIM2	...	Time for Second Night Service DN.
- NIT3	x...x	Third Night service by time of day DN can be defined as a PLDN.
- TIM3	...	Time for Third Night Service DN.
- NIT4	x...x	Fourth Night service by time of day DN can be defined as a PLDN.
- TIM4	...	Hour and Minute for Fourth Night Service DN.

LD 10 – Enter a Group Hunt Pilot DN (PLDN). (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW CHG	Add new data, or change existing data.
...		
IAPG	0-15	Meridian Link Unsolicited Status Message (USM) group
HUNT	x...x	Hunt DN of the next station in the Hunt chain. Hunt DN can be defined as a PLDN.
...		
AACD	(NO) YES	Associate set (AST) telephone
FTR	FTR	Enter the feature name and related data.
	EFD x...x	External Flexible call forward DN (a Group Hunt pilot can be entered.) External Call Forward No Answer DN can be defined as a PLDN.

LD 10 – Enter a Group Hunt Pilot DN (PLDN). (Part 2 of 2)

	EHT x...x	External Hunt DN External Hunt DN can be defined as a PLDN.
	FDN x...x	Flexible Call Forward No Answer Call Forward No Answer DN can be defined as a PLDN.

LD 11 – Enter a Group Hunting Denied (GHD) key and enter a Group Hunt PLDN. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW CHG	Add new data, or change existing data.
...		
AOM	0-2	Number of Add-on Modules. AOM appears if TYPE = M2216 and M2616
FDN	x...x	Flexible CFNA DN Call Forward No Answer DN can be defined as a PLDN.
...		
ICT	0-<NIPN>	Intercept Computer Terminal or printer number Number of Intercept Positions (NIPN) is defined in LD 15.
EFD	x...x	Flexible CFNA DN for External calls External Call Forward No Answer DN can be defined as a PLDN.
HUNT	x...x	Hunt DN of next station in hunt chain Hunt DN can be defined as a PLDN.
EHT	x...x	External Hunt DN External Hunt DN can be defined as a PLDN.
...		
LANG	(0)-5 X	Language choice for Automatic Wakeup (AWU) calls. Prompted with Multi-language Wakeup (MLWU) package 206.

**LD 11 – Enter a Group Hunting Denied (GHD) key and enter a Group Hunt PLDN.
(Part 2 of 2)**

KEY	xx aaa yyyy	Telephone key assignments.
	xx CFW yy z...z	Call Forward key Key number (xx), Call Forward function (CFW), length (yy), Call Forward target DN (z...z) can be defined as a PLDN.
	xx GHD	Key number (xx), Group Hunting Denied function (GHD). The GHD key is added to allow a station user to toggle the Primary (key 0) Directory Number (PDN) in and out of all groups of which that PDN is a member.

LD 12 – Enter a Group Hunt PLDN.

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data.
...		
ICP	(NO) YES	Intercept Computer available.
AADN	x...x	Attendant Alternate Answering DN. Alternate Answering DN can be defined as a PLDN.

LD 14 – Enter a Group Hunt PLDN. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data
...		
NGRP	(0)-9	Night Service Group number

LD 14 – Enter a Group Hunt PLDN. (Part 2 of 2)

NITE	x...x	Night Service directory number Night service DN can be defined as a PLDN.
ATDN	x...x	Auto-terminate DN Auto-terminate DN can be defined as a PLDN.
MNDN	x...x	Manual Directory Number Manual DN can be defined as a PLDN.

LD 18 – Create or modify Group Hunt lists. (Part 1 of 2)

Prompt	Response	Description
REQ	CHG MOV NEW OUT	Change, move, create, or remove a data block.
TYPE	GHT	Group Hunt data block
LSNO	1-8190 <CR>	List Number Group Hunt lists Use only when REQ = CHG and TYPE = GHT
CUST	0-99 0-31	Customer number, as defined in LD 15.
PLDN	x...x	Pilot DN: Prompted when REQ = NEW or CHG and LSNO = <CR>.
DNSZ	4-(16)-31	Directory Number Size Maximum length of DN allowed for Group Hunt list. Prompted when REQ = NEW or CHG and LSNO = <CR>. After DNSZ is defined, it should not be changed. Print the list in LD 20, remove it with REQ = OUT, and rebuild the list with the new DNSZ.
SIZE	1-96 1-1000	Size of list Maximum DNs in Group Hunt list Range is 1 to 96 entries if response to TYPE is GHT. Range is 1 to 1000 if response to TYPE is SCL or SSC.

LD 18 – Create or modify Group Hunt lists. (Part 2 of 2)

STOR	...	Store: Enter entry (member) number (x...x) and Group Hunt target DN (y...y). For TYPE = GHT the input format is Group Hunt entry and digits stored against it: Where: x...x = GHT entry number from 0 to 95 y...y = digits stored Stop STOR prompt In Group Hunting the member number must conform with the SIZE; the number of digits must conform with DNSZ. Remove entry
	x...x y...y <CR>	
	xx<space><CR>	
WRT	(YES) NO	Write Write information to data store.

LD 20 – Print the Group Hunt list.

Prompt	Response	Description
REQ	PRT	Print data block.
TYPE	GHT	Type of data block: Group Hunt list.
LSNO	1-8190 <CR>	Group Hunt lists. Print all lists
SIZE 1-96		The list size is printed if a Group Hunt list number is entered against the LSNO prompt. SIZE is not printed if <CR> is entered against the LSNO prompt.

LD 57 – Define, change, or print data associated with FFC. (Part 1 of 2)

Prompt	Response	Description
REQ	CHG NEW	Add new data, or change existing data.

LD 57 – Define, change, or print data associated with FFC. (Part 2 of 2)

TYPE	FFC	Flexible Feature Codes data block.
CUST	0-99 0-31	Customer number, as defined in LD 15
FFCT	<CR>	Flexible Feature Confirmation Tone.
CODE	PLDN	Code to be modified or created: Pilot DN.
- PLDN	xxxx <CR>	Pilot DN: enter Pilot DN to be modified or created. Enter a carriage return to proceed to next prompt.
-- USE	GPHT	USE: enter USE for Pilot DN Group Hunting.
-- LSNO	xxxx	List Number: enter Group Hunt list number. Group Hunt list must exist in LD 18.
-- HTYP	(LIN) RRB	Hunting Type: enter either (Linear) or Round Robin as the type of hunting to be used for the Group Hunt list.
-- CFWI	(NO) YES	Call Forward All Calls Idle: Where: enter NO if Group Hunting is to skip idle stations with Call Forward All Calls active, or enter YES if Group Hunting is to terminate on idle stations with Call Forward All Calls active.
MQUE	0 1 (ALL) ACTM	Maximum Queue (maximum number of calls allowed to queue against the Pilot DN). Where: Enter 0 to deny all calls from queuing Enter 1 to allow only one no call to queue Enter ALL, the default, to allow all calls to queue or Enter ACTM to limit the number of calls allowed to queue to be less than or equal to the number of active members of the Group Hunt list.

LD 57 – Configure Flexible Feature Codes data block for Group Hunt Termination.

Prompt	Response	Description
REQ	CHG NEW	Add new data, or change existing data.
TYPE	FFC	Flexible Feature Codes data block.
CUST	0-99 0-31	Customer number, as defined in LD 15.
FFCT	<CR>	Flexible Feature Confirmation Tone.
CODE	GHTA	Code to be modified or created: Group Hunt Termination Allowed.
- GHTA	x...x	Enter code to be dialed to allow Group Hunt termination on a set.
CODE	GHTD	Code to be modified or created: Group Hunt Termination Denied.
- GHTD	x...x	Enter code to be dialed to deny Group Hunt termination on a set.

LD 81 – Count or list all stations equipped with the GHD key. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data.
	CNT	Print a count of telephones equipped with the features specified in response to the FEAT prompt.
	LST	List telephones equipped with the features specified in response to the FEAT prompt.
...	...	

LD 81 – Count or list all stations equipped with the GHD key. (Part 2 of 2)

FEAT	GHD	Group Hunt Deactivation key
FEAT	<CR>	<CR> enters the default

LD 83 – Display the GHD key data.

Prompt	Response	Description
REQ	TNB	Print the TN blocks in Designation order.
...	...	
... KEY xx GHD ...		GHD key data is printed each time it is configured on a set.

Feature operation

No specific operating procedures are required to use this feature.

Group Hunting Queuing Limitation

Contents

This section contains information on the following topics:

Feature description	473
Operating parameters	474
Feature interactions	474
Feature packaging	475
Feature implementation	475
Feature operation	476

Feature description

The Group Hunting Queuing Limitation feature restricts the maximum number of calls that can be queued against a Pilot Directory Number (DN).

The Group Hunting Queuing Limitation feature adds a prompt (MQUE - Maximum Queue) in LD 57 which allows a user to define a limit on the number of calls queued against a Pilot DN. The valid inputs are:

- 0 No calls can be queued.
- 1 One call can be queued.
- ALL All calls may be queued (default).
- <CR> Setting is left as is.

When the maximum is exceeded, the next call that attempts to queue will be given busy treatment.

The following are examples of the treatment calls receive with MQUE set to the various settings:

MQUE set to 0

- 1 Pilot DN Z can hunt two sets, A and B. Both of these sets are busy.
- 2 Set (or DID trunk) C dials Pilot DN Z.
- 3 If C is a set it receives busy tone and cannot be queued, but if it is a Direct Inward Dialing (DID) trunk it receives whatever busy treatment has been requested for that DID route.

MQUE set to 1

- 1 Pilot DN Z can hunt two sets, A and B. Both of these sets are busy.
- 2 Set C dials the Pilot DN Z. The call is queued.
- 3 Set D dials the Pilot DN Z. This call receives busy tone.
- 4 Set A goes on-hook first. The first call is presented to set A.

MQUE set to ALL

This option disables the Group Hunt Queuing Limitation enhancement. With ALL selected there is no limit as to the number of calls which can be queued against the Pilot DN.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Camp-on

No Camp-on tone is provided for Group Hunting.

Music

No music is provided for Group Hunting Queuing Limitation.

Feature packaging

This feature is packaged under the International Supplementary Features (SUPP) package 131; Group Hunt/DN Access to SCL (PLDN) package 120; and all PLDN package (120) dependencies.

Feature implementation

LD 57 – Modify, create, or print Flexible Feature Codes. The MQUE prompt accepts a limit for the number of calls allowed to be queued against a Pilot DN. When printing the Flexible Feature Codes (FFC) data block, the value against the MQUE prompt is displayed.

Prompt	Response	Description
REQ	CHG NEW PRT	Request: Modify, create, or print data block.
TYPE	FFC	Flexible Feature Codes.
CUST	xx	Customer number, as defined in LD 15
...	xxxx	Automatic Call Distribution Directory Number.
CODE	PLDN	Code to modify, create: Pilot Directory Number.
- PLDN	XXXX	Enter PLDN to be modified or created.
-- USE	GPHT	Use of this PLDN, Group Hunt Pilot DN.
...		
-- CFWI	...	
-- MQUE		Maximum Queue – Maximum number of calls that may be queued against a Group Hunt Pilot DN.
	(ALL)	All calls may be queued (default).
	0	No calls can be queued.
	1	One call may be queued.
	<cr>	Use default setting if this is a new Pilot DN, leave existing setting as is if the Pilot DN is being modified.
...		

Printing the FFC data block will include the MQUE prompt and its response.

Feature operation

No specific operating procedures are required to use this feature.

Group Hunting Queuing Limitation Enhancement

Contents

This section contains information on the following topics:

Feature description	477
Operating parameters	478
Feature interactions	478
Feature packaging	478
Feature implementation	479
Feature operation	480

Feature description

This feature introduces a Group Hunt Threshold (GHTH) which limits the number of calls that can be linked in the Pilot DN (PLDN) waiting queue. The threshold is calculated dynamically and is set equal to the number of active members in the group hunt list. This limits the number of calls in the PLDN queue to one per active member of the group hunt list. The feature is activated using the MQUE prompt in LD 57. The MQUE prompt now accepts a response of ACTM (Active Members) to invoke the GHTH.

Along with the Group Hunt Threshold this feature introduces the use of Camp-on tone to indicate that there are queued calls.

Operating parameters

Although Automatic Call Distribution (ACD) DN, Integrated Voice Messaging Service (VMS) DN, Listed Directory Numbers (LDNs), Route access codes, Electronic Switched Network (ESN) access codes, and other Pilot DN can be defined as a group hunt list member, it is recommended that they are not used due to the fact that these targets are considered as active when computing the threshold, regardless of their actual state.

Feature interactions

Call Forward by Call Type Call Forward No Answer

An external call is made to the PLDN. An idle group hunt list member station is rung but does not answer. If the member station has Call Forward No Answer (FNA) or Call Forward by Call Type Allowed (CFTA) Class of Service, then the call is transferred to the attendant after the number of ring cycles defined for Call Forward No Answer has been reached. If the call is an internal call, then the system searches for another idle group hunt list member.

Call Transfer

If a call is transferred to the PLDN, and all Group Hunt list members are busy, the call is queued to the PLDN, if the number of queued calls is less than the Group Hunt Threshold limit. If the number of queued calls has reached the Group Hunt Threshold limit, the call is not queued and busy tone is returned to the transferring party.

Feature packaging

This feature is packaged under French Type Approval (FRTA) package 197 and Group Hunt/DN Access to SCL (PLDN) package 120.

Feature implementation

LD 57 – For the Group Hunt Queuing Limitation Enhancement, responses to the following prompts are required.

Prompt	Response	Description
REQ	CHG NEW	Modify or create data block.
TYPE	FFC	Flexible Feature Codes data block.
CUST	xx	Customer number, as defined in LD 15
FFCT	<CR>	Flexible Feature Confirmation Tone.
CODE	PLDN	Pilot DN.
PLDN	xxxx <CR>	Enter Pilot DN to be modified or created. Enter a carriage return to proceed to next prompt
USE	GPHT	Enter use for Pilot DN. Group Hunting.
LSNO	xxxx	Enter group hunt list number. Group hunt list must exist in LD 18.
HTYP	(LIN) RRB	Enter either (Linear) or Round Robin as the type of hunting to be used for the group hunt list.
CFWI	(NO) YES	Call Forward All Calls Idle: enter NO if Group Hunting is to skip idle stations with Call Forward All Calls active, or enter YES if Group Hunting is to terminate on idle stations with Call Forward All Calls active.
MQUE	ACTM	Maximum Queue (maximum number of calls allowed to queue against the Pilot DN.): enter ACTM (Active Members) to limit the number of calls allowed to queue to be less than or equal to the number of active members of the group hunt list.

Feature operation

A group hunt list member is active if any call to the PLDN can terminate on the member set when it is idled. Conversely, a group hunt list member is not active if Group Hunt Termination Denied (GHTD) Flexible Feature Code (FFC) is dialed, and, or, Call Forward All Calls is active for the member and Call Forward Ignore (CFWI) in LD 57 is NO for the PLDN.

When the response to the MQUE prompt is ACTM and a call is routed to or dials a PLDN and it cannot terminate on an active member station, the call is linked to the PLDN queue (if the number of calls waiting in the PLDN queue is lower than the threshold limit). If the number of calls waiting in the PLDN queue reaches the threshold limit, calls are no longer linked to the PLDN queue. If the call is an internal call or attendant-extended call, busy tone is given to the originating party. If the originating call is a Direct Inward Dialing (DID) or Central Office (CO) trunk, it is routed to the attendant as a Call Forward Busy call. The attendant console display shows the PLDN (the attendant cannot Break-in or Busy Verify to a PDLN).

When a call is queued against a PLDN, Camp-on tone is given to the first member of the group hunt list having Warning Tone Allowed (WTA) Class of Service. If none of the members has WTA Class of Service, the Camp-on tone is not provided.

Handset Volume Reset

Contents

This section contains information on the following topics:

Feature description	481
Operating parameters	482
Feature interactions	482
Feature packaging	482
Feature implementation	482
Feature operation	482

Feature description

This feature is supported by the A44 chip in Meridian digital sets and causes a telephone's handset volume to be reset to a specified volume every time that the telephone user hangs up or uses handsfree. If the user wishes to adjust the volume, the user must manually do so for each call.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 17 – Define the Handset Volume Reset setting.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ATR	Configuration Record. Aries Transmission.
...		
ATR	YES	Aries (Meridian Modular) transmission parameters. Only prompted if response to TYPE is CFN.
...		
- VOLR	(NO) YES	Volume Reset.

Feature operation

When a transmission download occurs, following a SYSLOAD or when the set line cord is plugged in, the option setting defined in LD 17 is included in the message. The message is interpreted by the set firmware and the appropriate setting is applied. A system initialization will not download this message.

Handsfree Transmission Parameter Download

Contents

This section contains information on the following topics:

Feature description	483
Operating parameters	483
Feature interactions	484
Feature packaging	484
Feature implementation	484
Feature operation	487

Feature description

This feature provides parameters to support the handsfree transmission parameter download on Meridian 1 proprietary telephones. These parameters are downloaded to each telephone upon system reload or set power-up, after the handset parameters.

Two prompts are defined in LD 17 allowing control of handsfree transmit and receive loudness ratings.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 11 – Modify the system hardware and software parameters.
- 2 LD 17 – Create or modify the digital telephone data blocks.
- 3 LD 22 – Print Handsfree transmission parameter download settings.

LD 11 – Modify the system hardware and software parameters.

Prompt	Response	Description
...		
CLS	(HFD) HFA	Digital Telephone Handsfree (denied) allowed. Note: Not allowed on M2006, M2008, M2016S, or M2216 sets. M2016 must be defined as a 2616 with HFD Class of Service allowed for M2616 sets. HFA is the default for M2317 sets.

LD 17 – Create or modify the digital telephone data blocks.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ATRN	Configuration Record. Aries Transmission.
ATRN	YES	Meridian Modular telephone transmission parameters. Only prompted if response to TYPE is CFN.
- HRLR	(0)-8 32-40	Handsfree receive objective loudness rating.
- HTLR	(0)-11 32-54	Handsfree transmit objective loudness rating.

LD 22 – Print Handsfree transmission parameter download settings.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	CFN ATRN	Configuration. Meridian Modular telephone transmission parameters. Note: When the Handsfree transmission download parameters are printed they are output as their dB value (that is, an input of 0 in response to the HRLR prompt is printed as +42.00, while a response of 0 to the HTLR prompt is printed as -44.00).

Input value	HRLR (dB)	HTLR (dB)
0	+42.00	-44.00
1	+42.85	-43.50
2	+43.70	-43.50
3	+44.55	-43.00
4	+45.40	-42.50

Input value	HRLR (dB)	HTLR (dB)
21	N.A.	N.A.
22	N.A.	N.A.
23	N.A.	N.A.
24	N.A.	N.A.
25	N.A.	N.A.

Input value	HRLR (dB)	HTLR (dB)
5	+46.25	-42.00
6	+47.10	-42.00
7	+47.95	-41.50
8	+48.80	-41.00
9	N.A.	-40.50
10	N.A.	-40.50
11	N.A.	-40.00
12	N.A.	N.A.
13	N.A.	N.A.
14	N.A.	N.A.
15	N.A.	N.A.
16	N.A.	N.A.
17	N.A.	N.A.
18	N.A.	N.A.
19	N.A.	N.A.
20	N.A.	N.A.
42	N.A.	-48.00
43	N.A.	-48.00
44	N.A.	-48.50
45	N.A.	-49.00
46	N.A.	-49.50

Input value	HRLR (dB)	HTLR (dB)
26	N.A.	N.A.
27	N.A.	N.A.
28	N.A.	N.A.
29	N.A.	N.A.
30	N.A.	N.A.
31	N.A.	N.A.
32	+42.00	-44.00
33	+41.15	-44.50
34	+40.30	-45.00
35	+39.45	-45.00
36	+38.60	-45.50
37	+37.75	-46.00
38	+36.90	-46.50
39	+36.05	-46.50
40	+35.20	-47.00
41	N.A.	-47.50
53	N.A.	-52.00
54	N.A.	-52.50
55	N.A.	N.A.
56	N.A.	N.A.
57	N.A.	N.A.

Input value	HRLR (dB)	HTLR (dB)
47	N.A.	-49.50
48	N.A.	-50.00
49	N.A.	-50.50
50	N.A.	-51.00
51	N.A.	-51.00
52	N.A.	-51.50

Input value	HRLR (dB)	HTLR (dB)
58	N.A.	N.A.
59	N.A.	N.A.
60	N.A.	N.A.
61	N.A.	N.A.
62	N.A.	N.A.
63	N.A.	N.A.

Note: All values are Objective Loudness Ratings (OLR) measured without inserted loss or gain for trunk card interfaces and computed per IEEE methods. Receive ratings are at maximum volume. Transmit ratings are measured in an anechoic environment with less than 25 dBA room noise.

Feature operation

Whenever a download occurs, following SYSLOAD or when the telephone line cord is plugged in, the Relative Loudness Rating settings defined in LD 17 are included in the message. The message is interpreted by the telephone firmware and the appropriate settings are applied.

Held Call Clearing

Contents

This section contains information on the following topics:

Feature description	489
Operating parameters	490
Feature interactions	490
Feature packaging	491
Feature implementation	492
Feature operation	492

Feature description

The Held Call Clearing feature allows both the active call and the held call to be released when the user of a Meridian 1 proprietary telephone replaces the handset. Pressing the Release key only releases the active call.

For Single Appearance DNs, an on-hook action from a station clears the active call and all held calls belonging to that station. Pressing the Release key clears only the active call on the station. Activated feature keys, not involving an active or held call on the set, are not affected by the on-hook or Release key action. If an on-hook action occurs while a feature key is being activated, the system follows the Release key functionality. In most cases, this causes the feature key to be idled.

Where several DNs appear on the same set, an on-hook or Release key action does not affect any unanswered incoming calls which are unanswered call waiting calls or are in a ringing state, whether or not the ringing tone is audible. Answered call waiting calls (those which are active or being held) are cleared by an on-hook action. A Release key action clears only active call-waiting calls.

For Multiple Appearance DNs, an on-hook action from a station having one appearance of a Multiple Appearance DN clears only the current active call and the held calls belonging to that station. Pressing the Release key clears only the active call on the station. Calls active or held on another appearance of the same DN, on a different set, are not affected.

For Data DNs, an on-hook or Release key action clears active data calls on a Data DN. A data call is considered active on a set when the "Data Shift" LED is lit. A call on a Data DN which is not the set's active call is not affected by an on-hook or Release key action. For data terminals, only active data calls are released by an on-hook or Release key action.

Operating parameters

The Held Call Clearing feature cannot be used on analog (500/2500 type) telephones.

Feature interactions

Call Park

A call put on hold during a Call Park is not cleared by an on-hook action on that set.

Call Transfer

Active Call Transfer calls are cleared by either an on-hook or Release key action. Held Call Transfer calls are cleared only by an on-hook action, and not by a Release key action.

Called Party Control on Internal Calls

With Called Party Control on Internal Call enabled, a call on hold is not cleared when the calling party releases. This occurs whether or not the Held Call Clearing feature has been activated.

Conference

Active Conference calls are cleared by an on-hook or Release key action. Conference calls being held are cleared by an on-hook action only, and not by a Release key action. In either case, all other parties on the conference remain connected.

Handsfree

For a set equipped with a Handsfree add-on unit, the on-hook action is suppressed if the Handsfree key is pressed simultaneous to the on-hook. In this case, all active and held calls on the set are not affected by the on-hook action. For a Meridian M1000 or digital telephone, an on-hook action does not affect an active call on the set. In all cases, a Release key action clears an active call, whether in handsfree mode or not.

Misoperation on Call Transfer

An on-hook action clears a call that is put on hold during Call Transfer. This action may lead to a misoperation if the user of the set from which the call is being transferred goes on-hook before a valid DN is dialed. In this case, the misoperation is handled in the same manner as for a 500-type set.

On Hold on Loudspeaker

Going on-hook when Held Call Clearing is activated will clear the loudspeaker as for a normal held call. Therefore, it is recommended not to use this feature with the On Hold on Loudspeaker feature.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

LD 15 – Activate Held Call Clearing in response to the HCC prompt to implement this feature.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	FTR	Features and options
...		
- HCC	(NO) YES XFER	Held Call Clearing is to be activated, (deactivated) or set to transfer the held call.

Feature operation

Place the handset of your Meridian 1 proprietary telephone on-hook to release both the active and held call.

Note: Pressing the **Rls** key only releases the active call.

History File

The History File provides the capability to allocate an area of protected data to store system messages until a printout is requested by a technician. The size of the History File is defined on a system basis and can be up to 65 534 characters. Since one word of protected data stores two History File characters, the size of the History File is up to 32 767 words of protected data.

For a complete description of the History File, please refer to *System Management* (553-3001-300).

Hong Kong Digital Trunk Interface

Contents

This section contains information on the following topics:

Feature description	495
Operating parameters	496
Feature interactions	496
Feature packaging	496
Feature implementation	496
Feature operation	497

Feature description

This feature modifies the 1.5 Mbps Digital Trunk Interface (DTI) in order to allow the system to interface with the Hong Kong Telephone Company (HKT). The design modification alters the Dual-tone Multifrequency (DTMF) signaling protocol to conform with the HKT requirements. This DTMF design modification involves altering the AB bit protocol used in the DID/TIE convention, which is the convention used for the system to HKT connectivity. The AB bit values for the normal DID/TIE convention are reversed for the HKT interface. For example, if the normal convention for a DID/TIE going off-hook requires that AB bit values 0 and 0 be sent to the far end, the convention for HKT is that AB bit values 1 and 1 be sent.

This feature also meets the requirement of requiring the system, after a trunk seizure, to wait 600 milliseconds before accepting the dialed digits from the far end. This 600 milliseconds dialing delay is provided by the Dial Delay Timer, whose maximum configurable delay has been extended to 1,023 milliseconds. The timer is set on a per-route basis.

Operating parameters

Hong Kong Digital Trunk Interface modification applies only to 1.5 Mbps DTI trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged under 1.5 Mbps Digital Trunk Interface (DTI) package 75.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 14 – Respond to the CLS prompt by entering HKA to allow the Hong Kong feature modification.
- 2 LD 16 – Enter a dialing pause for the Dial Delay Timer at the Time prompt:

LD 14 – Respond to the CLS prompt by entering HKA to allow the Hong Kong feature modification.

Prompt	Response	Description
...		
CLS	(HKD) HKA	Hong Kong DTI (denied) allowed. May only be used with DTI TNs with DTN CLS on DID or TIE routes.

LD 16 – Enter a dialing pause for the Dial Delay Timer at the Time prompt:

Prompt	Response	Description
...		
- TIMR	DDL 0-(70)-511	Dial Delay Timer. A value of 0 disables the timer.

Feature operation

No specific operating procedures are required to use this feature.

Hot Line, Enhanced

Contents

This section contains information on the following topics:

Feature description	499
Operating parameters	500
Feature interactions	501
Feature packaging	505
Feature implementation	505
Feature operation	509

Feature description

Enhanced Hot Line (EHOT) provides Hot Line services to telephones with programmable keys. This feature is designed for, and is compatible with, analog (500/2500 type) telephones and Meridian 1 proprietary telephones.

All capabilities from Flexible Hot Line (HOT) are provided to any key/lamp pair for one- and two-way Hot Lines on a per station basis. When the handset is lifted, or when a preprogrammed key is activated, the system speed calls a preprogrammed DN. Hot Lines access a set of terminal numbers programmed by direct entry using LD 11, or by list entry such as by System Speed Call (SSC) using LD 18. There is no difference in operation for the Hot Line user.

Once a Hot Line call enters the ringing state, it is the same as any normal call.

Enhanced Hot Line (EHOT) allows a distinction between analog (500/2500 type) telephone Hot Lines and manual Hot Lines without dial capabilities. For example, telephones with EHOT enabled and dial facilities support Dial Access features such as Call Transfer or Conference calling.

A Hot Line key can be defined with a Directory Number (DN) of its own, allowing other calls to terminate on that HOT key. The DN must be defined before it can be specified as the DN for a HOT key. For Meridian 1 proprietary telephones, the HOT key must be assigned to a DN during Service Change to create a two-way Hot Line. Analog (500/2500 type) telephones are always two-way Hot Lines, as they always have a DN assigned.

Operating parameters

Incoming calls to Hot Line telephones or keys can be restricted to calls originating from other Hot Line telephones or keys, Voice Call keys, and Group Call keys. This restriction is turned on or off on a per customer basis.

Telephones without a keypad or rotary dial cannot be assigned the Enhanced Hot Line Allowed (EHTA) Class of Service.

A maximum of 31 digits can be stored against a Hot Line telephone or key.

Only one Hot Line list is allowed per customer.

HOT cannot access a list created by the list-entry method for Enhanced Hot Line (EHOT).

A specific Hot Line key on a Meridian 1 proprietary telephone can have access to only one entry in the Hot Line list, but more than one telephone can have access to the same entry.

Analog (500/2500 type) telephones with Manual Line (MNL) Class of Service cannot be defined as Enhanced Hot Line Allowed (EHTA); Enhanced Hot Line Denied (EHTD) is the default. Users of these telephones must continue to use the HOT feature.

If a key is assigned as an EHOT Directory Number (DN), all appearances of that DN must also be EHOT keys.

Feature interactions

Attendant Administration

Use of an attendant console to change the database for EHOT is not supported.

Autodial

Flexible Hot Line and/or Enhanced Hot Line are mutually exclusive with the Autodial feature.

Automatic Answerback

The Automatic Answerback feature is fully compatible with a two-way Hot Line key assigned as the Prime DN.

Automatic Call Distribution

A Hot Line DN key can be assigned to an Automatic Call Distribution telephone.

Automatic Line Selection

Since the Hot Line key acts as a Single Call Ring (SCR) key, incoming ringing line preference can be applied. Outgoing line preference automatically selects a line other than the current Hot Line, so that a Hot Line call is not accidentally activated.

Automatic Redial

An Automatic Redial (ARDL) call can be activated from an Enhanced Hot Line key. However, the call is only redialed when the calling party's HOT key is free.

Call Forward Busy Call Forward No Answer Hunting

Any Hot Line telephone can be assigned Call Forward Busy, Call Forward No Answer and Hunting (excluding Short Hunt) Class of Service, but it applies only to the two-way Hot Line capability.

Call Park

Analog (500/2500 type) Hot Line telephones with EHTA and XFA Class of Service are allowed to park calls using the established Call Park procedures. Once a call is parked on an analog (500/2500 type) Hot Line telephone and the telephone is placed on hook, it cannot be unparked. Parked calls will recall to the parking telephone after the Call Park timeout. Two-way Meridian 1 proprietary telephone Hot Line stations that are equipped with a Call Park key/lamp pair are allowed to park calls in the normal fashion. As with analog (500/2500 type) telephones, a call parked from a Hot Line key cannot be picked up using the same key.

Call Pickup

Telephones with two-way Hot Line keys, and analog (500/2500 type) Hot Line telephones, can be assigned to pickup groups. Incoming Hot Line calls may be picked up by group members. To prevent someone from picking up a Hot Line call, do not put the Hot Line user into a Call Pickup group.

China – Flexible Feature Codes - Busy Number Redial

Busy Number Redial cannot be used on Enhanced Hot Line sets.

Controlled Class of Service

When a Hot Line DN is on a telephone that has Controlled Class of Service activated, Hot Line calls ignore the imposed Class of Service if the System Speed Call (SSC) package is present and the Hot Line list is given an adequate Network Class of Service (NCOS) for the override.

Dial Intercom

The analog (500/2500 type) Hot Line telephones cannot be members of Dial Intercom Groups (DIGs).

Digit Display

A Display key on a telephone with a Hot Line appearance will display the Hot Line target DN data stored for that key.

Display of Calling Party Denied

Display information on sets in a Hot Line call is based on the individual Class of Service of each set.

Enhanced Flexible Feature Codes - Busy Number Redial

The Busy Number Redial feature cannot be used on Enhanced Hotline sets.

Group Call

Hot Lines can be members of a Group Call. They cannot, however, have a Group Call key.

HOT

EHOT and HOT are mutually exclusive. A telephone cannot have both MNL and EHTA Classes of Service.

Internal Call Detail Recording

Hot Line stations can be assigned the appropriate Class of Service that allows Call Detail Recording records to be printed for calls originating on that telephone.

Make Set Busy

Make Set Busy is overridden by the Hot Line feature. If a Meridian 1 proprietary telephone is in Make Set Busy mode, incoming Hot Line calls still terminate (ring) on the telephone.

Note: The Conference-Hot Line key overrides Make Set Busy only when the terminating key is HOT.

Override

A Hot Line call can be entered using the Override feature.

Permanent Hold

Analog (500/2500 type) telephones with EHTA cannot have Permanent Hold.

Prime Directory Number

If the Hot Line key is assigned to key 0 on a Meridian 1 proprietary telephone, it acts as the prime DN. When the user goes off-hook without selecting a DN key, the Hot Line is activated and the call is placed without further user action.

Private Line

A Hot Line key cannot be a Private Line, as this would defeat the benefits of Private Line service.

Room Status

The Room Status feature is incompatible with any telephone for which going off-hook activates Hot Line.

Speed Call, System

When the System Speed Call (SSC) package is equipped, Hot Line lists have the characteristics and limitations of SSC lists. If the package is not equipped, Hot Line lists function like standard Speed Call lists.

User Selectable Call Redirection

An analog (500/2500 type) telephone with a Hot Line feature cannot use User Selectable Call Redirection, because it cannot access any features through SPRE or FFC.

Voice Call

The terminating DN of a Voice Call arrangement may be the incoming DN of a two-way Hot Line.

When engineering call-modification paths (such as Hunting and Call Forward No Answer), the Hot Line Restriction option will cancel the normal call-modification operation for internal non-Hot Line calls.

Feature packaging

Enhanced Hot Line (HOT) package 70 requires:

- Network Class of Service (NCOS) package 32, and
- System Speed Call (SSC) package 34.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Assign the number of Speed Call lists, including Hot Line lists.
- 2 LD 15 – Add or change Enhanced Hot Line for a customer.
- 3 LD 18 – Use this prompt sequence to determine if there are enough memory and disk records for new Speed Call lists. Compare the output with the MEM AVAIL and DISK AVAIL values output before the REQ prompt.
- 4 LD 18 – Add or change a Hot Line Speed Call list.
- 5 LD 10 – Add Enhanced Hot Line for analog (500/2500 type) telephones.
- 6 LD 11 – Allow or deny Enhanced Hot Line for Meridian 1 proprietary telephones.

LD 17 – Assign the number of Speed Call lists, including Hot Line lists.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. System Parameters.
MSCL	0-8191	Maximum number of Speed Call lists.

LD 15 – Add or change Enhanced Hot Line for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and Options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
OPT	(HTU) HTR	Hot Line (unrestricted) or restricted. This program determines whether the call is going to a Hot Line DN or to any available DN. HTR restricts Hot Line calls to Hot Line DNs, but HTU does not.

LD 18 – Use this prompt sequence to determine if there are enough memory and disk records for new Speed Call lists. Compare the output with the MEM AVAIL and DISK AVAIL values output before the REQ prompt.

Prompt	Response	Description
REQ	COMP	Compute disk and memory.
TYPE	SCL	Speed Call lists.
NOLS	1-8191	Number of lists to be added.
DNSZ	4-16-31	Maximum length of DN allowed for Speed Call list.
SIZE	1-1000	Maximum number of DN entries in Speed Call list.

LD 18 – Add or change a Hot Line Speed Call list.

Prompt	Response	Description
REQ	NEW CHG OUT	Add, change, or remove a Speed Call list.
TYPE	HTL	Hot Line List.
CUST	xx	Customer number, as defined in LD 15
LNSO	0-8190	Hot Line List number (only one Hot Line List per customer).
NCOS	0-99	NCOS to be assigned to calls accessing the list.
DNSZ	xx	Maximum number of digits in a list entry (4, 8, 12, 16, 20, 24, 28, or 31).
SIZE	1-1000	Maximum number of entries in the Speed Call list.
STOR	xxx yy...y	xxx = list entry number (0-9, 0-99, or 0-999). yy...y = digits to be stored against the entry (must be equal to or less than DNSZ).
- WRT	(YES) NO	Data (is) is not correct and list (can) cannot be updated. The WRT prompt follows SIZE and STOR prompts asking for confirmation of the data just entered. If data is correct, enter YES or <CR>. A response of NO to WRT after SIZE returns the REQ prompt. A response of NO to WRT after STOR causes the data just entered to be ignored and a restart message (SCH3213) to be generated. A response of **** aborts the program. The last STOR value is lost but all other values for which WRT was YES are saved. The following information is output with the WRT prompt: ADDS: MEM: xxxxx DISK: yy.y (xxxxx is the amount of protected memory; yy.y is the number of disk records required for the new speed call list. Check the MEM AVAIL and DISK REC AVAIL values output before the REQ prompt).

LD 10 – Add Enhanced Hot Line for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	DTN DIP	Digitone or dial pulse service (manual service is not allowed).
	EHTA	Enhanced Hot Line allowed.
	(LDN) LNA	Last Number Redial (denied) allowed – optional.
	(XFD) XFA	Call Transfer (denied) allowed – optional.
	(CWD) CWA	Call Waiting (denied) allowed – optional.
	(XRD) XRA	Ring Again (denied) allowed – optional.
FTR	HOT D nn x...x	Direct Hot Line DN. nn = number of digits (1-31) for target DN x...x.
	HOT L 0-999	Hot Line List entry number defined in LD 18.

LD 11 – Allow or deny Enhanced Hot Line for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

To end an Enhanced Hot Line call:

- Hang up or press **Rls.**

Hot Line, Flexible

Contents

This section contains information on the following topics:

Feature description	511
Operating parameters	512
Feature interactions	512
Feature packaging	515
Feature implementation	515
Feature operation	516

Feature description

Flexible Hot Line (HOT) allows designated analog (500/2500 type) telephones to place calls to a predetermined destination simply by lifting the handset. The destination may be internal or external to the system, and the call does not require attendant intervention.

Flexible Hot Line (HOT) is provided to designated analog (500/2500 type) telephones on a Class of Service basis. A telephone is assigned the Hot Line feature through Service Change and a Manual Line (MNL) Class of Service. Address digits must be stored for the predetermined destination. If no digits are defined, the call will route to the attendant console.

When the user lifts the handset, no dial tone is returned. The system translates the stored digits and performs one of two operations:

- It rings an internal Directory Number (DN), then returns ringback tone.
- It translates to an external Trunk Access Code (TRC) and DN, then returns external call-progress tones or announcements.

Flashing the switchhook at any time during call setup or during the call will be ignored.

If the caller is a Hot Line, the prime Directory Number of the calling telephone is displayed on the terminating telephone, if equipped with a display.

Operating parameters

Flexible Hot Line applies to analog (500/2500 type) telephones only.

Feature interactions

Autodial

Flexible Hot Line and/or Enhanced Hot Line are mutually exclusive with the Autodial feature.

Calling Party Privacy

A Hot Line call will carry the Privacy Indicator if the Calling Party Privacy (CPP) code followed by the normal dialing sequence is stored in the Hot Line DN. The CPP will count against the maximum number of digits (currently 31) allowed for the Hot Line DN.

China – Flexible Feature Codes - Busy Number Redial Enhanced Flexible Feature Codes - Busy Number Redial

Busy Number Redial cannot be used on Flexible Hot Line sets.

Conference

A Flexible Hot Line (non-enhanced) telephone cannot place conference calls, but an Enhanced Hot Line telephone can activate the conference feature. If the Hot Line restriction option is set, the conference call can terminate only to other Hot Line telephones. If the restriction option is not set, the conference call can terminate to any type of telephone

Enhanced Hotline

Flexible Hotline and Enhanced Hotline are mutually exclusive; a telephone cannot have both Manual Line (MNL) and Enhanced Hot Line Allowed (EHTA) Classes of Service.

EuroISDN Continuation

Flexible Hotline does not support EuroISDN Continuation.

Flexible Feature Code Boss Secretarial Filtering

Flexible Feature Code Boss Secretarial Filtering takes precedence over Private Line and Hot Line.

Hunting

Calls will hunt before being routed to the attendant. Any Hot Line telephone can be assigned Hunting (excluding Short Hunt) Class of Service, but it applies only to the two-way Hot Line capability.

ISDN QSIG/EuroISDN Call Completion

Call Completion cannot be used in conjunction with the Hot Line feature.

Make Set Busy

Make Set Busy is overridden by the Hot Line feature. If a Meridian 1 proprietary telephone is in Make Set Busy mode, incoming Hot Line calls still terminate (ring) on the telephone.

Note: The Conference-Hot Line key overrides Make Set Busy only when the terminating key is HOT.

No Hold Conference

The Conference-Hot Line key supports only one-way Hot Line calls.

On Hold on Loudspeaker

It is possible to program Hot Line with a loudspeaker DN, but operation will be the same as for direct dial to a loudspeaker DN.

Override

A Hot Line call can be entered using the Override feature.

Phantom Terminal Numbers

Hot Line does not support phantom terminal numbers.

Private Line Service

A Hot Line key cannot be a Private Line, as this would defeat the benefits of Private Line service.

Room Status

The Room Status feature is incompatible with any telephone for which going off-hook activates Hot Line.

Speed Call, System

When the System Speed Call package is equipped, Hot Line lists have the characteristics and limitations of SSC lists. If the package is not equipped, Hot Line lists function like standard Speed Call lists.

User Selectable Call Redirection

An analog (500/2500 type) telephone with a Hot Line feature cannot use User Selectable Call Redirection, because it cannot access any features through SPRE or FFC.

Voice Call

The terminating DN of a Voice Call arrangement may be the incoming DN of a two-way Hot Line. When engineering call-modification paths (such as Hunting and Call Forward No Answer), the Hot Line Restriction option will cancel the normal call-modification operation for internal non-Hot Line calls.

Feature packaging

The Flexible Hot Line feature is contained in Enhanced Hot Line (HOT) package 70. There are no feature package dependencies.

Feature implementation

LD 10 – Add or change Flexible Hot Line for analog (500/2500 type) telephones at the FTR prompt.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	MNL	Manual signaling – requires transfer denied (XFD) Class of Service.
FTR	HOT D 1-31 xxx...x yyy...y	Add Flexible Hot Line. 1-31 = maximum digits for Hot Line DNs. xxx...x = Flexible Hot Line DN. yyy...y = Phantom DN for a two-way Hot Line.

Feature operation

To make a Flexible Hot Line Call, follow these steps:

- 1 Lift the handset. The Hot Line number is automatically dialed.
- 2 To end the call, hang up.

Hunting

Contents

This section contains information on the following topics:

Feature description	517
Operating parameters	522
Feature interactions	522
Feature packaging	529
Feature implementation	530
Feature operation	531

Feature description

Hunting allows calls encountering a busy Directory Number (DN) to route automatically to another DN. Hunting continues along a predefined path, known as the hunt chain, until reaching an idle DN, the end of the hunt chain, or the maximum number of hunt steps. Hunting is specified on a DN basis. DNs in the hunt chain can be consecutive or nonconsecutive numbers.

The four types of hunt chains provided by the system are:

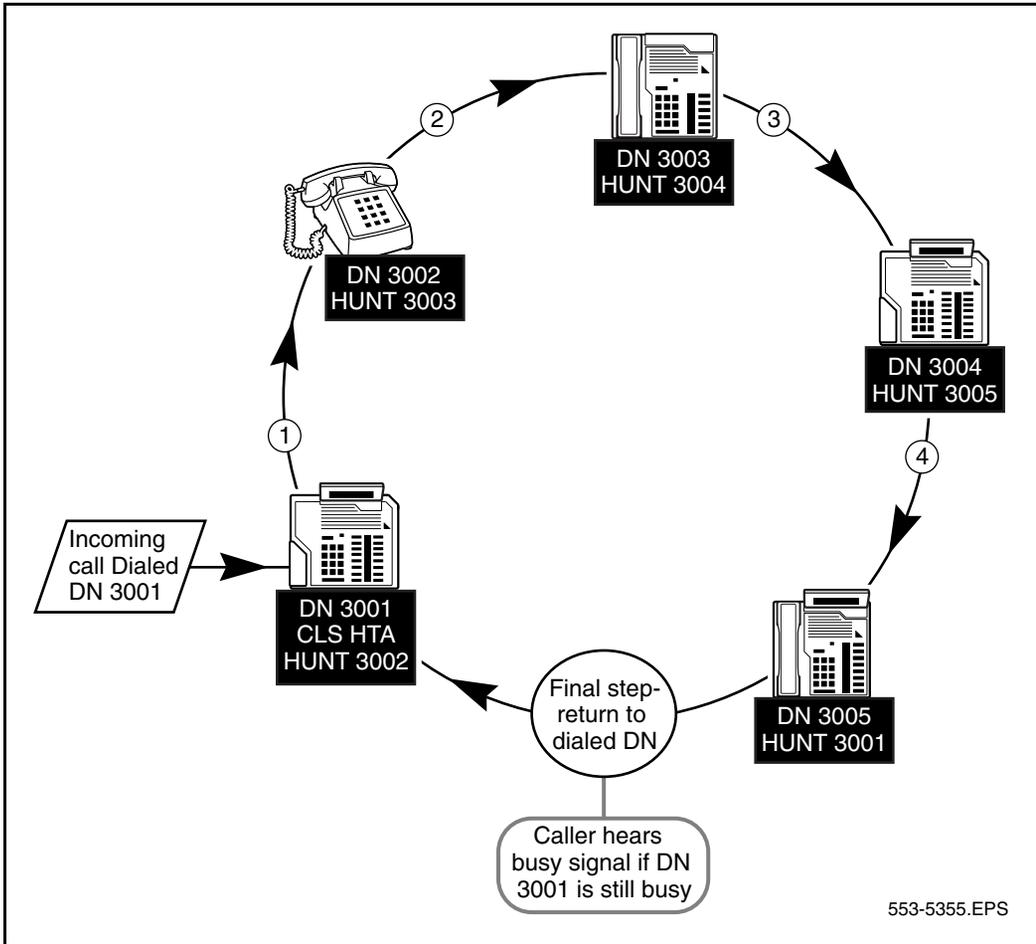
- Circular hunting
- Linear hunting
- Secretarial hunting
- Short hunting

The following pages describe and illustrate each of these ways to hunt.

Circular Hunting

Circular Hunting begins at the dialed DN and travels through every DN in the hunt group. The chain can begin at any point in the circle. The call goes around the circle until answered, or until returned to the initial DN. If all the DNs in the chain are busy, the caller hears busy tone. Figure 10 shows an example of circular hunting.

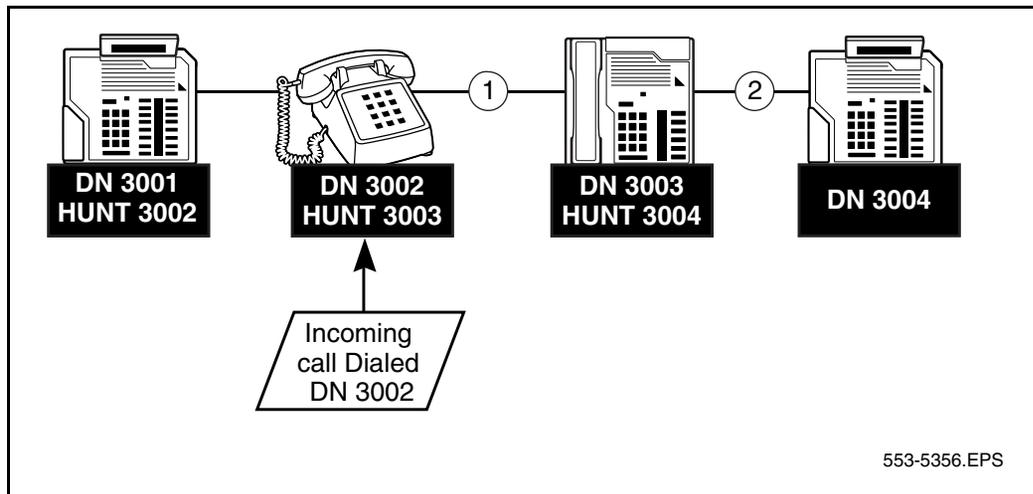
Figure 10
Example of Circular Hunting



Linear Hunting

Linear Hunting begins at the dialed DN. The call travels in one direction only when hunting along a linear chain. If a call comes into the second DN of a four-DN chain, it hunts to the third and fourth DNs only. If all the DNs are busy, the caller hears busy tone. Figure 11 shows an example of Linear Hunting.

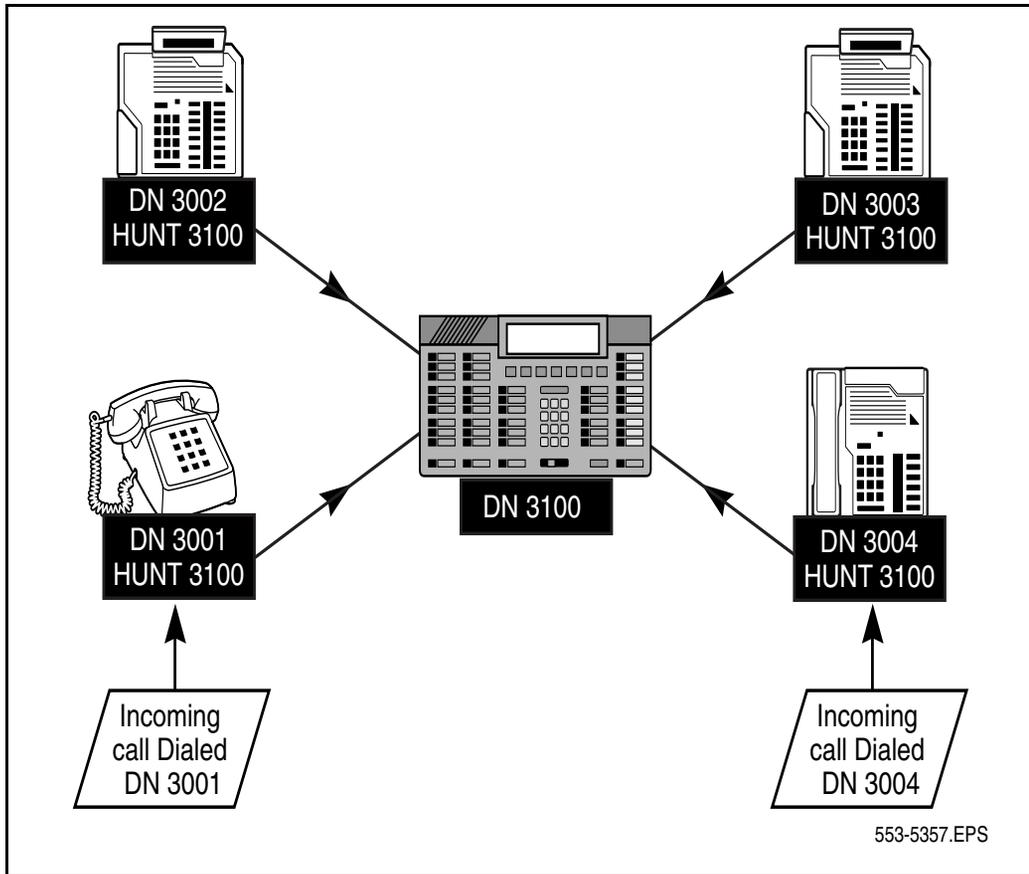
Figure 11
Example of Linear Hunting



Secretarial Hunting

Secretarial Hunting sends calls to a single Hunt DN, typically a secretary or Voice Mail. When a call comes in to a busy DN, it travels to the central location. Figure 12 shows an example of Secretarial Hunting.

Figure 12
Example of Secretarial Hunting



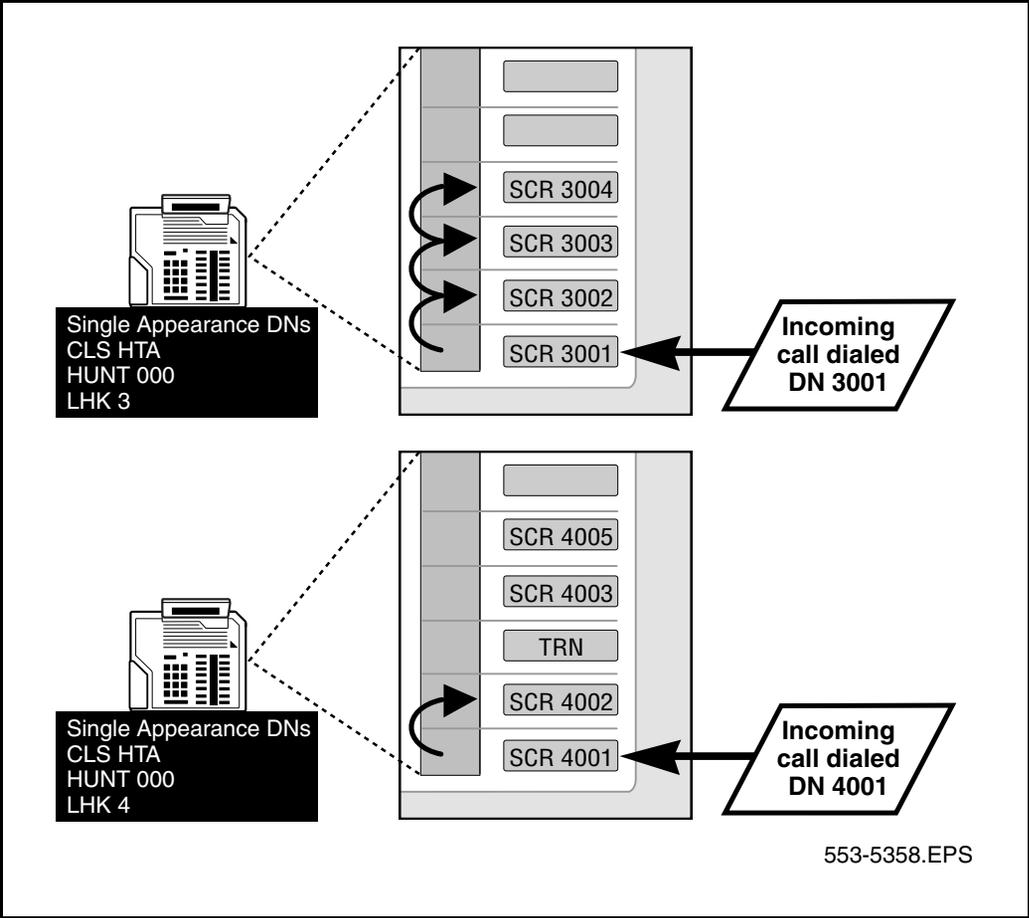
Short Hunting

Short Hunting takes place along the key strip of any Meridian 1 proprietary telephone. The hunt chain begins on a DN on the key strip. The call hunts up the keys until it reaches a feature key, an unassigned key, or the Last Hunt Key (LHK, defined in LD 11). If the call cannot reach an available DN, the caller hears busy tone. When a call hunts to a Multiple Appearance DN, all appearances with ringing are allowed.

For a TN with Hunting Control enabled, Short Hunt takes precedence over normal Hunting (Circular, Linear, or Secretarial). If the Hunting search selects a TN for a digital telephone, Short Hunt redirects the call before attempting to use the Hunt TN. The hunt chain might become Hunt DN A, Hunt DN B, Short Hunt Sequence C, Short Hunt Sequence D, or Hunt DN E.

Figure 13 shows an example of Short Hunting.

Figure 13
Example of Short Hunting



Operating parameters

There are no operating parameters associated with this feature

Feature interactions

Advice of Charge for EuroISDN

Calls charged with Advice of Charge that are either extended, transferred or redirected to another set using Hunting, are charged against the last station that answers the call and the controlling station releases.

Attendant Alternative Answering

Calls directed to a busy Attendant Alternative Answering (AAA) DN with Hunt defined are routed down the Hunt chain as defined for the AAA DN.

A Pilot DN for a hunting group can be defined as an AAA DN. Calls forwarded to a Pilot DN are directed to the next DN in the group.

Attendant Blocking of Directory Number

If Attendant Blocking of DN is attempted on a busy DN having the Hunting feature active, busy tone will be returned (overriding the Hunting feature).

Attendant Break-In

If the destination DN is in a Hunting chain with some idle DNs, the Break-In request goes to the first idle DN in the chain. To prevent this occurrence, the attendant can press the Break-In key prior to dialing the destination DN.

Attendant Busy Verify

Attendant Busy Verify does not affect Hunting.

Automatic Set Relocation

Calls will not hunt to a telephone that is being relocated.

Call Detail Recording on Redirected Incoming Calls

The Call Detail Recording on Redirected Incoming Calls feature does not affect how the Hunting feature operates; however, it does provide information about the answering party in the CDR ID field if incoming calls have been redirected by any one of these features.

Call Forward All Calls Call Forward, Internal Calls

Call Forward All Calls and Internal Call Forward takes precedence over Hunting.

Call Forward Busy

Hunting takes precedence over Call Forward Busy for Direct Inward Dialing (DID) calls. When the station receiving a DID call has both Call Forward Busy and Hunting Allowed (HTA) Class of Service, the call is routed along the hunt chain. If all stations in the hunt chain are busy, the call is forwarded to the attendant.

Call Forward/Hunt Override Via Flexible Feature Code

A hunt can be overridden by the Call Forward/Hunt Override Via Flexible Feature Code feature, through the use of a Flexible Feature Code.

Call Forward No Answer

Hunting may result in the presentation of a call to a telephone that is different from the dialed DN. In this case, if the call is eligible for Flexible Call Forward No Answer, it is forwarded to the DN specified for the dialed DN, not the ringing DN.

Suppose that party A calls to busy party B, and party B has programmed Hunting to party C. Flexible Call Forward No Answer forwards a No Answer call at party C to the FDN associated with party B, the dialed DN.

After the call is forwarded, the MARP TN for the dialed DN controls the call redirection for Flexible Call Forward No Answer.

Call Forward No Answer, Second Level

A forwarded call may be modified by Hunting if the Call Forward No Answer DN is busy. This call is eligible for Second Level Call Forward No Answer if the SFA Class of Service is allowed and a Call Forward No Answer DN has been defined for the last rung DN.

If Group Hunting is active, Second Level CFNA is not applied.

Call Page Network Wide

Call Page Network Wide (PAGENET) does not block a station set from being programmed to Hunting to an external Paging trunk. At call termination time, calls that are forwarded to an external PAGENET uncontrolled trunk are not blocked. However, calls forwarded to an external PAGENET controlled trunk are given access denied intercept treatment at the Paging node.

Call Redirection by Time of Day

When Call Redirection by Time of Day (CRTOD) is enabled and an incoming call reaches a busy Directory Number, the time is checked against the Alternate Redirection Time Option range defined on the telephone.

Call Waiting Station-to-Station Call Waiting

If a call comes into a busy DN, it begins the hunting route defined from the called DN. If there are idle DNs on the hunting route, the call becomes a Call Waiting call on the called DN.

Hunting takes precedence over Call Waiting. If all steps in the hunt chain are busy, Call Waiting is activated.

Call Waiting Redirection

If Call Forward and Hunt by Call Type (CFCT) is enabled with Call Forward No Answer and Call Waiting Redirection, “no answer” internal calls receiving Call Waiting treatment are routed for CFNA treatment to the Flexible CFNA DN (FDN) or Hunt DN, and “no answer” external calls are routed for CFNA treatment to the External Flexible CFNA DN (EFD) or External Hunt DN (EHT).

Calling Party Privacy

When an incoming trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number, provided that the tandem node also has Calling Party Privacy (CCP) provisioned.

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (that is, at the tandem node) from being displayed on the terminating set. In this scenario, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

The above scenario also applies to Network Hunt.

Camp-On Camp-On, Station

Hunting takes precedence over Camp-On and Station Camp-On.

Capacity Expansion

If more than 16 appearances of the same Directory Number (DN) are configured, each hunt step is counted as two, to avoid running out of time slots.

China – Toll Call Loss Plan

Toll pad switching is also provided after call hunting has been completed. When the toll call is diverted, the diverted party's pad level is switched back to its original value (unless it is an OPS station using dynamic switching). The Toll Loss Plan is applied again for the new call as if it is a direct call. For Call Transfer, it is provided after the transferring party completes the transfer and drops out. For Call Forward or Hunting, it is provided when the forwarding or hunting call is answered.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

If Executive Intrusion is attempted against an extension with a Hunt DN configured, an attempt will be made to reroute the call to the hunt DN provided the Hunt DN is on the same node. If the Hunt DN is busy, this rerouting process is repeated. If all DNs in the Hunt chain are busy, Executive Intrusion is attempted against the wanted extension originally dialed. Otherwise, the call will terminate as a simple call on the first idle extension in the Hunt chain.

Direct Inward Dialing Call Forward No Answer Timer

Hunting takes precedence over the Message Center feature.

Do Not Disturb

If activated, Hunting takes precedence over Do Not Disturb busy indication.

Flexible Feature Code Boss Secretarial Filtering

A boss set with filtering activated is passed over by Hunting; the next hunt sequence is to the secretary set.

Group Call Dial Access to Group Calls

Hunting cannot be applied to a Group Call.

Group Hunt

Group Hunting has priority over Hunting. If the DN attempted for termination by Group Hunting has HTA COS, and if it is busy, Group Hunting continues with the next DN in the group instead of following the DN's hunting configuration.

Hot Line

Any Hot Line telephone can be assigned Hunting (excluding Short Hunt) Class of Service, but it applies only to the two-way Hot Line capability.

ICP Network Screen Activation

Flexible DN

Meridian Mail

When a call redirected by Call Forward All Calls, Call Forward No Answer, Call Forward Busy, or Hunt terminates on an Intercept Computer (ICP) position, a redirected message identification "50" is sent to the ICP computer, when the call is answered.

Idle Extension Notification

If the attendant dials a busy extension that has Hunting configured and where all the DNs in the hunt chain are busy, Idle Extension Notification may be requested towards the dialed extension.

ISDN QSIG Name Display

When an incoming QSIG call with name display presentation allowed is hunted locally, the calling party's name information is displayed on the destination set. With presentation restriction, the calling party's name information is not displayed.

Lockout, DID Second Degree Busy, and MFE Signaling Treatments

Multiple Appearance Directory Numbers

Hunting is controlled by the MADN Redirection Prime (MARP) Terminal Number (TN). If the MARP system option is disabled, Hunting proceeds as if MARP did not exist.

If all the telephones in the Multiple Appearance Directory Number (MADN) group are Meridian 1 proprietary telephones, ringing telephones are placed at the top of the DN list, and non-ringing telephones are placed at the bottom.

If a Multiple Appearance Directory Number appears in a group with several telephone types, the telephone type affects the position of the TN in the list. The analog (500/2500 type) telephones are listed at the top, and Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves its TN to the top of the list. A service change to a Meridian 1 proprietary telephone moves it to the bottom of the list. Call redirection follows the TN order from top to bottom.

The MARP TN is always checked to determine if and how the call is to be redirected by Hunting, regardless of where the MARP TN resides in the TN list of the DN block. No searching of the TN list of the DN block is needed. Hunting will follow the hunt chain based on the originally dialed DN. The actual functioning and requirements for Hunting are not changed by the MARP feature. The basic change introduced by the MARP feature is to always have a designated TN, the MARP TN, as the TN supplying the call redirection parameters.

If the MARP TN does not have Hunting control enabled, no Hunting is attempted. Other features for redirecting calls to busy DNs may be attempted based on the MARP TN.

A Short Hunting sequence begins when the MARP TN of a busy DN can perform Short Hunting. When a Short Hunt begins, it completes on that telephone before going to the Hunt DN. The precedence of Short Hunting over normal Hunting is maintained. Once a Short Hunting sequence is started on a digital TN, all the DNs in the Short Hunt sequence on that TN are attempted before redirecting the call to the TN's Hunt DN. Thus, a Hunt Chain connects Short Hunting sequences through Hunt DNs only.

Multiple Appearance Directory Number Redirection Prime

The Multiple Appearance Directory Number Redirection Prime (MARP) TN always controls the call redirection for Hunting. Short Hunting takes precedence over Hunting and MARP. The MARP TN is referred to until Short Hunting is encountered. Short Hunting is in control until it expires. When short hunting expires, the MARP TN for the first DN in the Short Hunt sequence takes control.

**Network Individual Do Not Disturb
Recovery on Misoperation of Attendant Console**

Hunting takes precedence over the Network Individual Do Not Disturb and the Misoperation feature.

On Hold on Loudspeaker

Hunting to a loudspeaker DN can be programmed, but will receive intercept treatment as for direct dial to the loudspeaker DN.

Recorded Announcement for Calls Diverted to External Trunks

Recorded Announcement for Calls Diverted to External Trunks (RANX) is activated if the call is forwarded to an outgoing external CO trunk with the RANX feature active.

Recovery on Misoperation of Attendant Console

Hunting takes precedence over the Misoperation feature.

Ring Again on No Answer

If Ring Again on No Answer has been applied to a station going through a Hunt sequence, Ring Again is applied to that station and not the ringing station.

Total Redirection Count

Hunt redirections is limited to the value defined in the Total Redirection Count limit (if greater than 0). If this limit is exceeded, intercept treatment is given.

User Selectable Call Redirection

User Selectable Call Redirection permits a user to alter the HUNT DN's or EHT from a telephone.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Add or change Hunting for analog (500/2500 type) telephones.
- 2 LD 11 – Add or change Hunting for Meridian 1 proprietary telephones.

LD 10 – Add or change Hunting for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
HUNT	xxx...x	Hunt DN. xxx...x removes the DN from the hunt chain.
CLS	(HTD) HTA	(Deny) allow hunting.

LD 11 – Add or change Hunting for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
HUNT	xxx...x	Hunt DN. xxx...x removes the DN from the hunting chain.
	000	Allow Short Hunting only.
LHK	xx	Last Hunt Key (LHK) number (default is 0). LHK 0 deactivates Short Hunt.
CLS	(HTD) HTA	(Deny) allow hunting.

Feature operation

No specific operating procedures are required to use this feature.

Hunting by Call Type

Contents

This section contains information on the following topics:

Feature description	533
Operating parameters	534
Feature interactions	534
Feature packaging	534
Feature implementation	535
Feature operation	535

Feature description

An additional Class of Service is provided for the system which will allow Direct Inward Dialing (DID) calls to hunt using the hunt chain when the dialed extension is busy, and the call's Classes of Service are Hunt by Call Type Deny (HTD) and Hunt by Call Type Allowed (HBTA).

The following rules apply to the call processing:

- If an extension is busy and its Class of Service is HTA, all types of calls to the extension will hunt using the hunt chain, regardless of HBTA/HBTD and FBA/FBD.

- If a busy extension's Class of Service includes HTD and HBTD, internal calls to the extension receive busy tone. Direct Inward Dialing (DID) calls to the extension which have Class of Service FBA are forwarded to the attendant. DID calls to the extension which have a Class of Service of FBD receive busy tone.
- If a busy extension's Class of Service include HTD and HBTA, internal calls to the extension receive busy tone. DID calls to the extension hunt using the hunt chain. If hunting fails, DID calls to the extension which have a Class of Service of FBA are forwarded to the attendant, and DID calls with a Class of Service of FBD receive busy tone.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Call Redirection by Time of Day

If Call Forward by Call Type (CFCT) is enabled with Call Forward No Answer (CFNA) and Call Redirection by Time of Day (CRTOD), unanswered internal calls receiving CFNA are routed to the Flexible CFNA DN, Hunt DN, Alternate Flexible CFNA DN or Alternate Hunt DN's. External calls are routed in the same manner.

If CFNA is enabled with Hunting by Call Type and Call Redirection by Time of Day (CRTOD), unanswered internal calls are redirected to the Hunt DN or Alternate Hunt DN during the alternative time. External calls are routed in the same manner. The alternate time is defined on the called DN's data block.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Create or modify the analog (500/2500 type) telephone data blocks to allow/deny Hunt by Call Type.
- 2 LD 11 – Create or modify the Meridian 1 proprietary telephone data blocks to allow/deny Hunt by Call Type.

LD 10 – Create or modify the analog (500/2500 type) telephone data blocks to allow/deny Hunt by Call Type.

Prompt	Response	Description
...		
CLS	(HBTD) HBTA	Hunt by Call Type (denied) allowed.

LD 11 – Create or modify the Meridian 1 proprietary telephone data blocks to allow/deny Hunt by Call Type.

Prompt	Response	Description
CLS	(HBTD) HBTA	Hunt by Call Type (denied) allowed.

Feature operation

No specific operating procedures are required to use this feature.

Hunting, Data Port

Contents

This section contains information on the following topics:

Feature description	537
Operating parameters	538
Feature interactions	539
Feature packaging	539
Feature implementation	539
Feature operation	542

Feature description

Data Port Hunting improves the Hunting operation for data ports and modem pooling, and improves Ring Again operation for modem pooling.

Up to 255 data ports can be configured as trunks in data port trunk routes. In addition, the route can be programmed to step to another data port route if all members in the route are busy.

A data port serves as the interface between the system and a computer or other data communication device. A data port can be one of the following devices:

- Standalone Add-on Data Module (ADM) in auto-answer mode (no modem)
- Any modem that can recognize ringing and simulate off hook or on hook status
- Standalone ADM in auto-answer mode, connected to a modem

- Data Access Card (DAC), or
- Meridian Communication Adapter (MCA).

The following types of trunk routes are supported for data port hunting:

- ADM Trunk Routes: Add-on Data Module (ADM) data ports that interface through Data Line Cards
- Modem Trunk Routes: Modem data ports that interface through 500/2500 Line Cards
- RS-232 (R232): RS-232 data ports that interface through Data Access Cards (DACs)
- RS-422 (R422): RS-422 data ports that interface through Data Access Cards (DACs), and
- MCA: Meridian Communication Adapter (MCA) data ports that interface through Integrated Services Data Line Cards (ISDLCs) or Data Line Cards (DLCs).

Data ports act only as terminating parties. The user dials the access code of the trunk route to access the data ports.

Operating parameters

All data port trunks within a route must be of a single type. ADM and MDM data ports cannot be mixed in the same data port trunk route.

Only an attendant can extend incoming calls from stations or trunks (CO, FX, WATS, TIE, Direct Inward Dialing [DID], Common Controlled Switching Arrangement [CCSA]) to data port trunk routes. Calls cannot be extended, transferred, or conferenced from a station to a data port group.

In Night Service mode, any station can transfer incoming calls to data port routes.

Trunk access restrictions (TARG, TGAR) should be applied to data port trunk routes to prevent stations with co-located ADMs from directly accessing data ports with modems, and vice versa.

Class of Service restrictions do not apply to data port trunks.

Ring Again, Basic/Network Alternate Route Selection (BARS/NARS), and trunk access restrictions (TARG, TGAR) are the only features that may be applied on calls to data port routes.

Feature interactions

Conference

There are no feature interactions associated with this feature.

Ring Again

When a user activates Ring Again against the data port extension Access Code (ACOI), the system stores the request until a member in the data port route becomes idle. When an idle member is found, the calling party is notified and the member is reserved for eight seconds. If the calling party does not respond to the Ring Again notification within eight seconds, the reservation is dropped.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Add or change a data port trunk route.
- 2 LD 14 – Add or change a data port trunk.

LD 16 – Add or change a data port trunk route.

Prompt	Response	Description
REQ	NEW CHG	New, or change.

TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	ADM MDM R232 R422 MMPM	Trunk route type
STEP	0-511	Alternate trunk route number
TARG	0-31	Trunk Access Restriction Groups (TARGs)
- TOV		Data port time out
	0-3	0 = No timeout 1 = 15 minutes 2 = 30 minutes 3 = 60 minutes
- PSEL	(DMDM) TLNK	Protocol selection. T-Link or DM-DM protocol. Prompt offered to MCU (TKTP = MMPM).
- OPE	(NO) YES	(Do not) change data port operating parameters. Prompt offered to MCU (TKTP = MMPM).
-- PSDS	(NO) YES	(Do not) allow PSDS protocol. Prompt offered to MCU (TKTP = MMPM).
-- TRAN	(ASYN) SYN	Port transmission type; if PSDS = YES, then TRAN must be SYN. Prompt offered to MCU (TKTP = MMPM).
-- PAR		Parity type, where:
	(SPAC) EVEN ODD MARK	SPAC = space parity EVEN = even parity ODD = odd parity MARK = mark parity
-- DTR	(OFF) ON	Forced DTR (if ON) or dynamic DTR (if OFF). Prompt offered to R232, and to MCU (TKTP = MMPM).

-- DUP	(FULL) HALF	Full duplex/half duplex. Prompt offered to MCU (TKTP = MMPM).
-- DCD	(ON) OFF	(ON) = dynamic CD. OFF = forced CD. Prompt offered to R232, and to MCU (TKTP = MMPM).
-- MOD	(NO) YES	Modem, (Network): when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
-- INT	(OFF) ON	SL-1/100 Interworking. Prompt offered to MCU (TKTP = MMPM).
-- CLK	(OFF) ON	(OFF) = External Clock, ON = Internal, when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
-- V25	(NO) YES	V.25 bis offered only when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
-- HDLC	(NO) YES	High Level Data Link Control offered only when V25 = YES. Prompt offered to MCU (TKTP = MMPM).
-- DEM	(DCE) DTE	Data Equipment Mode. DCE or DTE mode. Prompt offered to R232.
-- PBDO	(OFF) ON	Port Busy upon DTR off. Presented when DCE, Dynamic DTR. Prompt offered to R232. ON = enabled (OFF) = disabled

LD 14 – Add or change a data port trunk.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	ADM MDM R232 R422 MMPM	Trunk type

<p>TN</p>	<p>l s c u</p> <p>c u</p>	<p>Terminal number</p> <p>Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.</p> <p>Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.</p>
-----------	------------------------------	---

Feature operation

To access a Data Unit (DU), the user dials the Access Code (ACOD) of the route data block. If a DU is available, a connection is made. If a DU is unavailable, the user receives this message on the terminal screen: "ALL PORTS ARE BUSY. ACTIVATE RING AGAIN?" Select Ring Again and wait until a DU port becomes available.

When a user dials a data port, the request is placed in the Ring Again queue until a port becomes idle. When an idle port is located, the calling party is notified and the port is reserved for eight seconds.

Data Port Verification (DVS)

Any applicable telephone with Data Port Verification Allowed (ADV) Class of Service can place a call to a specific Add-on Data Module (ADM) in a route by going off-hook, receiving dial tone, and dialing:

SPRE + 70 + ACOD + mmm

where:

- SPRE = special prefix
- 70 = special access code for the Data Port Verification (DVS) feature
- ACOD = Access Code for the ADM trunk group, and
- mmm = three-digit number that is to be seized within the trunk group.

The selected ADM trunk is seized if it is in not busy, maintenance busy, or disabled state. Once the call is established, it is treated as a normal ADM trunk call. If the selected trunk is in busy, maintenance busy, or disabled state, the call originator receives an overflow tone. No tone is returned when keyboard dialing is used.

Hunting, Trunk

Contents

This section contains information on the following topics:

Feature description	545
Operating parameters	548
Feature interactions	548
Feature packaging	548
Feature implementation	549
Feature operation	549

Feature description

Trunk Hunting provides either Linear Hunting or Round Robin Trunk Hunting for outgoing trunks in a route.

When Linear Hunting is implemented, the system searches for an available trunk in descending order. A station originating an outgoing call is connected to the last available trunk (highest available trunk route member number) of the trunk route accessed. The last trunk route member is always the first choice for outgoing calls and the first trunk route member is always the last choice.

Round Robin Trunk Hunting

Outgoing calls are evenly distributed among the members of a trunk route. When a station originates an outgoing call, the system searches for an available trunk route member in descending order, starting with the next lower member number from the last trunk seized for an outgoing call on the trunk route. If a trunk with a lower member number is not available, the system searches for a trunk starting with the highest member number of the route.

Multiple group machines using Round Robin Trunk Hunting

To minimize system resource usage, the system will attempt to hunt to an available trunk within the same group as the originating TN. For example, if a call is placed from a telephone whose TN is in group 1, the system will first attempt to locate an available trunk within group 1. If there are no available trunks in group 1, the system selects an available trunk from another group.

Each time hunting occurs, the round robin index value, which points to the next route member to be examined, is updated. Because the proximity of a trunk loop to the originating TN loop takes precedence over the order of the trunk route members, the system may be forced to hunt through many route members to locate an available trunk within a given group. This can cause the round robin index to change dramatically, yielding inconsistent trunk usage patterns.

If uniform trunk usage is a prime concern, configure route members with alternating groups. For example, if a given route contains trunk members from different groups, alternate the groups so that route member 1 is a trunk member from group 1, route member 2 is a trunk member from group 2, and so on. This configuration will produce more uniform trunk usage than would occur if trunks of the same group were bunched together within a route.

Round Robin Trunk Hunting example

The following example demonstrates how the Round Robin Hunt appears to operate like linear hunting in multiple group machines.

With random groups placing calls, loop x does not take calls until all the other members are busy.

In this example, Route 2 consists of 5 Primary Rate Interfaces (PRI) with a PDCH and BDCH.

Loop Members:

- 10 1-23
- 19 24-46
- 42 48-71
- 50 72-95
- 18 96-118

Route 2 is programmed for round robin hunting (SRCH = RRB).

1 In a simple scenario, with all trunks idle, only one set is placing calls. If a set in group 0 places a call, it will search the trunk list (starting at the ROUND_ROBIN_IX) for an idle trunk in its own group.

Starting from scratch that would be member 118 on loop 18. If only group 0 were making calls, it would continue member 117, 116, and so on, until it reached member 96. The next call would skip over member 95 to 48 and choose member 47.

If all trunks in group 0 are busy, trunks are chosen in round robin fashion starting with the highest numbered idle member.

2 In a complicated scenario, with many trunks idle, sets from group 0 and 1 place alternate calls.

- When group 0 makes a call, it searches the trunk list (starting at the ROUND_ROBIN_IX) for an idle trunk in its own group. It leaves ROUND_ROBIN_IX set to the next trunk lower than the trunk it chose.
- When group 1 makes a call, it searches the trunk list (starting at the ROUND_ROBIN_IX) for an idle trunk in its own group. It would choose the highest numbered idle member in the range of member 48 to 95. It leaves ROUND_ROBIN_IX set to the next trunk lower than the trunk it chose.
- When group 0 makes a call, it searches the trunk list (starting at the ROUND_ROBIN_IX) for an idle trunk in its own group. It would choose the highest numbered idle member in the range of member 1 to 46. It leaves ROUND_ROBIN_IX set to the next trunk lower than the trunk it chose.

- When group 1 makes a call, it searches the trunk list (starting at the ROUND_ROBIN_IX) for an idle trunk in its own group. It would choose the highest numbered idle member in the range of member 48 to 95. It leaves ROUND_ROBIN_IX set to the next trunk lower than the trunk it chose.
- When group 0 makes a call, it searches the trunk list (starting at the ROUND_ROBIN_IX) for an idle trunk in its own group. It would choose the highest numbered idle member in the range of member 1 to 46. It leaves ROUND_ROBIN_IX set to the next trunk lower than the trunk it chose.

In this scenario, members 118 to 96 (on loop 18) are ignored as a result of the ROUND_ROBIN_IX being moved, and the search is similar to a linear hunt with members 95 and 46 as first choice.

This is why loop 18 seems to be last choice. This is also why it seems that linear hunt is occurring. However, once all trunks in either group are busy, trunks will be chosen in round robin fashion starting with the highest numbered idle member. This would have placed traffic onto loop 18 if the other trunks were all busy.

Operating parameters

The Public Exchange/Central Office (CO) governs incoming trunk hunting. The system has no control over the order of incoming trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 16 – Implement Linear or Round Robin Trunk Hunting for a trunk route.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
SRCH	(LIN) RRB	Linear or Round Robin Hunting.

Feature operation

No specific operating procedures are required to use this feature.

ICP Network Screen Activation, Flexible DN, Meridian Mail Interactions

Contents

This section contains information on the following topics:

Feature description	551
Operating parameters	553
Feature interactions	554
Feature packaging	555
Feature implementation	556
Feature operation	558

Feature description

This feature provides the following enhancements to the Intercept Computer (ICP) feature:

- Network Screen Activation (NWSA) allows network-wide application of an ICP screen.
- Flexible DN Length (FXDN) allows the maximum length of DNs sent to the ICP to be seven digits (shorter DNs are still padded with zeros).
- Meridian Mail Interactions (MMIA) allow ICP and Meridian Mail to be configured for the same customer, by removing all interactions between them.

Network Screen Activation (NWSA)

Calls intended to terminate on one node but which are redirected to an ICP position using ICP Forward, Call Forward All Calls, Call Forward No Answer, Call Forward Busy, or Hunt, are presented on the ICP terminal (ICT) at that position.

Direct calls from another node to an ICP position are presented on the ICT at that ICP position. Recalls to the ICP attendant are presented on the ICT at that ICP position attendant.

Calls which are made or extended by an ICP position attendant to another node, and which terminate at an ICP position attendant, follow Network Attendant Service (NAS) and Network ACD (NACD) treatment. If a call is rejected, it is presented on the ICT at the originating ICP position attendant. If a call terminates at an ICP position set, the call is established and presented on the ICT at the terminating ICP position set.

NWSA uses the definition of Call Forward by Call Type to perform call forwarding. All calls are forwarded to the Flexible Call Forward No Answer DN (FDN), if one has been defined; external calls are forwarded to the External DN (ECDN); private network calls are treated as internal calls and forwarded to the Internal DN (ICDN). In the case where a call is made or extended from a local or network ICP position attendant, the call is treated as an external call to avoid having it forwarded to the ICP answering machine.

The maximum number of digits for the FDN, ICDN and ECDN is 13.

Flexible DN Length (FXDN)

Since the standard maximum length of DNs in a system is seven digits, the maximum length of DNs sent to the ICP is seven digits. However, since some ICP computers can only handle a maximum DN length of four or five digits, flexibility has been provided by allowing an entry in LD 15 of between three to seven digits. The selected length must be fixed; DNs shorter than the selected length must be padded by a digit between zero to nine, also configured in LD 15.

Meridian Mail Interactions (MMIA)

Meridian Mail and ICP may be configured in LD 15 for the same customer number, by answering “YES” to both the IMS prompt and the ICP prompt. Meridian Mail and ICP can then be used by the same customer, independent of each other. A set may be configured to have its calls forwarded to Meridian Mail or the ICP, or a mixture of both (for example, all internal calls can be configured to be forwarded to Meridian Mail, by setting the ICDN or FDN to the Meridian Mail Message Center DN, and all external calls to be forwarded to the ICP intercept position by setting the ECDN to the ICP Message Center DN).

Operating parameters

For NWSA functionality:

- the ICP has to be connected to all nodes in the network
- the same requirements and limitations apply as for Network Call Redirection and Network Attendant Service, and
- ICP to network nodes connection, and network node to network node connections must be using Integrated Services Digital Network (ISDN) links.

For FXDN functionality:

- the DN sent to the ICP is the originally called station, or in the case of direct calls, is the calling station, and
- the length of DNs may differ from node to node; however, the node with the ICT must be configured for the maximum length within the network.

For MMIA functionality:

- ICP and Meridian Mail cannot use the same port; however, ICP and Meridian Mail may be configured on separate ports for the same customer number

- if a set has been configured to have call forwarding to both ICP and Meridian Mail, retrieving of messages by activating the Message Waiting key (MWK) can only be done for either ICP or Meridian Mail, and
- the Message Waiting lamp indication cannot support both ICP and Meridian Mail simultaneously (that is, if a set has been configured to have call forwarding to both ICP and Meridian Mail, and a call is waiting from both ICP and MM, the Message Waiting lamp goes dark after one of the messages has been retrieved from either ICP or MM).

Feature interactions

The same interactions apply as for the ICP feature, other than the ones between Meridian Mail and ICP. The interactions described below also apply.

Attendant Recall

When a call from another node is recalled to the ICP position attendant, it is presented on the ICP terminal.

Call Forward All Calls Call Forward Busy Call Forward No Answer Hunting

When a call redirected by Call Forward All Calls, Call Forward No Answer, Call Forward Busy, or Hunt terminates on an Intercept Computer (ICP) position, a redirected message identification “50” is sent to the ICP computer, when the call is answered.

Electronic Switched Network)

The only Electronic Switched Network functionality which is supported is Coordinated Dialing Plan.

Network Call Redirection

For ICP-forwarded calls, the Network Call Redirection reason is Call Forward Unconditional.

Slow Answer Recall

When an attendant extends a call to a set with call forward active, the slow answer recall timer at the originating node will be reset for ICP forward.

Slow Answer Recall for External Transferred Calls

When an ICP position set transfers an external call across an ISDN network, the slow answer recall timer is set at the transferring node to prevent the terminating set to be rung indefinitely. When the slow answer recall timer times out, the transferred call is recalled to the attendant at the transferring node.

Feature packaging

The following packages are required for ICP Network Screen Activation, Flexible DN and Meridian Mail Interactions:

- Intercept Computer Interface (ICP) package 143
- Integrated Message Services (IMS) package 35
- Automatic Call Distribution Package A (ACDA) package 45
- Message Waiting Center (MWC) package 46
- Auxiliary Processor Link (APL) package 109; Flexible Feature Codes (FFC) package 139
- International Supplementary Features (SUPP) package 131

The following packages are also required for the NWSA enhancement:

- Integrated Services Digital Network (ISDN) package 145
- Advanced ISDN Network Services (NTWK) package 148
- 1.5 Mbit Primary Rate Access (PRA) package 146
- Network Attendant Service (NAS) package 159

The following package is also required for the FXDN enhancement:

- DN Expansion (DN) package 150

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – For NWSA, enter up to 13 digits for ICDN and ECDN.
- 2 LD 15 – For FXDN, set the DN length and any padding digits at the ICDL and ICPD prompts.
- 3 LD 15 – For MMIA, enter “YES” to both the Meridian Mail prompt (IMS) and the Intercept Computer prompt (ICP).

LD 15 – For NWSA, enter up to 13 digits for ICDN and ECDN.

Prompt	Response	Description
...		
TYPE:	ICP	Intercept computer update.
- ICP	YES	ICP is available.
...		
- ICMM	0-9	Message number.
- ICDN	0-13	Default internal DN.
- ECDN	0-13	Default external DN.

LD 15 – For FXDN, set the DN length and any padding digits at the ICDL and ICPD prompts.

Prompt	Response	Description
...		
TYPE:	ICP	Intercept computer update.
- ICP	YES	ICP is available.
...		
- ICDL	3-(4)-7	Length of DN sent to and received from the ICP.
- ICPD	(0)-9	Padding digit for DNs shorter than specified in ICDL.

LD 15 – For MMIA, enter “YES” to both the Meridian Mail prompt (IMS) and the Intercept Computer prompt (ICP).

Prompt	Response	Description
...		
TYPE:	IMS	Integrated Message Service Options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
...		
IMS	YES	Meridian Mail is available for customer number.
...
TYPE	ICP-DATA	Intercept computer update.
- ICP	YES	ICP is available for customer number.

Feature operation

No specific operating procedures are required to use this feature.

In-Band Automatic Number Identification

Contents

This section contains information on the following topics:

Feature description	559
Operating parameters	561
Feature interactions	561
Feature packaging	564
Feature implementation	564
Feature operation	565

Feature description

The In-Band Automatic Number Identification (IANI) feature provides the ability to display a ten-digit calling party number during setup (signaling) over a non-Integrated Services Digital Network (ISDN) T1 trunk. The Automatic Number Identification (ANI) digits are displayed when they auto-terminate to an Automatic Call Distribution (ACD) Directory Number (DN) agent telephone with digit display. The IANI feature supports ten digits for ANI, or three and four digits for Dialed Number Identification (DNIS). IANI sends these digits to three places: the Call Detail Recording (CDR) records, the host, and the agent telephone.

When a Direct Inward Dialing (DID) or TIE trunk originates a call, the software determines whether the call is on an IANI trunk group. If it is, the ten ANI digits are collected, and the call auto-terminates at the ACD DN specified for that trunk, provided that the ACD telephone has digit display and Standard Delayed Display (DDS) Classes of Service. The call, sent by Dual Tone Multifrequency (DTMF) signaling prior to call termination, is not received until all the digits are received by the software.

When the call is presented to the ACD DN, a PCI message is simultaneously sent across the Application Module Link (AML) carrying the ANI digits. The message contains the ANI number, the ACD DN, and the ACD Agent ID.

If an auto-terminating ACD DN is not configured for the trunk, the call intercepts to the attendant, and the ANI number is displayed on the attendant console. If the call is extended to an ACD DN, the IANI digits are displayed after it is extended.

Call Detail Recording (CDR) records

Because IANI and Integrated Services Digital Network (ISDN) cannot be configured on the same trunk group, the IANI report is able to appear in place of the Calling Line Identification (CLID) records. The ANI number is shown on the second line of the CDR report in the following format:

```
N 002 00 T00004 01 03/24 10:15 00:00:38 4155551212*****
```

where:

N	= record type
002	= record sequence number
00	= customer number
T00004	= trunk route and member number
01	= ACD Agent Position ID
03/24	= date (month/day)
10:15	= time (hour:minute)
00:00:38	= duration (hours:minutes:seconds)
4155551212*****	= ANI number (ten digits followed by *****)

For a complete description of CDR output, see *Call Detail Recording: Description and Formats* (553-3001-350).

Operating parameters

IANI operates on T1, Direct Inward Dialing (DID), and TIE trunks only.

IANI cannot be configured on the same trunk with Electronic Switched Network (ESN), Integrated Services Digital Network (ISDN), or Dialed Number Identification Service (DNIS).

The auto-terminating Automatic Call Distribution (ACD) Directory Number (DN) is configured in LD 14. Any ACD agent specified to answer IANI calls also receives standard ACD calls. When a standard ACD call is received on a non-ISDN or non-ANI trunk, no ANI numbers are displayed.

If an IANI call terminates on a non-ACD DN, no ANI digits appear on the telephone display. Likewise, no PCI messages are sent across the Application Module Link (AML).

Auxiliary Processor Link (APL) is not supported.

Should the system initialize while an agent is active on an IANI call, there will be no impact on the call. However, if any call modification (such as, Call Transfer or Conference) takes place, the ANI number is lost.

A Dual Tone Multifrequency (DTMF) receiver is required to interpret the DTMF tones with an IANI number.

Feature interactions

The IANI feature interacts a great deal with ACD. For a complete description of the ACD features involved, see *Automatic Call Distribution: Description* (553-3001-351).

ACD Answer Call Supervisor Emergency

If the agent presses the Supervisor (ASP) key or the Emergency (EMR) key, the digit display is cleared when the supervisor answers the call. The display remains clear while the supervisor is active on the call. If the supervisor releases first, the ANI number reappears on the agent's telephone display.

ACD Interflow

If an IANI call interflows to another predesignated local ACD DN, the ANI number is displayed on the overflow agent's digit display. The source ACD DN is displayed following the ANI number.

ACD Night Call Forward

If an ANI call is forwarded to an ACD DN, the ANI number is displayed on the ACD Agent telephone.

ACD Overflow by Count

If an IANI call overflows to another ACD DN, the ANI number is displayed on the overflow agent's digit display. The source ACD DN is displayed following the ANI number.

Activity code

If the Activity Code (ACNT) key is activated during an IANI call, the display is cleared. Once the activity code has been entered and the ACNT key pressed again, the ANI number reappears on the agent's display.

Attendant Recall

If an ACD Agent is active on an IANI call and activates the Attendant Recall (ARC) key to call the attendant, the agent's display shows the attendant number when the attendant answers the call. The ANI number reappears when the attendant releases.

Call Consultation

If the agent is active on an IANI call and presses the TRN key for call consultation, the display is cleared. When the agent restores the IANI call, the ANI number reappears.

Call Park

If an agent parks an IANI call and it times out and recalls the agent, the ANI number is not displayed.

Call Transfer

If an agent transfers an IANI call to another ACD DN, the ANI number is displayed on the terminating set's display.

Conference

If an agent activates the Conference feature while active on an IANI call, the display is cleared. The display remains clear while the Conference call is active. If the conferenced party releases first, the ANI number appears on the agent's display.

Display key

If the agent is active on an IANI call and presses the Display (DSP) key to display another key feature, the ANI number does not reappear when the DSP function is complete.

Hold

If an ACD Agent places an IANI call on hold, the ANI number reappears when the call is restored.

Network ACD

If an IANI call diverts to a target node as a result of Network ACD (NACD), the ANI number appears at the target node.

R2MFC Calling Number Identification/Call Detail Recording Enhancements

Inband ANI trunks do not support CNI. If a CNI is available in addition to the IANI on an IANI trunk, the IANI would be used for the CLID.

Time and date

If the agent presses the Time and Date (TAD) key while on an IANI call, the time and date remain displayed throughout the call. To display the ANI number again, place the call on hold and retrieve it. The ANI number reappears.

Time overflow

If an ACD Agent receives an IANI call due to time overflow, the ANI number is displayed. The source ACD DN follows the ANI number on the display.

Virtual Agents

Virtual Agents are not supported for IANI calls.

Feature packaging

The In-Band ANI (IANI) feature is not packaged separately. Implementation of IANI requires the following packages:

- Basic ACD (BACD) package 40
- ISDN Signaling (ISDN) package 145
- 1.5 Mbps Primary Rate Access (PRA) package 146
- Inter Exchange Carrier (IEC) package 149, and
- Dialed Number Identification Service (DNIS) package 98.

If Application Module Link (AML) is required, Command Status Link (CSL) package 77, and Integrated Messaging System (IMS) package 35, must be included.

For CDR records, Call Detail Recording (CDR) package 4 is required.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Identify the route as an In-Band Automatic Number Identification route.
- 2 LD 23 – Send the IANI messages across the Auxiliary Processor Link (APL).

LD 16 – Identify the route as an In-Band Automatic Number Identification route.

Prompt	Response	Description
REQ	NEW CHG	Add or change an IANI route.
TYPE	DID TIE	Direct Inward Dialing (DID) or TIE route.
ISDN	NO YES	Enable or disable ISDN (cannot be configured on same route as IANI).
AUTO	(NO) YES	(Do not) specify as an auto-terminating route.
IANI	(NO) YES	(Disable) enable the IANI route.

LD 23 – Send the IANI messages across the Auxiliary Processor Link (APL).

Prompt	Response	Description
REQ	NEW CHG	Add or modify an IANI route.
TYPE	ACD	IANI calls terminate at an auto-terminating ACD DN.
ISAP	YES (NO)	Enable IANI messaging across the AP link.

Feature operation

No specific operating procedures are required to use this feature.

Incoming Call Indicator Enhancement

Contents

This section contains information on the following topics:

Feature description	567
Operating parameters	567
Feature interactions	568
Feature packaging	569
Feature implementation	569
Feature operation	569

Feature description

This enhancement introduces the Incoming Call Indicator (ICI) – the RDI-intercept ICI on the attendant console. This ICI identifies a Direct Inward Dialing (DID) call that has been intercepted to the attendant because the destination station is restricted from receiving DID calls (RDI Class of Service).

Operating parameters

If the attendant is within a system network, a special signal must be sent to the attendant when RDI-intercept to the attendant occurs.

Feature interactions

AC15 Recall: Transfer from Norstar

If the held party recalls the attendant due to intercept or recall treatment, the recall is presented to the corresponding ICI key (INT or RLL).

Attendant Recall

If an RDI-intercepted call that is extended by the attendant to the destination party having RDI Class of Service is either transferred back or recalled to the attendant, then the attendant recall ICI lights up and not the RDI-intercept ICI.

Call Forward All Calls Call Forward Busy

When a DID call to station that is unrestricted from receiving DID calls (UDI Class of Service) is forwarded to a UDI station due to Call Forward All Calls or Call Forward Busy, the call is RDI-intercepted to the attendant. The attendant display shows the DN of the dialed party.

If the call has been forwarded to the attendant, the Call Forward All Calls/Call Forward Busy ICI lights up, and not the RDI-intercept ICI.

Call Forward No Answer

When a DID call to a station that is unrestricted from receiving DID calls (UDI Class of Service) is forwarded to a UDI station due to Call Forward No Answer, the call is not RDI-intercepted to the attendant. The dialed party continues to ring. If the call has been forwarded to the attendant, the Call Forward No Answer ICI lights up, and not the RDI-intercept ICI.

Slow Answer Recall

If an RDI-intercepted call that is extended by the attendant to the destination party having RDI Class of Service is recalled to the attendant due to Slow Answer Recall, then the Call Forward No Answer ICI lights up and not the RDI-intercept ICI. The attendant display shows the DN of the dialed party.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

LD 15 – Respond to the ICI prompt with the ICI number:

Prompt	Response	Description
...		
ICI	x RDI	ICI number; RDI intercept. x = key number (from 0 to 19).

Feature operation

When the call is intercepted to the attendant, the RDI-intercept ICI becomes lit. The attendant can then answer the call, and extend it to the destination party if desired.

Incoming DID Digit Conversion

Contents

This section contains information on the following topics:

Feature description	571
Operating parameters	574
Feature interactions	575
Feature packaging	576
Feature implementation	576
Feature operation	579

Feature description

The Incoming DID Digit Conversion (IDC) feature allows digits received from the Central Office (CO) to be converted to unrelated extension numbers within the system. This conversion is accomplished using a translation table dedicated to a Direct Inward Dialing (DID) route. The digit conversion table is set up to map the received (external) DID digits into the local (internal) Directory Number (DN).

IDC can be selectively applied to DID routes. A unique conversion table is available for each route.

Full Digit Conversion

All the digits received are converted to another string of digits as specified in the conversion table.

Different strings of digits can be converted to the same internal Directory Number (DN).

Partial Digit Conversion

Not all of the digits received from the Central Office (CO) are converted. The remaining digits may remain unchanged, and the whole string of digits is forwarded to the Directory Number (DN) translator.

It is possible to convert a partial string of digits to another partial string of digits of a different length (for example, 23xx to 4xx or 2xx to 49xx). The range of DNs to convert can include a mix of DN lengths.

No Digit Conversion

If the digits received are not defined in the conversion table, they are assumed to represent an internal Directory Number (DN). They are forwarded to the DN translator without any change.

An empty IDC table should not be programmed in a live DID route. If this is done all calls to the DID route intercept to the attendant.

Direct Call Termination

Incoming calls from non-Direct Inward Dialing (DID) trunks are not affected by Incoming DID Digit Conversion (IDC). If a call from a trunk on a route with IDC is received, the digits are translated into a pass (continue) or a converted telephone of local digits. These digits replace the dialed digits. Additional dialed digits are then forwarded directly for call processing. The IDC processor has no further influence on the call. Once the internal digit processor receives the digits, it alone determines the disposition of the call. It may be able to terminate the call, or it may be required to intercept the call due to invalid digits, a busy station, or Call Forward.

When DEXT = NO (LD 16) the Meridian 1 proprietary telephone display looks like this:

AAAA:MMM

where:

AAAA = route access code, and

MMM = Route Member Number.

The display may show the name of the route if Call Party Name Display (CPND) is allowed.

When DEXT = YES (LD 16) the Meridian 1 proprietary telephone display looks like this:

AAAA:MMM Pxxxx

where:

AAAA = route access code

MMM = Route Member Number

P = Special character (identifying the received digits), and

xxxx = Originally dialed digits (preconverted).

When DEXT = NO (LD 16) the attendant console display looks like this:

AAAA:MMM iiiii xxxx

where:

AAAA = route access code

MMM = Route Member Number

iiii = Internal DN (called party), and

xxxx = route name if Call Party Name Display (CPND) is allowed.

When DEXT = YES (LD 16) the attendant console display looks like this:

AAAA:MMM#:xxxx iii

where:

AAAA = route access code

MMM = Route Member Number

= Special character (identifying the received digits)

xxxx = originally dialed digits, and

iii = Internal DN (called party).

Incoming Call Redirection

If an incoming call is redirected to a Centralized Attendant Services (CAS) or local attendant, the local DN is used to extend the call. If an incoming call reaches a Night DN, Hunt DN, Call Forward DN, or similar destination, then both the internal DN and the directory of local DNs are used to redirect the call.

Operating parameters

IDC applies to Direct Inward Dialing (DID) routes only. Auto-terminate trunks to Dialed Number Identification Service (DNIS) do not support IDC. All digits received from an incoming call translate to a maximum of four digits. Acceptable received digits for an incoming call are 0 through 9.

New Flexible Code Restriction (NFCR) is required to operate IDC. Since NFCR trees and IDC tables share the same structure, the total combined number of NFCR trees and IDC tables cannot exceed 255 per customer.

Feature interactions

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

An IDC table can be used to convert digits received on a DASS2 DID trunk into a digit string having the UDP format. This allows a DASS2 DID call to access the DPNSS1 UDP network.

Digital Trunk Interface (DTI) – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the Direct Inward Dialing (DID) number to dial to reach the set. Therefore, if an external party uses a DN, delivered in an ANI message, for making a call to the corresponding extension, the call may fail.

EuroISDN Continuation

The Incoming Digit Conversion (IDC) feature converts incoming digits from a DID route. This feature is supported on the incoming EuroISDN DID routes. Digits received as a called party number are converted if the IDC feature is activated on the route. Digit analysis is then performed on the converted digits by the system.

EuroISDN Master Mode

IDC is supported on the incoming EuroISDN Master Mode connectivity DID routes. If IDC is equipped, digits received as a called party number are converted, and digit analysis is then performed on the converted digits.

ISDN QSIG Name Display

IDC trunk and name information is passed and displayed to the terminating party when no name information is received from the Direct Inward Dial (DID) trunk. The Incoming DID Digit Conversion (IDC) feature is activated, and name information is associated with the converted digit sequence.

Name information received from a DID trunk takes precedence over an IDC trunk name.

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the DID number to dial to reach the set. Therefore, if an external party uses a DN for making a call to the corresponding extension which is delivered in an ANI message, the call may fail.

Feature packaging

Incoming Digit Conversion (IDC) package 113 requires New Flexible Code Restriction (NFCR) package 49.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1** LD 15 – Specify the maximum number of Incoming Digit Conversion trees allowed.
- 2** LD 49 – Create the IDC tables to convert incoming Direct Inward Dialing digits by specifying the IDC tree and customer numbers.
- 3** LD 16 – Enable the digit conversion for required DID trunk routes.

LD 15 – Specify the maximum number of Incoming Digit Conversion trees allowed.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FCR	New Flexible Code Restrictions Option.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- NFCR	(NO) YES	(Disable) enable New Flexible Code Restriction (NFCR).
- MAXT	1-255	Maximum number of NFCR trees.
- IDCA	(NO) YES	(Disable) enable IDC.
- DCMX	1-255	Maximum number of IDC tables. Note: The sum of the values for MAXT and DCMX cannot exceed 255 per customer.

LD 49 – Create the IDC tables to convert incoming Direct Inward Dialing digits by specifying the IDC tree and customer numbers.

Prompt	Response	Description
REQ	NEW	Create tables.
TYPE	IDC	IDC tables.
CUST	xx	Customer number, as defined in LD 15

DCNO	0-254	IDC tree number.
IDGT	0-9999 0-9999	DN or range of DNs to be converted. Examples: To convert the external DN 3440 to 510, enter: <i>PromptResponse</i> IDGT3440 3440510 To convert external DNs in the range 3440–3465, enter: <i>PromptResponse</i> IDGT3440 3465 3440444 3441445 — — — — — — 3465469

LD 16 – Enable the digit conversion for required DID trunk routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
IDC	YES	Use digit conversion for this route.
- DCNO	0-254	IDC tree number.
- NDNO	0-254	IDC conversion table for Night mode.
- DEXT	(NO) YES	(Do not) allow Digit Display.

Feature operation

No specific operating procedures are required to use this feature.

Incoming Digit Conversion Enhancement

Contents

This section contains information on the following topics:

Feature description	581
Operating parameters	581
Feature interactions	582
Feature packaging	583
Feature implementation	583
Feature operation	583

Feature description

The Incoming Digit Conversion (IDC) feature allows conversion into a DN of up to eight digits. The feature can operate as standalone or in an ISDN environment. The conversion is applied at the network node on which the call comes and before the digits are processed, so that there are no ISDN signaling requirements.

Operating parameters

IDC applies to Direct Inward Dialing (DID) routes only. Auto-terminate trunks to Dialed Number Identification Service (DNIS) do not support IDC. All digits received from an incoming call translate to a maximum of four digits. Acceptable received digits for an incoming call are 0 through 9.

New Flexible Code Restriction (NFCR) is required to operate IDC. Since NFCR trees and IDC tables share the same structure, the total combined number of NFCR trees and IDC tables cannot exceed 255 per customer.

Feature interactions

Digital Trunk Interface (DTI) – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the Direct Inward Dialing (DID) number to dial to reach the set. Therefore, if an external party uses a DN, delivered in an ANI message, for making a call to the corresponding extension, the call may fail.

EuroISDN Continuation

The Incoming Digit Conversion Enhancement (IDC) feature converts incoming digits from a DID route. This feature is supported on the incoming EuroISDN DID routes. Digits received as a called party number are converted if the IDC feature is activated on the route. Digit analysis is then performed on the converted digits by the system.

EuroISDN Trunk - Network Side

This feature is supported on the incoming EuroISDN Trunk - Network Side connectivity DID routes. If IDC is equipped, digits received as a called party number are converted, and digit analysis is then performed on the converted digits.

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the DID number to dial to reach the set. Therefore, if an external party uses a DN for making a call to the corresponding extension which is delivered in an ANI message, the call may fail.

Feature packaging

Incoming Digit Conversion Enhancement is included in Incoming Digit Conversion (IDC) package 113 that requires New Flexible Code Restriction (NFCR) package 49.

Feature implementation

To implement Incoming Digit Conversion Enhancement, see “Incoming DID Digit Conversion” on page 571 in this document.

Feature operation

No specific operating procedures are required to use this feature.

Incremental Software Management

Incremental Software Management has been replaced by Software Licenses.
For more information, refer to the Software Licenses chapter in Book 3.

Information Notification Service for Japan

Contents

This section contains information on the following topics:

Feature description	587
Operating parameters	591
Feature interactions	591
Feature packaging	593
Feature implementation	593
Feature operation	594

Feature description

The Information Notification Service for Japan (INS-J) feature allows a Japan local exchange to extract the calling line identification information received on Japan analog trunks (JCO/JDID) and to deliver it to subscribers' terminals/trunks with display capability and customer oriented applications. In Japan, this service has already been available on ISDN. However, analog trunks are still seen as efficient alternatives to ISDN.

The INS-J feature has its own circuit card, the NT5D39 DXUT-J card. The DXUT-J is a Digital Signaling Processor-based Extended Universal Trunk card for the Japan market. The DXUT-J collects the FSK-format INS-J information sent by the CO and sends it to the system software. The DXUT-J also supports the Busy Tone Detection for Japan that is available on the EXUT-J card.

On an incoming call with INS-J, the system extracts information such as: Calling Party Number, Calling Party Name, Called Party Number, Date and Time, and, if applicable, Reason for absence of Calling Party Number/Calling Party Name. This information is passed on to the terminating party, which can be:

- a trunk
- a terminal or
- an application.

The INS-J information is sent by the CO in Frequency Shifted Key (FSK) format. The NT5D39 DXUT-J card decodes this information and sends it to the system software using SSD messages.

The system software extracts the Calling Party Number, Called Party Number, Calling Party Name, and Date and Time information, and the call termination follows the existing procedure. For example, if the call is from an incoming CO trunk, it terminates at the attendant or where designated by the system's database; if the call is a DID call, the system software extracts the information from the INS-J and terminates the call accordingly.

The INS-J information is passed on to the terminating party, which can be:

Trunks

- ISDN
 - PRI/BRI
- R2MFC
 - DTI/DTI2
 - Analog

Terminals

- Digital sets
 - Meridian digital telephones
 - BRIL sets
- attendant console

Applications

- Meridian Mail
- Meridian Link
- Meridian IVR
- Customer Controlled Routing
- Symposium Call Center Server

Call Detail Recording (CDR)

The INS-J feature is enabled and disabled on a per unit basis using a class of service in LD 14.

Figure 14 shows the operation of the INS-J feature.

Figure 14
System with INS-J feature operating

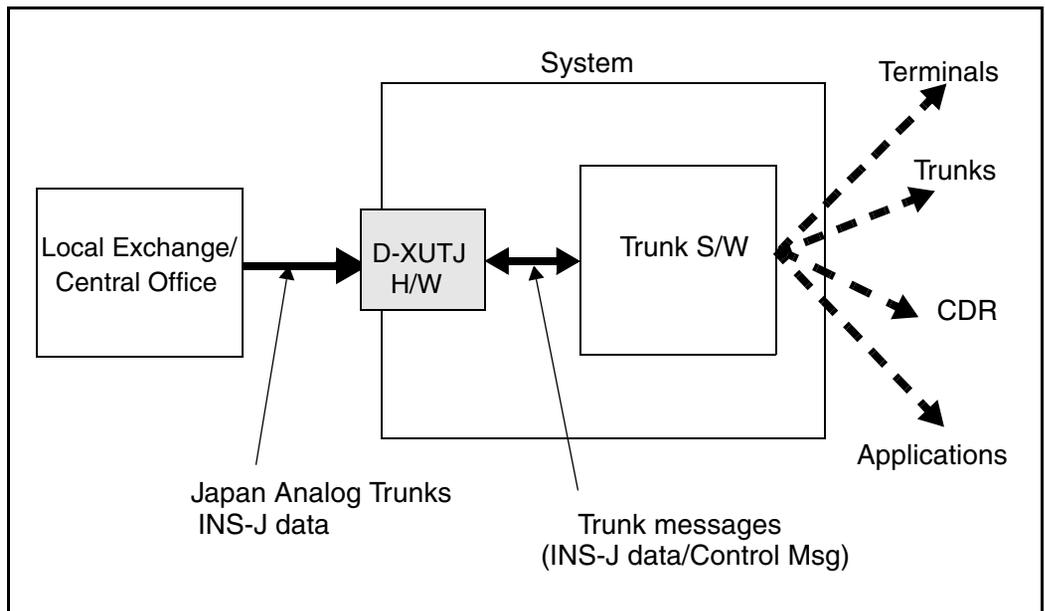
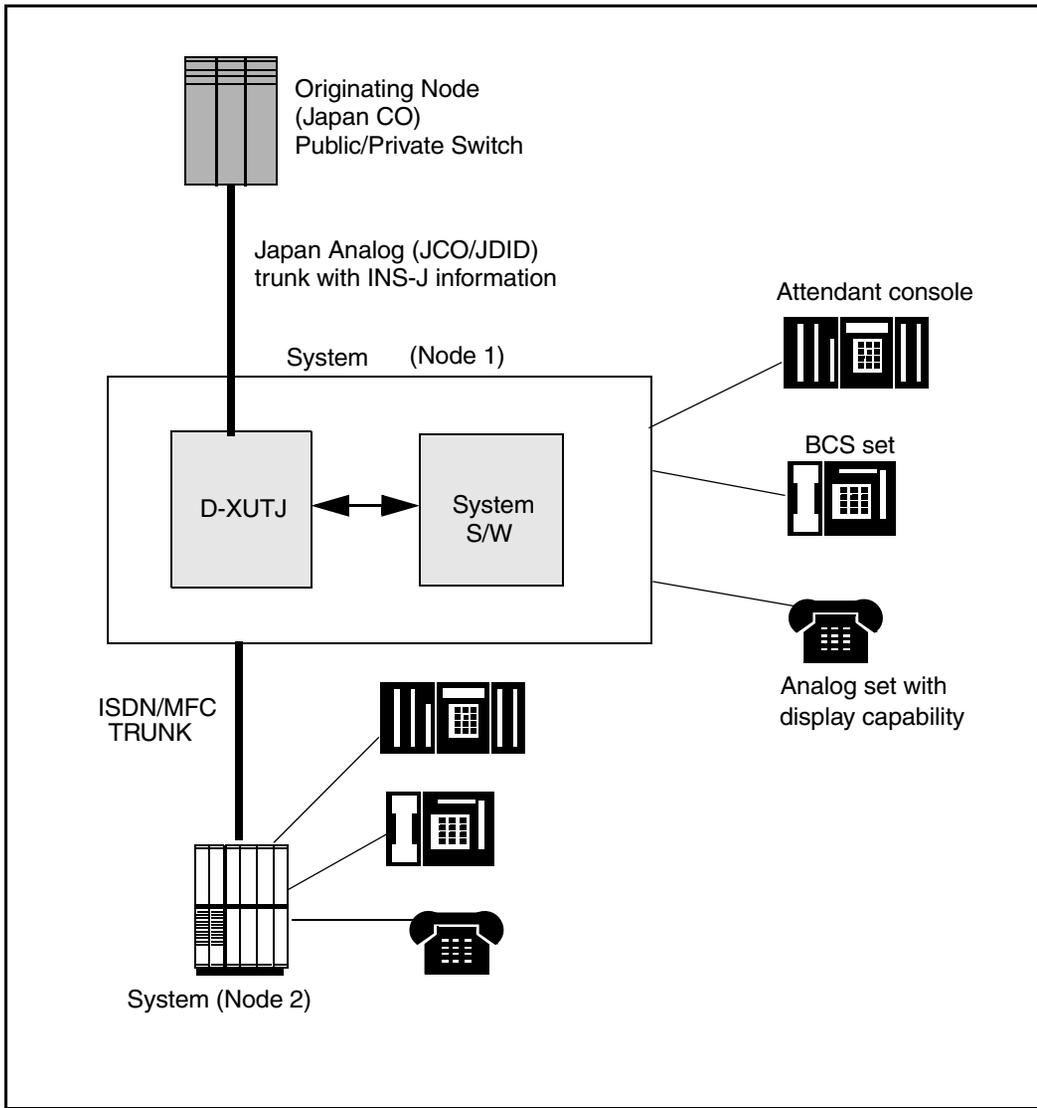


Figure 15 shows the system composition required for the INS-J CLID delivery.

Figure 15
System composition for INS-J CLID delivery



Operating parameters

This feature is only applicable for incoming analog trunks. If the terminating set/trunk cannot receive the information, then the Analog CLI information will not be displayed nor transmitted.

As per existing system functionality, only the first 16 digits of the Calling Party/Called Party number will be processed.

Display of Katakana characters is not supported. Any Katakana characters received will be ignored.

If system initialization occurs while the INS-J information is being sent from the NT5D39 DXUT-J card to the system software, then any INS-J information that has not been sent is lost and the call is lost as well, since it is not an established call. In the case of an established call, the call will be rebuilt and the display may or may not be maintained.

The system administrator must ensure that the INS-J function is activated for those trunk ports that are actually connected to a CO with INS-J.

Feature interactions

Attendant Call Extension

When an attendant extends a call from an incoming INS-J trunk, the Analog CLI information is delivered to the terminating set.

Call Transfer/Blind Transfer

When a set completes a Transfer/Blind Transfer of an incoming INS-J call, the Analog CLI information is delivered to the terminating set.

Call Forward All Calls/Call Forward No Answer/Internal Call Forward/Hunt

When a call is redirected using Call Forward All Calls/Call Forward No Answer/Internal Call Forward/Hunt, the Analog CLI information is delivered to the terminating set.

CLASS

If the call terminates on a CLASS set then the Analog CLI information is passed to the CLASS feature.

Conference/No Hold Conference

When a set receives an incoming call and then initiates a conference call, the information of the initiating set will be delivered to the terminating set, and not the Analog CLI information.

Direct Inward System Access

If a user enters the system through DISA dialing, the information passed on is that of the incoming trunk and not of the DISA DN.

Private Line Service

Private Line Service will not affect the CLI information on the set.

Basic Rate Interface (BRI)

If an incoming call from an INS-J trunk is redirected to BRI, the Analog CLI information is mapped onto the setup message and sent, as per existing system operation.

Feature Group D (FGD)

If an incoming call from an INS-J trunk is redirected to a Feature Group D trunk, the Analog CLI information is passed on as per existing system operation.

Integrated Services Digital Network (ISDN)

If an incoming call from an INS-J trunk is redirected to an ISDN trunk, the Analog CLI information is passed on as per existing system operation.

Multifrequency Compelled Signaling (MFC)

If an incoming call from an INS-J trunk is redirected to an MFC trunk, the Calling Party Number information is mapped to the CNI digits of MFC. Since MFC does not support Calling Party Name and Date/Time, that information is not sent.

Feature packaging

This feature introduces Analog CLI (ACLI) package 349.

The ACLI package requires Japan package 97.

The UK package (package 190) is incompatible with ACLI, and should not be packaged if ACLI is turned on.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 14 – Configure the Analog CLI Class of Service on a port-by-port basis.
- 2 LD 16 – Configure the new ring validation timer.

LD 14 – Configure the Analog CLI Class of Service on a port-by-port basis.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	COT DID	Central Office or Direct Inward Dialing.
XTRK	EXUT	Type of trunk card.
CUST	xx	Customer number, as defined in LD 15
...	...	
SUPN	YES	Supervision required.
STYP	JCO JDID BTS	Japan CO or Japan DID. Busy Tone Supervision (Optional)
CLS	(CLID) CLIA	Calling Line Identification denied or allowed.
...	...	

LD 16 – Configure the new ring validation timer.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
...	...	
TKTP	TIE COT	TIE or Central Office trunk.
...	...	
CNTL	YES	Changes to controls of timers.
TIMR	RGV 256	Ring validation timer to be changed to 256.
...	...	

Feature operation

No specific operating procedures are required to use this feature.

Instant ISM

The name of this functionality has changed to Instant License. Refer to “Instant License” on page 597.

Instant License

Contents

This section contains information on the following topics:

Feature description	597
Operating parameters	598
Feature interactions	599
Feature packaging	600
Feature implementation	600
Feature operation	600

Feature description

Use the Instant License feature (formerly called Instant ISM) to upgrade the License limits on your system. The license limits determine the maximum number of Terminal Numbers (TN), Automatic Call Distribution (ACD) positions, and other parameters on the system. With Instant License, you can deliver the necessary upgrade keycodes to the system *without* the need for a Sysload.

To activate keycodes, use the existing prompts in LD 143. If the upgrade keycode is eligible for instant activation, the License limits upgrade “instantly”. After successful activation, a system message introduced by the Instant License feature indicates the following: that the keycode is accepted, License limits are increased, and a Sysload is *not* required.

Keycodes qualify for instant activation when the only difference between the upgrade keycode and the current system keycode is an increase in the number of License limits. Any decrease in License limits renders the keycode ineligible for instant activation. Similarly, changes made to other keycode parameters, including the addition or removal of feature packages, software release and issue, software generic (system type and call processor type), or AUX-ID also render the keycode ineligible.

If a keycode is ineligible for instant activation (License parameters are lowered, or software packages are changed), then the following system message displays: “CCBR009 New keycode accepted. It will be activated during the next restart.” In this case, you must perform a Sysload to complete keycode activation.

Operating parameters

The system does not treat the Small System MOPT parameter as a License limit, but rather as a package. The Instant License feature does not support instant MOPT changes. If the MOPT parameter is changed, a Sysload is required.

System initialization

If system initialization occurs during the activation of a new keycode, the system software attempts to complete the keycode activation. However, depending on when initialization begins, the software may not be able to complete keycode activation.

After the system completes initialization, use LD 22 to print the active License parameters. If keycode activation is successful, the printed License parameters match the new keycode parameters. If the printed License parameters do not match the new keycode parameters, but instead show the pre-upgrade parameters, the system administrator must perform one of the following actions, depending on the system:

- For Large Systems, use the KSHO command in LD 143 to show the contents of the currently used keycode file.

Note: CP PII systems store keycodes on the hard disk or on floppy disk. CP PIV systems store keycodes on the Fixed Media Device (FMD) or on the Removable Media Device (RMD). For CP PII, use the KSHO HD command to verify keycodes on the hard drive. For CP PIV, use the KSHO FMD command to verify keycodes on the FMD.

If the KSHO command shows the new keycode on the hard drive or the FMD, use the KOUT command to remove the pending keycode file, then restart the keycode activation process. If the new keycode does *not* show on the hard drive or the FMD, the administrator must perform a new keycode installation, by using LD 143.

- For Small Systems and CS 1000S systems, access LD 143 and perform the system upgrade process again.

Feature interactions

License

Instant License does not change the operation of the various License limits. Instant License allows the user to upgrade License limits without having to Sysload.

IS-41 Networking

Instant License supports the MOB License parameter in the IS-41 Networking feature.

RAN and Music Broadcast

Certain traffic reports peg the number of times the RAN and Music License limits had been reached. With the Instant License feature, License limits may change instantly (without a Sysload). When this happens, a traffic report that is counting the License hits over a specified time period is checking against two different values consecutively. Therefore, for that time period, the report has an aberration.

Electronic Brandlining (EBLN/BRAND)

Unlike other License parameters which define the maximum configuration limits for various resources, the BRAND License parameter defines which Electronic Brandlining feature option the system is allowed to use.

The same limitation applies to the BRAND parameter as applies to other License limits, that is, the BRAND parameter must be unchanged or increased if the License limits are to be updated instantly without the need for a Sysload.

Once the BRAND License parameter has been increased, the user must access LD 17, to configure the actual string that is to be displayed, (as in the existing operation).

Telephone displays that display brandline information (when in an idle state) do not have the brandline updated immediately. The update occurs on a telephone the next time the LAMPAUDIT routine audits the telephone.

Feature packaging

This feature is included in base system software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

Feature operation has three component parts:

- 1 Instant License parameter upgrade using a keycode diskette (CP PII systems) or a Removable Media Device (CP PIV systems)
- 2 Instant License parameter upgrade using HyperTerminal
- 3 Instant License parameter upgrade for Small Systems

Instant License parameter upgrade using a keycode diskette

Perform the following to instantly activate a keycode without a Sysload:

Note: For a dual-CPU (redundant) system, leave the system in full redundant mode (hard-disk and CPU redundancy).

- 1 Log in on a system terminal and access LD 143.

```
>LD 143
CCBR000
.
```

- 2 For CP PII systems, insert the new keycode diskette into the floppy drive on the active core. For CP PIV systems, insert the Removable Media Device (RMD) into the Compact Flash (CF) socket on the faceplate.
- 3 Enter the KDIF command and select keycode comparison options.

Note: Ensure that the new keycode does *not* lower License limits or reduce features compared with the existing keycode. If you have determined that the keycode lowers License limits or reduces features, do not continue with the KNEW command, but contact your Nortel order management representative.

```
. KDIF
Please use: KDIF <param1> <param2>
with the following parameters:
```

```
NEW      accepted new keycode
REC      currently used keycode
OLD      previously used keycode
```

<i>CP PII</i>	
F0	candidate keycode on diskette in the /f0 floppy drive
F1	candidate keycode on diskette in the /f1 floppy drive
HD	candidate keycode which was uploaded to hard disk
<i>CP PIV</i>	
RMD	candidate keycode on the Removable Media Device
FMD	candidate keycode created manually (KMAN) or uploaded (KUPL)

Enter the keycode comparison option. The new keycode option is shown in **bold**.

Note: The following example compares the currently used keycode (REC) with the new keycode on the disk in floppy drive F0 (CP PII systems) or on the RMD (CP PIV systems). The limits shown are for example purposes only.

For CP PII:

.KDIF REC F0

Validating Keycode File /p/install/keycode.rec ... OK

Validating Keycode File /f0/keycode.kcd ... OK

For CP PIV:

.KDIF REC RMD

Validating Keycode File /p/install/keycode.rec ... OK

Validating Keycode File /rmd/keycode.kcd ... OK

System parameters	1st keycode:	2nd keycode:
System Serial Number	: 46XX	46XX
Software Version	: 2311	2311
System Type	: Option 61C	Option 61C
Call Processor	: CP68040	CP68040
Release	: 24	24
Issue	: XX	XX
NTI Order Number	:	
NT SDID - 1	:	
NT SDID - 2	:	
Date and Time of Manufacture	:	

Note: () indicates that information is not available

License Limits	1st keycode:	2nd keycode:
Loop Limit	: 32	32
Sys TNs Limit	: 10	11
ACD Agt Limit	: 10	10
ACD DNs Limit	: 10	10
AST Limit	: 10	10

.....

Common packages for both keycodes:
0-2 4-5 7-25 28-29 32-55 58-65

.....

Additional packages in the 2nd keycode:

< **30-31**

.

4 Select the new keycode for activation using the KNEW command.

- . **KNEW F0** for CP PII systems
- . **KNEW RMD** for CP PIV systems

If the new keycode is eligible for instant activation, it activates without further user action. The following system message displays:

CCBR020 New Keycode accepted and activated successfully.
Sysload is NOT needed!

If the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode. The following system message displays:

CCBR009 New Keycode accepted. It will be activated during the next restart.

- 5 Access LD 22 and confirm that the new License parameters have been updated.
 >LD 22
 REQ SLT

- 6 If the License limits do not increase, or if any other problem occurs, then refer to “Reverting to the previous keycode with the KRVR command” on page 610.

Instant License parameter upgrade using HyperTerminal®

For Large Systems, perform the following to instantly activate a keycode without a Sysload:

For a dual-CPU (redundant) system, leave the system in full redundant mode (hard-disk and CPU redundancy).

- 1 On a PC, access the system (using a modem) with HyperTerminal® (provided with Windows 95):
 - Click the **Start button | Programs | Accessories | HyperTerminal**.
- 2 Double-click the HyperTerminal client to the system.
- 3 Log into the system.
- 4 Load the Keycode Management Program (LD 143).
LD 143 to load program
KUPL to upload keycodes to the hard disk (on CP PII)
 or the FDM (on CP PIV) of the target system
- 5 Click the **Transfer** menu in HyperTerminal and select **Send Text File**.
- 6 From the **Files of type** pull-down menu, select **All Files (*.*)**.
- 7 Locate and select the keycode file on the PC. Use the **Look in** pull-down menu to select the drive on which the keycode is located.

8 Click **Open**.

The keycode displays after the KUPL prompt.

Example:

```
KUPL 0001PBX 0101  
9FPAMSRHNN17KRUQAFFSPREQEVMTHIDHRKDJHRKEJR56
```

9 Press the Enter key.

The Keycode is checked for CRC errors and is uploaded to the hard disk.

10 To compare keycodes, enter:

For CP PII systems, enter the following command:

KDIF REC HD to compare the existing keycode with the new
keycode on the hard disk

For CP PIV systems, enter the following command:

KDIF REC FMD to compare the existing keycode with the new
keycode on the FMD

Note: If the new keycode *lowers* the license limits or reduces features, do NOT continue the keycode update operation. Contact your Nortel order management representative.

- 11** To select the new keycode for activation, use the KNEW command:

KNEW XX to select the new keycode for activation, where

on CP PII systems

XX = HD for a keycode on the hard drive, or

XX = F1 or F0 for a keycode on the floppy drive on Core 1 or Core 0.

on CP PIV systems

XX = FMD for a keycode on the Fixed Media Device, or

XX = RMD for a keycode on the Removable Media Device on the faceplate CF.

If the new keycode is eligible for instant activation, it is activated without further user action. The following system message displays:

```
CCBR020 New Keycode accepted and activated successfully.  
Sysload is NOT needed!
```

If the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode. The following system message displays:

```
CCBR009 New Keycode accepted. It will be activated during the  
next restart.
```

If KUPL fails, the file is saved to the file “\u\keycode.err.”

- 12** If License limits do not increase, or if any other problems occur, then refer to “Reverting to the previous keycode with the KRVR command” on page 610.

Instant License parameter upgrade for Small Systems

For Small Systems, perform the following steps to instantly activate a keycode without a Sysload.

- 1** Log in and access LD 143

```
>LD 143  
CCBR000  
.
```

- 2 Enter the **UPGRADE** command.

```
. UPGRADE
```

The “Software Installation Main Menu” is displayed:

```
SOFTWARE INSTALLATION PROGRAM
```

```
*****
```

```
Verify Security ID: XXXXXXXX
```

```
*****
```

```
Software Installation Main Menu:
```

1. New Install or Option 11/11E Upgrade - from Software Daughterboard
 2. System Upgrade
 3. Utilities
 4. New System Installation - From Software Delivery Card
- [q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> - redisplay

```
Enter Selection:
```

- 3 Enter **2** for the “System Upgrade” option.

The “Select type of upgrade to be performed” menu is displayed.

```
Select type of upgrade to be performed:
```

1. Option 11/11E to Option 11C
 2. Option 11C New Software Upgrade
 3. Option 11C Feature/Parameter Upgrade
- [q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> - redisplay

- 4 Enter **3** for the “Option 11C Feature/Parameter Upgrade” option.

Note: The following questions require information from the Keycode data sheet. Have it available.

- 5 Indicate that the current Feature Sets and/or Packages remain the same by selecting “n” to the following requests.

- Do you wish to change feature sets? (y/n/[a]bort) : N
Keeping Current Feature Set.
- Do you wish to add packages? (y/n/[a]bort) : N

The current License Parameters are printed to the TTY.

- 6** The License parameters shown below are a sample configuration only.

Current License Parameters :

TNS (10)
AGNT (10)
ACDN (10)
AST (10)
DSL (10)
...
- 7** Do you wish to change any License parameters? (y/n/[a]bort) :
- 8** In response to the prompt “Do you wish to change any License parameters? (y/n/[a]bort) :” enter **y**.
- 9** The License parameters are prompted in sequence. Change the License parameters appropriately, according to the new keycode:

The License parameters shown below are a sample configuration only.

Enter new License parameters, <cr> to leave unchanged:

TNS (10) -
AGNT (10) - 11
ACDN (10) -
AST (10) -
DSL (10) -
...
- 10** After all License parameters have been prompted, the new License parameters are displayed and the prompt “Is this correct?” appears. Enter **y** to continue.
- 11** New License Parameters:

TNS (10) -
AGNT (11)
ACDN (10) -
AST (10) -
DSL (10) -
...
- 12** Is this correct? (y/n/[a]bort) :

- 13** Enter **y** if the new License parameters are correct. If the License parameters are not correct, select **n** and reconfigure the License parameters.
- The system displays the Security ID and Current AUX ID.
- 14** Security ID: XXXXXXXXX
Current AUX ID : XXXXXXXXX
Do you wish to change the AUX ID? (y/n/[a]bort) :
- 15** In response to the prompt “Do you wish to change the AUX ID?,” enter **n**.
- 16** An upgrade summary is displayed. In response to the prompt “Is this correct?,” enter **y** to continue.
- 17** Ensure that the new License limit is shown. In this example the AGNT License limit was changed from 10 -11. The system displays:
AGNT: 10 11
...
Is this correct? (y/n/[a]bort):
- 18** Select **y**. The system prompts for a keycode.
- 19** Enter new keycodes:
Key 1 :
Key 2 :
Key 3 :
- 20** Enter the new keycode. The keycode consists of three keycode strings: Key 1, Key 2, and Key 3. Enter each string and press return.

If the keycodes are entered properly, the system displays:

Keycode validation successful.

Are you sure you wish to perform the upgrade? (y/n/[a]bort) :

- 21** In response to the prompt “Are you sure you wish to perform the upgrade?”, enter **y**.

If the new keycodes is correct for instant activation, it is activated without further user action. The following message displays:

Upgrade was completed and activated successfully.

Sysload is NOT needed!

If the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode. The following message is given:

Upgrade was completed successfully.

Initiate a Sysload to activate the upgrade.

Reverting to the previous keycode with the KRVR command

On Large Systems, the KRVR command can be used to revert to the old keycode “instantly.”

Note: The terms “old” and “new” keycode as discussed here refer to the most recent previous KNEW command. The “old” keycode is the former keycode, prior to the KNEW command. The “new” keycode is the keycode that was activated by the KNEW command.

The old keycode is eligible for instant activation with the KRVR command if the only difference between the old keycode and the new keycode is that some or all of the License parameters in the old keycode are *higher*.

To revert to the old keycode:

- In LD 143, enter the **KRVR** command.

If the keycode is eligible for instant activation, it is activated without further user action. The following system message displays:

CCBR020 New Keycode accepted and activated successfully. Sysload is NOT needed!

If the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode. The following system message displays:

CCBR009 New Keycode accepted. It will be activated during the next restart.

Nortel Integrated DECT

Contents

This section contains information on the following topics:

Feature description	613
Operating parameters	613
Feature interactions	614
Feature packaging	614
Feature implementation	615
Feature operation	616

Feature description

Nortel Integrated DECT (DECT) is an application on the system that allows digital wireless capabilities. With DECT, users can travel around their work sites while answering a call, making a call, continuing a call, or transferring a call. For detailed information, refer to *DECT: Description, Planning, Installation, and Operation* (553-3001-370).

Operating parameters

DECT includes a DECT Mobility Card (DMC) and a DECT Mobility Card Expander (DMC-E). These cards exist in an Intelligent Peripheral Equipment Module of the system. The cards provide and manage the radio network used in wireless service.

On a CS 1000M Cabinet or Meridian 1 PBX 11C Cabinet system, DECT supports a maximum of 630 users. A CS 1000M Chassis or Meridian 1 PBX 11C Chassis supports a maximum of 96 DECT users. Large Systems support a maximum of 1024 users.

Feature interactions

DECT does not require DTI programming in LD 73.

Feature packaging

DECT requires the Meridian Companion Option (MCMO) package 240.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Configure a DECT telephone.
- 2 LD 73 – Configure DECT pad values.

LD 10 – Configure a DECT telephone. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Analog (500/2500 type) telephone.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
WRLS	(NO) YES	Indicates that this TN corresponds to a portable personal telephone or Nortel DECT Handset 4060. Only offered if the MCMO package is equipped.
WYTP	(MCMO) DECT	Wireless type assigns the TN to DECT cards. The WYTP prompt appears when WRLS = YES.
CLS	(CNDD) CNDA	Allows the user to see calling or called name associated with the number dialed if CPND is set up for the customer associated with the portable personal telephone. Permitted only if WRLS = YES.

LD 10 – Configure a DECT telephone. (Part 2 of 2)

Prompt	Response	Description
	(MCRD) MCRA	Multiple Call Arrangement (denied) allowed. Allows privacy on analog (500/2500 type) telephones including both portable and wireline sets. Only offered if the MCMO package or SUPP package is equipped.
	(DTN)	Default digit signaling used by portable personal telephone.

LD 73 – Configure DECT pad values.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	PRI2 PRI	2.0 Mbps/1.5 Mbps PRI data block.
FEAT	PAD	Pad category.
PDCA	1-16	Pad category table.
...		
BRIT	Rx Tx	BRI trunk.
MCM	Rx Tx	DECT pad value, where: R = Receive T = Transmit, and x = pad value (0-26).

Feature operation

No specific operating procedures are required to use this feature.

Integrated Messaging System Link

Contents

This section contains information on the following topics:

Feature description	617
Operating parameters	618
Feature interactions	618
Feature packaging	619
Feature implementation	619
Feature operation	623

Feature description

The primary objectives of Integrated Messaging System (IMS) Link are to replace written telephone messages, to minimize the need for attendant intervention in the leaving and the retrieving of messages, and to support user-to-user automatic voice messaging. These functions are integrated in Integrated Messaging System (IMS) Link capability.

Integrated Messaging System (IMS) Link provides the support required for third-party messaging systems to interface with the system. The calling party can leave voice messages to be retrieved by the called party at any time. Users calling from inside or outside the system can leave and retrieve messages. The messaging system answers the call, delivers a personal greeting (recorded in the user's voice), digitizes the message, stores the message, and notifies the called party of a waiting message. The called party can retrieve and manipulate these messages from any Digitone telephone in the world. The user can issue a variety of commands to save or transfer messages, reply to messages, or broadcast group messages to multiple users.

To retrieve messages, each user must enter an ID code and a password. If the user calls the messaging system from his or her own Directory Number (DN), the ID code need not be entered. Any telephone with Dual Tone Multifrequency (DTMF) or Meridian 1 proprietary telephone signaling can connect to the attendant or to some other predefined DN by pressing 0. Callers with analog (500/2500 type) telephones must wait for a time-out before connecting automatically to the attendant.

The maximum length of a message will vary, depending on the messaging system equipped. User profiles are established to limit the number of messages each user is entitled to store.

Operating parameters

Users within the system must have either Dual Tone Multifrequency (DTMF), or Meridian 1 proprietary telephone signaling capabilities. Users outside the system must have DTMF signaling.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Integrated Messaging System (IMS) package 35, requires the following packages:

- Basic ACD (BACD) package 40
- ACD Package A (ACDA) package 45
- Message Center (MWC) package 46
- Auxiliary Processor Link (APL) package 109

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1** LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.
- 2** LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.
- 3** LD 15 – Add or change the IMS feature for a customer.
- 4** LD 23 – Add or change ACD data for Integrated Messaging System Link feature.
- 5** LD 11 – Add or change IMS attendant capability for each Meridian 1 proprietary telephone.

LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Action Device And Number
IOTB	(NO) YES	(Do not) allow changes to input/output devices.
ADAN	NEW CHG TTY 0-15	Add or change a messaging system link to the system.
- USER	APL	This link is an Auxiliary Processor Link (APL).
TYPE	PARM	System Parameters
- AXQI	(20)-255	Number of call registers to be used for receipt of messages from the messaging system.
- AXQO	(20)-255	Number of call registers to be used for output of messages to the messaging system. Note: If the number of call registers defined for the system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25 percent of the system call registers.

LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Action Device And Number
IOTB	(NO) YES	(Do not) allow changes to input/output devices.
ADAN	NEW CHG TTY 0-15	Add or change a messaging system link to the system.

- CTYP	aaaa	Card type, where: aaaa = DCHI, MSDL, MSPS, SDI, SDI2, SDI4, or XSDI.
- DNUM	0-15	Device number to be printed automatically (same as ADAN number).
- USER	APL	This link is an Auxiliary Processor Link (APL).
TYPE	PARM	System Parameters.
- AXQI	(20)-255	Number of call registers to be used for receipt of messages from the messaging system.
- AXQO	(20)-255	Number of call registers to be used for output of messages to the messaging system. Note: If the number of call registers defined for the system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25 percent of the system call registers.

LD 15 – Add or change the IMS feature for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
OPT	(MCX) MCI	Message Center (excluded) included.
...		
TYPE	IMS	Integrated message service options.
- IMS	(NO) YES	(Do not) allow changes to the IMS feature.
- IMA	(NO) YES	IMS feature (is not) or is enabled.

-- APL	0-15	Port number of the link to the messaging system.
- UST	(NO) YES	User Status Update (UST) feature (is not) or is enabled.
-- APL	0-15	Port number of the link from UST to the messaging system.
- UMG	(NO) YES	User-to-User Messaging (UMG) feature (is not) enabled.
-- APL	0-15	Port number of the link from UMG to the messaging system.

LD 23 – Add or change ACD data for Integrated Messaging System Link feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ACD	ACD Data Block.
CUST	xx	Customer number, as defined in LD 15
ACDN	xxxx	ACD DN (can have up to seven digits if DN Expansion package is equipped).
MWC	(NO) YES	ACD (is not) is an IMS.
- IMS	(NO) YES	(Do not) allow changes to the IMS feature.
-- IMA	(NO) YES	ACD DN (is not) is used as an IMS DN.
-- APL	0-15	Port number of the link to the messaging system.
-- UST	(NO) YES	User Status Update (UST) feature (is not) is enabled.
-- APL	0-15	Port number of the link from UST to the messaging system.
-- UMG	(NO), YES	User-to-User Messaging (UMG) feature (is not) is enabled.
-- APL	0-15	Port number of the link from UMG to the messaging system.
-- RAN	0-30 32-xxx	Route number to the Recorded Announcement (RAN) for UMG (default is no RAN).
-- UMT	0-(6)-15	Time, in seconds, of silent interval after alert tone on RAN.

LD 11 – Add or change IMS attendant capability for each Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(IMD) IMA	This telephone (is not) is an IMS attendant.
LTN	1-253 0-15	Logical Terminal Number assigned to this attendant, port number of the link to messaging system used by this attendant.
KEY	0 ACD xxxx yyyy	Add an INCALLS key, where: xxxx = IMS Directory Number (DN), and yyyy = Agent ID. Note: IMS DN and Agent ID can have up to seven digits if DN Expansion package is equipped
	xx MIK	Add a Message Indication (MI) key.
	xx MCK	Add a Message Cancellation (MC) key.
	xx NRD	Add a Not Ready (NR) key.
	xx MSB	Add a Make Set Busy (MSB) key.

Feature operation

No specific operating procedures are required to use this feature.

Integrated Services Digital Network

Integrated Services Digital Network (ISDN) provides standard digital interfaces between telephones, terminals, and telecommunication networks.

ISDN uses a common signaling protocol transmitted over a dedicated data channel called the D-channel. The D-channel carries call setup and feature activation information to the call destination. This allows users network-wide access to features.

ISDN services are categorized into two types of interfaces: Primary Rate Interface (PRI) and Basic Rate Interface (BRI).

Primary Rate Interface (PRI)

ISDN PRI provides 30B+D 23B+D channels, offering digital connectivity between the system and supported interfaces.

For more information on ISDN PRI, please refer to the ISDN Primary Rate Interface NTPs.

Basic Rate Interface (BRI)

ISDN BRI is a digital connection that provides three digital channels. These channels consist of two 64 kbps bearer channels (B-channels) and one 16 kbps signaling channel (D-channel). This 2B+D connection is known as a Digital Subscriber Link (DSL). The DSL can be configured to provide line access, trunk access, or packet data transmission.

For more information on ISDN BRI, please refer to the ISDN Basic Rate Interface NTPs.

Intelligent Peripheral Equipment Completion

Contents

This section contains information on the following topics:

Feature description	627
Operating parameters	628
Feature interactions	628
Feature packaging	629
Feature implementation	629
Feature operation	635

Feature description

RON/TRON Signaling on XFEM

RON/TRON signaling is required for the Italian Extended Flexible E&M card (XFEM). RON/TRON is similar in operation to the current E&M signaling, the difference being that instead of an Answer Acknowledge, a Seize Acknowledge is sent by the far end and it remains for the duration of the call.

L1 Signaling on XFEM

L1 is a signaling protocol for inter-circuit switched network connections defined by the International Telegraph and Telephone Consultative Committee (CCITT) Q8 recommendation. This signaling is similar to AC15, but introduces two new signals: Seize Acknowledge; and Proceed to Send.

LDR Signaling on Italian DID card (XIDID)

It will be possible to configure Loop Dial Repeat (LDR) signaling on a TIE trunk on an XDID card. LDR signaling on a TIE trunk with an XIDID card operation is similar to LDR signaling on a TIE trunk.

Operating parameters

The following hardware cards are required:

- XFEM – NT5K83GA (for RON/TRON), NT5K83HB (for L1 in Belgium), or NT5K83DB (for L1 in Holland)
- XIDID – NTCK22AA

Feature interactions

B34 Codec Static Loss Download and B34 Dynamic Loss Switching

Whenever a TIE/LDR trunk is configured on an XIDID card, for Static Loss Plan Download (SLPD)/Dynamic Loss Switching (DLS), loss/level is downloaded/switched to an XDID card with the type 12 message. Depending on the Class of Service configured, Non-Transmission Compensated (NTC), Transmission Compensated (TRC), or Via Net Loss (VNL), the TIE unit will be mapped to the following B34 port types: B34 T2WN, B34 T2WT, or B34 T2WV.

Multifrequency Compelled Signaling (MFC) Multifrequency Compelled Signaling for Socotel (MFE)

MFC, MFE, L1 signaling and RON/TRON signaling are mutually exclusive.

Tone to Last Party

This feature provides a special tone (default value is busy tone) to both analog (500/2500 type) telephones and trunks in half disconnect state. The operation of this feature is unchanged for trunks working with L1 or RON/TRON.

Trunk-to-Trunk Connection

The existing restrictions for trunk-to-trunk connections based on trunk type will be applicable to XFEM cards using L1 or RON/TRON signaling.

Partial Dial Timer

This feature limits the interdigit delay to the value of the End-of-dial (EOD) timer, and its functionality is extended to TIE trunks with L1 or RON/TRON signaling.

Feature packaging

There are no new packages introduced with this feature; however, RON/TRON, L1, and LDR on XDID will be packaged with Intelligent Peripheral Equipment (XPE) package 203.

Feature implementation**RON/TRON Signaling on XFEM****Task summary list**

The following is a summary of the tasks in this section:

- 1 LD 16 – Configure a RON/TRON signaling trunk route.
- 2 LD 14 – Configure RON/TRON Signaling trunk.

LD 16 – Configure a RON/TRON signaling trunk route.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
...		
TKTP	TIE	TIE trunk.
CNTL	YES	Change control or timers.
- TIMR		Timer.
	DDL 0-(70)-1023	Dial Delay timer. The DDL timer is set at 512 ms. for the RT (RON/TRON) start arrangement.
	DSI 128-(34944)-499200	Disconnect Supervision timer.
	EOD 128-(13952)-32640	End-of-dial timer.
	ICF 0-(512)-32640	Incoming Flash timer.
	OGF 0-(512)-32640	Outgoing Flash timer. The OGF timer is to be set to 384 ms. for validation of the seize acknowledge message.
	SST xx	Seizure Supervision timer for trunks with delay dial (DDL), wink (WNK), and ground (GRD) start arrangements. xx = a minimum value of 1-(3)-15 seconds for GRD, and five seconds for DDL, WNK, RT (RON/TRON) start arrangement, and L1 signaling.
DTD	YES	Dial tone detection.
MDTD	1-(5)-31	Minimum dial tone detection delay for the route in seconds.
DLTN	(NO) YES	Provide dial tone to the far end.

LD 14 – Configure RON/TRON Signaling trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data or change existing data.
TYPE	TIE	Trunk type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
XTRK	XFEM	Extended Flexible E&M trunk card.
SIGL	EAM	E&M two-wire.
...		
STRI	RT	RON/TRON incoming signaling start arrangement.
STRO	RT	RON/TRON outgoing signaling start arrangement.
CLS	DTN	Digitone.

L1 Signaling on XFEM

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Configure L1 signaling on a XFEM TIE trunk route with Proceed to Send expected after an outgoing seize and answer supervision.
- 2 LD 14 – Configure a L1 Signaling trunk.

LD 16 – Configure L1 signaling on a XFEM TIE trunk route with Proceed to Send expected after an outgoing seize and answer supervision.

Prompt	Response	Description
REQ	NEW CHG	Add new data or change existing data.
TYPE	RDB	Route data block.
...		
TKTP	TIE	Trunk type.
CNTL	YES	Change control or timers.
- TIMR		
	DDL 0-(70)-1023	Dial Delay timer.
	DSI 128-(34944)-499200	Disconnect Supervision timer.
	EOD 128-(13952)-32640	End-of-dial timer.
	ICF 0	Incoming Flash timer.
	OFC 0	Outgoing Flash timer.

SST	xx	Seizure Supervision timer for trunks with delay dial (DDL), wink (WNK), and ground (GRD) start arrangements. xx = a minimum value of 1-(3)-15 seconds for GRD, and five seconds for DDL, WNK, RT (RON/TRON) start arrangement, and L1 signaling.
DTD	NO	Dial Tone Detection.
MDTD	1-(5)-31	Minimum Dial Tone Detection Delay for route in seconds.
DLTN	NO	Provide Dial Tone to the far end.

LD 14 – Configure a L1 Signaling trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data or change existing data.
TYPE	TIE	Trunk type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
XTRK	XFEM	Extended Flexible E&M Trunk Card.
SIGL	WR4	AC15 Four-wire signaling; CEPTL1 Signaling.
...		
STRI	PTSD	Proceed-to-send to be sent upon receipt of an incoming seize.
STRO	PTSD	Proceed-to-send expected after generation of an outgoing seize.

SUPN	YES	Answer Supervision.
CLS	DTN	Digitone.

LDR signaling on XIDID

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Configure LDR signaling on XIDID trunk route.
- 2 LD 14 – Configure LDR signaling on XIDID trunk.

LD 16 – Configure LDR signaling on XIDID trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add new data or change existing data.
TYPE	RDB	Route data block.
...		
TKTP	TIE	Trunk type.
...		

LD 14 – Configure LDR signaling on XIDID trunk.

Prompt	Response	Description
REQ	NEW	New.
TYPE	TIE	TIE trunk data block.

TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
XTRK	XDID	Extended DID trunk card.
SIGL	LDR	Loop Dial repeating.
LDOP	LOOP	Loop outputting for LDR signaling.
BIMP	600	Balance impedance 600 ohms.
STRI	IMM	Immediate incoming start arrangement.
STRO	IMM	Immediate outgoing start arrangement.
...		
SUPN	YES	Answer and disconnect supervision required.
CLS	NTC	Non-transmission compensated.

Feature operation

No specific operating procedures are required to use this feature.

Intelligent Peripheral Equipment Software Support Enhancements

Contents

This section contains information on the following topics:

Feature description	637
Operating parameters	638
Feature interactions	639
Feature packaging	639
Feature implementation	640
Feature operation	642

Feature description

This feature provides software enhancements to the XFEM, XFALC, XFCOT, XDID, and XTD cards. The new functionalities are as follows:

- XFEM – An E&M signaling type is introduced for EAM or EM4/WR4 configurations. The BPO signaling type can be selected as an answer to the EMTY prompt. BPO is sometimes referred to as Type V signaling.
- XFALC – Some previously hard-coded timers can now be configured on a per-system basis, including off-hook validation, minimum time for dial pulse, interdigit timer, maximum time for dial pulse, and the existing post-flash timer.

- XFCOT – The Autoguard function is enhanced with an Autoguard Repeat Prevention (ATP) timer. This timer denies outgoing calls on a trunk after seize failure during the time configured for ATP. Fastguard functionality is added to prevent call collision between incoming and outgoing calls. If a Fastguard message is received from a Central Office Trunk (COT), the trunk unit is made busy immediately, thus avoiding any outgoing call to seize this unit which would drive it back to a glare state.
- XDID – This allows the Balance Impedance Adjustment to be configurable and downloadable.
- XTD – Auto configuration of the XTD card with the XTD Table 0 parameters can now be enabled. If different parameters are required for a specific XTD card, a new XTD table must be configured in LD 97. This specific card has to be manually reconfigured with the newly defined XTD table.

Operating parameters

The BPO signaling type is downloaded to the XFEM card using two hardware IDs: EAM_BPO and EM4_BPO. These IDs are supported on the Dutch XFEM card NT5K83DA, and the Italian XFEM card NT5K83GA.

The flexible XFALC Timer Download is supported on the country-specific XFALC cards NT5K20XX, where XX is the country-specific suffix.

Fast guard is supported on the New Zealand NT5K18BA, and Australia NT5K82BA/CA XFCOT cards.

The ARP timer for enhanced Autoguard applies only to Intelligent Peripheral Equipment (IPE) analog loop-start CO trunks.

XTD auto configuration is supported on the global XTD card NT5K48AA.

The Fastguard functionality only applies for incoming Loop Start CO trunks.

Auto configuration of an XTD card takes place:

- If an XTD card is inserted in a slot of an IPE shelf for which nothing is configured in the software. In such a case, XTD Table 0 parameters are used, and all units have DTD and DTR capability.
- If an XTD card is inserted in a slot of an IPE shelf for which at least one XTD unit is already configured in software. In that case, all non-defined units are automatically configured with the same XTD Table number as the unit(s) that are already defined. The newly configured units have DTD and DTR capability.

Feature interactions

The XFCOT has the following interactions with Loop Start Public Exchange/Central Office trunks:

- Fastguard – seizure of an incoming trunk can be done by sending either a Ring Burst or Fastguard message from the firmware to the software.
- ARP – the ARP timer replaces the hard coded 3s timer.
- The Office Data Administration System (ODAS) provides a method of retrieving administrative information stored in system memory, such as the date that a feature package was last modified by a service change. Pertaining to XTD, whenever an XTD unit is created with Auto configuration, the system date when Auto configuration took place is stored at the end of the terminal number (TN) list.

Feature packaging

Intelligent Peripheral Equipment Software Support Enhancements require Intelligent Peripheral Equipment (XPE) package 203. The following packages are also required:

- Multi-party Operations (MPO) package 141
- International Supplementary Features (SUPP) package 131
- Automatic Card Installation (AINS) package 200
- Dial Tone Detector (DTD) package 138

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 14 – Configure XFEM BPO trunk type signaling, and the Balance Impedance Adjustment on XDID trunk.
- 2 LD 16 – Configure the Autoguard Repeat Prevention timer for the route.
- 3 LD 97 – Configure the five XFALC timers to support downloading.

LD 14 – Configure XFEM BPO trunk type signaling, and the Balance Impedance Adjustment on XDID trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data.
XTRK	XFEM	Extended E&M trunk card.
...		
SIGL	EAM EM4 WR4	E&M 2, 4 wire and AC15 4 wire.
...		
EMTY	(ty2) ty1 BPO XBPO	4 wire E&M (type 2) or type 1 or BPO. XBPO is used to suppress the BPO trunk type and signaling option in case of EM or WR4 type signaling.
XTRK	XDID	Extended DID trunk card.
...		
BIMP	(3COM) 600	Balance impedance.

LD 16 – Configure the Autoguard Repeat Prevention timer for the route.

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data.
TYPE	RDB	Route Data Block.
...		
CNTL	YES	Responding YES to this prompt will display the TIMR prompt below.
TIMR	ARP 1-(3)-255	Autoguard Repeat Prevention timer. For Australia, the recommended value of ARP is 200 seconds.

LD 97 – Configure the five XFALC timers to support downloading.

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data.
FLSH	xxx yyyy	Flash timing
TOHV	0-(250)-1275	Off-hook validation timer, in milliseconds.
TDP	(15)-1275	Minimum time for dial pulse, in milliseconds.
TID	0-(150)-1275	Interdigit timer, in milliseconds.
TDPO	15-(150)-1275	Maximum time for dial pulse, in milliseconds.
TPF	0-(200)-1275	Post-flash timer, in milliseconds. Prompted only if MPO is equipped.

Note: For Timer Settings, the value set for the TDP timer must be less than or equal to the setting for the switchhook flash timer. The TDPO timer must be greater than the TDP timer. All timer values must be entered in five milliseconds increments. Otherwise, the value is rounded to the closest inferior multiple of five.

Feature operation

No specific operating procedures are required to use this feature.

Intercept Computer Dial from Directory

Contents

This section contains information on the following topics:

Feature description	643
Operating parameters	644
Feature interactions	644
Feature packaging	649
Feature implementation	650
Feature operation	651

Feature description

An Intercept Computer (ICP) is an external information system that can be added to enhance attendant operation. Whenever an attendant answers an internal direct call, or any redirected call due to ICP Call Forwarding (CFW), the Intercept Computer Terminal (ICT) screen is lit up with information regarding either the caller (for internal calls), or the “called” party (for redirected calls). This information is presented to the attendant who can then give the appropriate information to the caller. For an external call, no information is displayed on the ICT screen.

With the Intercept Computer Dial from Directory feature (ICPD), the attendant does not need to dial the DN from the attendant console; pressing a single key on the ICT keyboard connects the call to the DN, thereby saving the attendant time.

An ICP can be programmed with a directory of the internal Directory Numbers (DNs) in the system. From the ICT, the attendant can search the ICP database for a specific person by name, in order to find that person's DN, according to a coordinated dialing plan (CDP). Again, pressing a single key on the ICT keyboard connects the call to the corresponding DN.

This feature is implemented using LD 15.

Operating parameters

The ICP feature must be configured for all related customers, and the ICP computer must be configured with the DNs that exist for these customers.

This feature is not available for either of the following intercept positions: ACD Agents; or the ICP Answering Machine.

It is only possible to dial from the ICT if the active loop is idle, or has only one part established in a call with the attendant (on Source (SRC) or Destination (DEST) side).

This feature does not support any dialing plan, other than CDP (since this is an already existing limitation of the networking part of the ICP feature).

A maximum of seven digits per incoming message can be received by the circuit switched network.

Feature interactions

Pre-dial Operations

Attendant Barge-in

It is possible for an attendant to Barge-in, in the following manner:

- Press an idle loop key, and press the Barge-in key from the attendant console.
- Dial a Route Access Code and Route Member from the ICT.

Attendant Busy Verify

It is possible for an attendant to Busy Verify in the following manner:

- Press an idle loop key, and press the Busy Verify key on the attendant console, and
- Dial an extension DN from the ICT.

Pre-dial Break-in

It is possible for an attendant to override call forward on a set in the following manner:

- Press an idle loop key, and press the Break-in key on the attendant console.
- Dial an extension DN from the ICT.

Call Forward/Hunt Override via Flexible Feature Code

Call Forward Hunt Override via Flexible Feature Code can be dialed prior to dialing the DN from the ICP.

Call Park

An attendant can park a call in the following manner:

- Press the Call Park key on the attendant console.
- Dial a DN from the ICT.
- Terminate Call Park operation by pressing the Release key.

Radio Paging Pre-dial Selection

It is possible to start automatic paging in the following manner:

- Dial the pre-dial selection RPA FFC on the attendant console.
- Dial a DN from the ICT.

Manual radio paging is started as follows:

- Dial the pre-dial selection RPA FCC on the attendant console.
- Dial a DN from the ICT.
- Dial a mode digit, digit information and octothorpe “#” sign.

Post-dial Operation

Attendant Break-in

An attendant can break-in to a call by:

- Dialing an extension DN from the ICT.
- Pressing the Break-in key on the attendant console.

Automatic Wake-up

This feature can be requested as follows:

- Press the Wake-up key on the attendant console.
- Dial a DN from the ICT.
- Dial an octothorpe sign “#”, and terminate by dialing the requested wake-up time from the attendant console.

The same approach is used to cancel Automatic Wake-up.

Radio Paging Post-dial Selection

To start radio paging an extension DN:

- Dial a DN from the ICT.
- Press the RPA Post-dialing Paging (RPAG) key on the attendant console.

Stored Number Redial

An attendant can dial an extension from the ICT, and then press the Stored Number Redial key to store the called number (following the rules of the Stored Number Redial feature).

Other Feature Interactions

Attendant Recall with Splitting

If a set transfers a call to the attendant, or a Meridian 1 proprietary telephone presses the Attendant Recall (ARC) key and the transferring party has not yet completed the transfer before the attendant answers, it is not possible to dial from the ICP (since the transferred party is connected to SRC, and the transferring party is connected to DEST).

Autodial

It is possible to press the Autodial (ADL) key (in which some digits are stored such as an Electronic Switched Network (ESN) code or Flexible Feature Code (FCC)), and then dial a DN from the ICP. The DN will then be stored on the ADL key.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion can be activated by dialing an extension DN from the Intercept Computer Terminal, and then pressing the BKI key on the attendant console.

Do Not Disturb

This feature can be activated for an extension DN as follows:

- Press an idle Loop key, and press the Do Not Disturb Individual (DND IND) key on the attendant console.
- Dial a DN from the ICT.
- Press the DND IND key once more, and terminate the procedure by pressing the Release key on the attendant console.

The same approach applies when cancelling Do Not Disturb for a set.

To override Do Not Disturb for an extension DN:

- Press an idle Loop key on the attendant console.
- Dial a DN from the ICT.
- Press the DND IND key on the attendant console.

Message Waiting Indication

To activate the message waiting lamp:

- Press the Loop key and the Message Indication (MSG INDIC) key on the attendant console.
- Dial the set's DN from the ICT.
- Press the Message Indication key and the Release key on the attendant console.

The same approach can be used to turn off a Message Waiting lamp by using the Message Cancel key instead of the MSG INDIC key.

Multi-Tenant Service

The ICP Dial from Directory feature only works at the customer level. If several tenants are configured for a customer, they will all be affected by the ICTD prompt in LD 15.

Network Tenant Service

The ICP Dial from Directory feature only works at the customer level and for a single node. If several tenants are configured in a network situation, they will all be affected by how the ICTD prompt in LD 15 has been configured for the customers on different nodes.

Night Key Position Busy

If the attendant console has the Night key activated (for instance, it is busy or in Night Service), it is still possible to dial from the ICT.

Slow Answer Recall Enhancement

If the attendant extends an SRC party to a DEST party on the local node, but slow answer recall occurs since the DEST does not answer, it is possible to dial a new DN from the ICP (the DEST is disconnected when the attendant answers).

Transfer to Attendant

If a set transfers a call to the attendant, and the transferring party has not yet completed the transfer before the attendant has answered, dialing from the ICP is ignored (the transferred party is connected to SRC, and the transferring party is connected to DEST due to the Attendant Recall with Splitting feature).

Feature packaging

This feature is packaged under the Intercept Computer Interface (ICP) package 143.

The following packages are also required:

- Automatic Call Distribution Package A (ACDA) package 45
- Message Center (MWC) package 46
- Auxiliary Processor Link (APL) package 109
- International Supplementary Features (SUPP) package 131
- Flexible Feature Codes (FCC) package 139
- Flexible Tones and Cadences (FTC) package 125

To use the ICP Flexible DN length, DN Expansion (DNXP) package 150 is required.

To be able to use ICP in a network environment the following packages are needed: Integrated Services Digital Network (ISDN) package 145; 1.5 Mbit Primary Rate Access (PRA) package 146; and Network Attendant Service (NAS) package 159.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Allow or deny an intercept attendant to dial an extension DN from the Intercept Computer Terminal.
- 2 LD 15 – Set the minimum and maximum switchhook flash time required when using package 131.
- 3 LD 21 – Print Intercept Computer Dial from directory system information.

LD 15 – Allow or deny an intercept attendant to dial an extension DN from the Intercept Computer Terminal.

Prompt	Response	Description
REQ:	NEW CHG	New, or change.
TYPE:	ICP	Intercept Computer data block.
...		
- ICP	(NO) YES	Intercept Computer.
...		
- ICPD	(0)-9	ICP Padding digit.
- ICTD	(NO) YES	Intercept Computer Treatment Dial from directory. This prompt allows an intercept attendant position to dial an extension DN from the Intercept Computer Terminal. It is only prompted if ICP is set to "YES".

LD 15 – Set the minimum and maximum switchhook flash time required when using package 131.

Prompt	Response	Description
REQ:	NEW CHG	New, or change.
TYPE:	TIM	Timers data block.
...		
- FLSH	xxx yyy	Switch Hook Flash timer.

LD 21 – Print Intercept Computer Dial from directory system information.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	CDB	Customer data block.
...		
ICPD	(0)-9	ICP Padding digit.
ICTD	(NO) YES	Intercept Computer Treatment Dial from directory. It is only prompted if ICP is set to "YES".
FLSH	xxx yyy	Switch Hook Flash timer.

Feature operation

ICTD = NO

When this feature is not activated, there is no change in attendant operations.

ICTD = YES

When this feature is activated, instead of dialing from the console, it is possible for an attendant to press a single key on the Intercept Computer Keyboard.

ICTD = YES operation examples

Attendant console is idle

The attendant console is idle, all lamps are dark, the display is blank, and the Release key is lit. On the ICT the attendant types the name of the called party. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

After the attendant presses the Dial from Directory key on the ICT keyboard, the Release lamp is dark, the Loop lamp for loop "0" is lit, and the SRC lamp on loop "0" is slowly winking. The attendant console display shows DN 4004. Set 4004 is ringing.

The attendant console was idle when dialing was performed from the ICP computer (the call was handled as if it was initiated from the attendant console).

Attendant console has established a call on SRC

The attendant is talking with the SRC party (DN = 4002 and ATDN is displayed), loop key "0" is lit, the SRC lamp is lit, and the DEST lamp is dark. The SRC party desires to be extended to party A. On the ICT the attendant types the name of party A. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

After the attendant presses the Dial from Directory key on the ICT keyboard, the DEST lamp is slowly winking, the Loop lamp for loop "0" is still lit, the SRC lamp on loop "0" is still lit. The attendant console display shows DN 4004. Set 4004 is ringing.

The attendant was connected to the SRC party (DN 4002) when dialing from the ICP computer (the call was handled as if it was initiated from the attendant console).

Attendant has call on Hold

The attendant is talking to SRC (DN 4002) and DEST (DN 4004) on loop “0”, and then puts the call on hold by pressing another Loop key, or by pressing the hold key and an idle Loop key. Loop lamp “0” is now winking; the new loop key is lit. The display is cleared.

From the ICT the attendant has typed the name of the party to be called. The ICP database is scanned to get information about this party. The information, including extension DN 4009, is then displayed on the screen.

After the attendant presses the Dial from Directory key on the ICT keyboard, the SRC lamp for this loop is winking. The attendant console shows DN 4009. Set 4009 is ringing.

A new loop key was selected before dialing from the ICP; the held call was not affected by this operation (the call was handled as if it was initiated from an idle loop key).

Idle attendant dials from both the attendant console and ICT

The attendant is idle, all lamps are dark, the display is empty, and the Release key is lit. On the ICT the attendant types the name of the called party. The ICP database is scanned to get information about this person. The information, including extension DN 4009, is then displayed on the screen (information that this person could be radio paged using “*81*” is also displayed).

The attendant desires to page this person, and dials an RPAX FFC code from the attendant console. The Release lamp gets dark, the Loop “0” lamp gets lit, and the SRC lamp on loop “0” is slowly winking. The attendant console display shows RPA FFC “*81*”.

After the attendant presses the Dial from Directory key on the ICT keyboard, the DN sent from the ICP is now displayed after the RPA FFC. The paging has started and ringback tone is provided. Two dialing phases have been handled: dialing the FFC code from the console; and adding the DN from the ICT (the call was handled as if it was initiated entirely from the attendant console).

Attendant is connected to DID/CO on SRC

DID/CO releases before dialing from ICT

The attendant is talking with the SRC party (a DID/CO trunk); Route access code, Route member, and ATDN are displayed, Loop key “0” is lit, SRC lamp is lit, and DEST lamp is dark. The SRC wants to be extended to party A. On the ICT the attendant types the name of party A. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

The SRC goes on-hook, then the attendant presses the Dial From Directory key on the ICT keyboard. The DEST lamp is dark, Loop lamp “0” is still lit, and the SRC lamp on loop “0” is now winking. The attendant console display only shows DN 4004 (as SRC). Set 4004 is ringing. The DID/CO trunk is disconnected.

When the DID/CO trunk disconnects, the call dialed from the ICP will appear as a new call started from an idle attendant console (the call was handled as if it was initiated from an idle attendant console).

DID releases after dialing from ICT

The attendant is talking with the SRC party (a DID trunk); Route access code, Route member, and ATDN are displayed, Loop key “0” is lit, SRC lamp is lit, and DEST lamp is dark. The SRC wants to be extended to party A. On the ICT the attendant types the name of party A. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

The Attendant presses the Dial From Directory key on the ICT keyboard. Then the SRC goes on-hook. The SRC lamp is dark, Loop lamp “0” is still lit. The attendant console display shows the Route access code, Route member, and ATDN on the source line, and DN 4004 on the destination line. Set 4004 is ringing. The DID trunk is disconnected.

When the DID trunk disconnects, the call dialed from the ICP will remain on the DEST side (the call was handled as if it was initiated from an idle attendant console).

Intercept Computer Enhancements

Contents

This section contains information on the following topics:

Feature description	655
Operating parameters	656
Feature interactions	656
Feature packaging	656
Feature implementation	656
Feature operation	658

Feature description

When an intercept transfer is activated from a customer or tenant extension, it can be configured so that only external calls are forwarded to the external intercept DN (ECDN). The internal calls are forwarded to an answering machine, or the internal intercept DN (ICDN). This applies only if the extension's flexible call forward no answer DN (FDN) is not configured as an intercept position.

The answering machine must be a multi-channel machine, connected to both the system switch and Intercept Computer. The channels are 2500-type sets, defined in a group hunt list for the answering machine. The group hunt list contains 2500-type sets with a Class of Service of Intercept Computer Answering Machine Allowed (IAMA). The Pilot DN for the Group Hunt List is defined as the ICDN, allowing calls intercepted at the Intercept Computer to terminate on the answering machine.

Operating parameters

Analog (500/2500 type) telephones can be used as Automatic Call Distribution (ACD) agent sets.

The answering machine must have a 2500-type set interface to the system.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Configure Intercept Computer Answering Machine Class of Service.
- 2 LD 15 – Configure internal and external call DNs for Intercept Transfer.
- 3 LD 93 – Configure internal and external call DNs for attendant console groups.

LD 10 – Configure Intercept Computer Answering Machine Class of Service.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	500/2500 telephone data block.
...		
CLS	(IAMD) IAMA	ICP Answering Machine (denied) allowed. Allow a 2500 set to be a channel in the ICP Answering Machine.

LD 15 – Configure internal and external call DN's for Intercept Transfer.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	ICP	Intercept Computer update
...		
- ICDN	xxxx	Internal Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used or intercept treatment for internal calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later.
- ECDN	xxxx	External Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used for intercept treatment for external calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later.

LD 93 – Configure internal and external call DN's for attendant console groups.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	a...a	Type of data block (a...a = ACG, CPG, CPGP, RACC, RACG, RCPG, TACC, TACG, TCPG, TENS, or TGEN).
...		
- ECDN	xxxx	External Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used for intercept treatment for external calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later. Prompted with Intercept Computer Interface (ICP) package 143.
- ICDN	xxxx	Internal Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used or intercept treatment for internal calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later.

Feature operation

No specific operating procedures are required to use this feature.

Intercept Computer Interface

Contents

This section contains information on the following topics:

Feature description	659
Operating parameters	661
Feature interactions	661
Feature packaging	662
Feature implementation	662
Feature operation	666

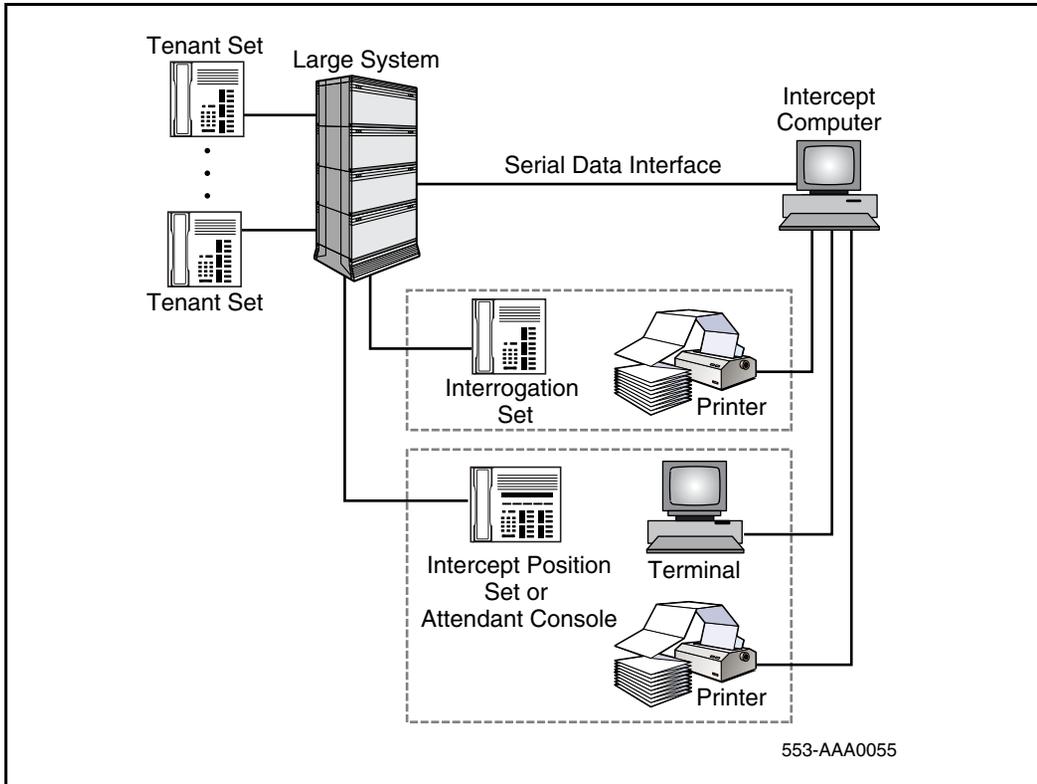
Feature description

This feature allows the system to use an intercept (attendant assistance service) computer for storing and retrieving call messages. Calls to an absent tenant's directory number (DN) using this feature are routed to a designated Intercept Position (ICP) DN.

The feature can be activated or deactivated by the following:

- A Flexible Feature Code (FFC) dialed from the tenant's telephone. This code specifies the reason for the tenant's absence and can be extended with a date and time as extra information. The FFC decodes into a text message.
- Pressing the Call Forward All Calls (CFW AC) key on a digital telephone (deactivation).

Figure 16
Intercept Computer Interface components



- From the ICP terminal.
- Automatically when a terminal number (TN) is disabled or enabled by a maintenance overlay program.

The feature is available to all analog (500/2500 type) telephones and Meridian 1 proprietary telephones. Any analog (500/2500 type) telephone can be designated to be an interrogation set. This is given a special FFC to allow the printing of messages for any or all DNs. The attendant (ATT) and Meridian 1 proprietary telephones can be used as an ICP.

A multiple channel answering machine can be connected to both the system and Intercept Computer. The machine is defined in the system as a Group Hunt list, and the Pilot Directory Number (PLDN) is used to terminate on the Answering Machine after a call has been diverted by the ICP feature. A 2500-type set may be designated as a channel in the ICP answering machine in LD 10. The set must have a Digitone (DTN) Class of Service.

Operating parameters

An analog (500/2500 type) telephone can only be used as an interrogation set, not as an ICP.

The number of ports available to the intercept computer is typically less than 12 (the number of TTY ports less those used for maintenance, service change, and traffic).

The CFW AC LED on the tenant's telephone is used to indicate both the CFW AC and this feature.

It is not possible to change or remove an ICP station by way of the LD 71 and 72.

Each digital telephone must have one CFW AC key and possibly one message-waiting key on the LED key lamp strip (if the tenant requires this type of indication). These two LEDs are turned off automatically when the Intercept Computer Interface feature is deactivated (by dialing a FFC).

This feature makes use of the Message Center (MC) and Automatic Call Distribution (ACD) features. The ICP must be configured as an MC ACD DN or MC attendant DN.

This feature and CFW AC feature are not to be activated at the same time.

ICP and Integrated Messaging Services (IMS) cannot be used at the same time for the same customer.

Feature interactions

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the ICP Call Forward feature. If the dialed DN of the set that has the ICP Call Forward feature active is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

The Intercept Computer Interface feature is not supported in a DPNSS1 UDP network.

Feature packaging

Intercept Computer Interface (ICP) package 143.

Dependencies:

- Automatic Call Distribution Package A (ACDA) package 45
- Auxiliary Processor Link (APL) package 109
- Flexible Feature Codes (FFC) package 139
- Flexible Tone and Cadences (FTC) package 125
- Message Waiting Center (MWC) package 46, and
- International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Configure the configuration record for Intercept Computer Interface.
- 2 LD 15 – Configure the customer data block for Intercept Computer Interface.
- 3 LD 10 – Create or modify the analog (500/2500 type) telephone data block for Intercept Computer Interface.
- 4 LD 11 – Create or modify the Meridian 1 proprietary telephone data block for Intercept Computer Interface.
- 5 LD 12 – Create or modify the attendant console data block for Intercept Computer Interface.

- 6 LD 23 – Modify the ACD/Message Center parameters for Incoming Call Indicators (ICIs).
- 7 LD 93 – Enable or modify the Multi-tenant Service feature.

LD 17 – Configure the configuration record for Intercept Computer Interface.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN	Configuration data block.
IOTB	(NO) YES	Change to logical units.
ADAN	NEW TTY x	Add TTY number x.

LD 15 – Configure the customer data block for Intercept Computer Interface.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB	Customer Data Block.
...		
- OPT	MCI	Message center included.
TYPE	IMS	Gate opener.
...		
- IMS	YES	Integrated messaging services excluded.
TYPE	ICP	Gate opener.
...		
- ICP	(NO) YES	Intercept Computer is (is not) available.
- NIPN	0-99	Number of intercept positions.

LD 10 – Create or modify the analog (500/2500 type) telephone data block for Intercept Computer Interface.

Prompt	Response	Description
REQ:	NEW, CHG	Add, or change.
TYPE:	500	500/2500 Telephone data block.
...		
CLS	(IRGD) IRGA	Interrogation set for Intercept Computer allowed (denied).
	(IAMD) IAMA	Allow a 2500-type set to be a channel in the ICP Answering Machine (CLS DTN is required).
ICT	0-NIPN	Terminal/printer number (NIPN configured in LD 15).

LD 11 – Create or modify the Meridian 1 proprietary telephone data block for Intercept Computer Interface.

Prompt	Response	Description
REQ:	NEW, CHG	Add, or change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
...		
CLS	(IPND) IPNA	Terminal/printer number (NIPN configured in LD 15).
ICT	0-NIPN	Terminal/printer number (NIPN configured in LD 15).

LD 12 – Create or modify the attendant console data block for Intercept Computer Interface.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	a...a	Attendant data block.
...		

ICP	(NO) YES	Intercept Computer (is not) is available.
ICT	0-NIPN	Terminal/printer number (NIPN configured in LD 15).

LD 23 – Modify the ACD/Message Center parameters for Incoming Call Indicators (ICIs).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ACD	ACD data block.
...		
ICP	(NO) YES	ACD MC (is not) is an intercept position.
ICPS		Intercept Computer printer search.
	COM	Common printer for ACD group.
	(CIR)	Circular hunt.

LD 93 – Enable or modify the Multi-tenant Service feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	a...a	Type of data block.
...		
ICP	(NO) YES	ACD MC (is not) is an intercept position.
ICPS		Intercept Computer printer search (when more than one console is used).
	(CIR)	Circular search.
	COM	One common printer for all consoles.

Feature operation

A terminal at the ICP displays a message stating why the tenant at the DN is absent. The person at the ICP can then store the caller's message for the tenant's DN and activate the message waiting LED at the tenant's telephone. The tenant at the DN retrieves the stored caller messages by calling the ICP, where the messages are displayed on the terminal (or optionally printed).

Intercept Treatment

Contents

This section contains information on the following topics:

Feature description	667
Operating parameters	668
Feature interactions	669
Feature packaging	671
Feature implementation	671
Feature operation	672

Feature description

Calls that cannot be completed because of call restrictions or dialing irregularities can be routed to a Recorded Announcement (RAN), to the attendant, or to hear overflow, or busy tone. Separate treatments can be specified for calls from the following categories of originating party:

- Telephones
- Attendants
- attendant originated
- attendant extended
- TIE trunk, or remote attendant or telephone, and
- Controlled Class of Service Allowed (CCSA) or Direct Inward Dialing (DID) trunk.

Operating parameters

When Intercept to RAN is desired, a recording device is required. A Recorded Announcement (RAN) route and at least one trunk must be defined (see the RAN feature module).

Intercept Treatment (INTR) for these types of calls can be specified in the Customer Data Block (LD 15) for the situations listed in Table 13.

Table 13
Intercept Treatment for various types of calls.

Intercept situation	Telephone	Attendant extended calls	Calling Party TIE trunk (including attendant)	CCSA/DID trunk
Access denied (ACCD)	C(O)	C(O)	C(O)	C(A)
Call to vacant number (CTVN)	C(O)	C(O)	C(O)	C(A)
Maintenance busy number, RPE failure (MBNR)	C(O)	C(O)	C(O)	C(A)
Code or toll restricted call by Toll Denied (TLD) station or TIE trunk (CTRC)	C(O)	NA	C(O)	NA
Calls to LDNs (CLDN)	C(O)	C(O)	C(O)	NA
<p>O = overflow tone A = intercept to the attendant C = choice of overflow tone, attendant, or Recorded Announcement (RAN) NA = not applicable</p> <p>Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with "C", a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.</p>				

Feature interactions

Basic/Network Alternate Route Selection (BARS/NARS)

Table 14 specifies the type of Intercept Treatments (INTR) available for BARS/NARS calls, and lists the intercept situations that are possible.

Table 14
Intercept Treatment for BARS/NARS calls

Intercept situation	Station or DISA	Originating party		
		Attendant extended calls	TIE trunk (including attendant)	CCSA/DID trunk
BARS/NARS invalid (NINV)	C(O)	C(O)	C(O)	C(A)
BARS/NARS invalid translation (NITR)	C(O)	C(O)	C(O)	C(A)
BARS/NARS restricted (NRES)	C(O)	C(O)	C(O)	C(A)
BARS/NARS blocked (NBLK)	C(O)	C(O)	C(O)	C(A)
O = overflow tone A = intercept to the attendant C = choice of overflow tone, attendant, or Recorded Announcement (RAN) Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with "C", a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.				

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

The NARS blocking treatments that can be defined through the Intercept Treatment feature are applicable to a DPNSS1 UDP network.

Flexible Feature Codes

If Intercept Treatment has been specified for a call to a vacant number (CTVN), the Digit Display (DDs) on the attendant console is affected by Flexible Feature Codes (FFCs). If no FFC has been defined, the dialed digits are displayed up to and including the first digit that fails to match any Directory Number (DN). If one or more FFCs have been defined, the dialed digits are displayed, up to and including the first digit that fails to match any FFC.

Ring Again on No Answer

A telephone that is intercepted to the attendant cannot apply Ring Again on No Answer.

Source Included when Attendant Dials

If the attendant dials a destination which is intercepted, the source remains included in the call.

Teletype Terminal Access Control in Multi-customer Environment

The Intercept Computer (ICP) feature uses maintenance LD 51 to update the system with the intercept service interface information that it stored. This overlay logs off after five minutes if no messages have been received from the Intercept Computer. This five-minute period takes precedence over the value entered in response to the LOUT prompt in LD 17. If this value is less than five minutes, the system will wait for five minutes before logging off.

Total Redirection Count

Intercept treatment is not given if a call is a Network Automatic Call Distribution (NACD) ACD call, if a call is a Central Office trunk in Night Service (specific treatment is given rather than customer-defined intercept treatment), or if the call is a data call (overflow tone is automatically given).

Trunk Barring

A telephone that is intercepted to the attendant cannot apply Ring Again on No Answer.

When an Originating Trunk Connection (OTC) attempts a trunk connection to a route that is restricted by its Access Restricted Table, the connection is not allowed. The intercept treatment specified in the Customer Data Block is applied.

Virtual Network Services

Intercept treatment applied to Virtual Network Service calls is configured as for TIE trunks.

Feature packaging

This feature requires Intercept Treatment (INTR) package 11.

Feature implementation

LD 15 – Change customer’s Intercept Treatment for various call types.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	INT	Intercept treatment options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
INTR	(NO) YES	Allow changes to intercept treatments.
- ACCD	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to access-denied numbers.
- CTVN	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to vacant numbers.
- MBNR	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to maintenance busy numbers.

- CTRC	(OVF NAP OVF NAP)	Default Intercept Treatment for a code or toll restricted call by a toll restricted station or TIE trunk.
- CLDN	(NAP OVF NAP NAP)	Default Intercept Treatment for calls to a Listed DN.
- NINV	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS invalid calls.
- NITR	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS invalid translation calls.
- NRES	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS restricted calls.
- NBLK	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS blocked calls.
- - RANR		RAN route number for "Authcode Last" prompt (NAUT)
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

Feature operation

No specific operating procedures are required to use this feature.

Intercept Treatment Enhancements

Contents

This section contains information on the following topics:

Feature description	673
Operating parameters	674
Feature interactions	674
Feature packaging	674
Feature implementation	674
Feature operation	674

Feature description

The following three intercept treatments are added for Multifrequency Compelled (MFC) Signaling:

MFC Call to Vacant Office Code

This treatment is used when a VACO level 1 signal is received from the far end.

MFC Call to Vacant Number Code

This treatment is used when a VACC level 2 signal is received from the far end.

MFC Congestion

This treatment is used when a CONG level 1 or 2 signal is received from the far end.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Dependency:

- Multifrequency Compelled Signaling (MFC) package 128.

Feature implementation

LD 15 – Modify the Customer Data Block.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	INT	Intercept Treatment options
...		
- MFVO	OVF ATN RAN NAP BSY	MFC Call to Vacant Office. Four entries are required; Default = OVF, OVF, OVF, ATN.

Feature operation

No specific operating procedures are required to use this feature.

International Meridian 1

Contents

This section contains information on the following topics:

Feature description	675
Operating parameters	676
Feature interactions	677
Feature packaging	678
Feature implementation	678
Feature operation	680

Feature description

International Meridian 1 is a feature that implements a number of significant changes to system architecture, packaging, power and performance. It consists of:

- the reformatting of terminal numbers (TNs)
- changes to call processing (to support Superloop)
- system performance improvements, and
- the support of future telephones for the system.

32 TNs will be supported by each Extended Line Card (XDLC) card. Each shelf can support a maximum of 16 cards.

Superloop provides an increase in traffic capacity by implementing 120 time slots for each Extended Network (XNET) Card, combining loops into groups of four, and sharing resources across the four loops. Each Extended Peripheral Equipment Controller can support between one half and four Superloops, regardless of combination, in XNET Card to DS-30X loop configurations.

The Extended Peripheral Equipment Controller packs allow monitoring of power and control functions for individual line cards. These packs also control the ringing cadences for analog (500/2500 type) telephones (set in firmware). The packs communicate with the system by way of the XNET card, which in turn communicates directly with the system using the time slot-1 address.

The Extended Analog Line Card (XALC) collects dial pulses (during dial-pulse dialing) and, upon digit recognition, sends the digit as a message to the system.

An Extended Digital Line Card (XDLC) provides voice TNs on units 0-15, and data TNs on units 16-31.

These extended packs provide enhanced maintenance and diagnostic functions. Accompanying enhancements to the system diagnostic routines allow for the handling of this system equipment.

Operating parameters

The Extended Conference and TDS (XCT) card is not supported with Supplementary features (XCT loops cannot be configured in LD 97 if the International Supplementary Features (SUPP) package 131 is equipped).

The Extended Digitone Receiver (DTR) card is supported by the system and provides the same functions as a non-system DTR card, but with a density of eight units per card (rather than four).

An Extended Network, Peripheral Control and DTR card (XNPD card) is available, providing all the functions of the XNET, XPEC and XDTR cards on one, extended card.

The system supports the configuration of the minimum/maximum flash timing on a system basis only (non-system configuration could be done on a customer basis).

System peripherals will only be available on network-enhanced machine types.

The following features are not supported on system equipment:

- Alternative Loss Plan
- Automatic Guard Detection
- Active Feature Dial Tone
- Audible Alarm
- Malicious Call Trace Enhancement
- Off-hook Tone
- Operator Call Back
- Dial Tone Detection
- Direct Inward Dialing (DID) or Direct Outward Dialing (DOD) Interface
- Enhanced Night Service
- Loop-start Supervisory Trunks
- LOGIVOX Telephones
- Malicious Call Trace Idle
- MFE
- Reverse Dial
- Ring or Hold LED Status
- R2 MFC Signaling, and
- Variable Guard Timing.

These features are still supported on non-system equipment, as they were prior to the introduction of International Meridian 1.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Configure the configuration record for 16-Button Dual-tone Multifrequency (DTMF) detection.
- 2 LD 13 – Configure DTR, TDET, and DTD cards for this feature.
- 3 LD 97 – Configure system parameters for Intelligent Peripheral Equipment in configuration record 2.

LD 17 – Configure the configuration record for 16-Button Dual-tone Multifrequency (DTMF) detection.

Prompt	Response	Description
REQ	CHG	Request.
TYPE	PARM	Change system parameters.
...		
-ABCD	(NO) YES	16-tone DTMF operation enabled.

LD 13 – Configure DTR, TDET, and DTD cards for this feature.

Prompt	Response	Description
REQ	aaa	Request (aaa = CHG, END, MOV, NEW, or OUT)
TYPE	a...a	Type of data block (a...a = DTR, MFC, MFE, MFK5, MFK6, MFR, TDET, CMOD or XTD)

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
POLR	a...a	Polarity of LED messages for DTD (a...a = (NORM) or REV)
XTDT	(0)-7	Extended Tone Detector Table number.
-DTO	(NO) YES	Dial Tone Detection Only.
CDEN	a...a	Card Density (aa = SD, DD, or 4D)
TOTN		To Terminal Number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

LD 97 – Configure system parameters for Intelligent Peripheral Equipment in configuration record 2.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SYSP	System parameters.
...		
INTN	(NO) YES	μ-Law. A-law.
CODE	(0)-3	Used by Network Card firmware. 0 is the only valid entry (1-3 are reserved for future use).

CONT	1-(4)-15	Respond to the CONT prompt with the continuity error threshold value between 1 and 15 (the default is 4).
CRCF	1-(4)-15	Respond to the CRCF prompt with the CRC failure threshold value between 1 and 15 (the default is 4).
FLSH	xxx yyyy	Switch hook flash timing when International Supplementary Features (SUPP) package 131 is equipped. Minimum and maximum switch hook flash timer in milliseconds for analog (500/2500 type) telephones, where: xxx = 21-(45)-768, and yyyy = xxx value-(896)-1275.

Feature operation

No specific operating procedures are required to use this feature.

Inventory Reporting

Contents

This section contains information on the following topics:

Feature description	681
Operating parameters	689
Feature interactions	698
Feature packaging	698
Feature implementation	699
Feature operation	699

Feature description

The Inventory Reporting feature provides an automated tool for customers and support personnel to produce a hardware inventory report on the system. This report lists cards and telephones installed on the system, or configured in software.

You can use any TTY device that provides access to LD 117 to use this feature.

Optivity Telephony Manager (OTM) has a graphical user interface that supports the Inventory Reporting feature. For information related to the Inventory Reporting feature and OTM, please refer to *Optivity Telephony Manager: System Administration* (553-3001-330).

Generate Inventory files

The system can generate two separate Inventory files. The first file contains the Inventory Reporting information for all cards that are inventoried in the Card Inventory file. The second file contains the Inventory Reporting information for all telephones.

You can generate an Inventory file in LD 117. See Table 15 for a list of commands and their descriptions.

Table 15
Inventory Reporting generate commands

Command	Description
INV GENERATE ABORT	Abort all Inventory generations.
INV GENERATE ALL	Begin generating both Card and telephone Inventory files.
INV GENERATE CARDS	Begin generating Card Inventory file.
INV GENERATE SETS	Begin generating telephone Inventory file.

The two Inventory files vary slightly in their format. The first record in both types of Inventory files is the file header. The file header contains a time stamp that indicates when the Inventory process started, and when it finished. Following the time stamp, the number of records collected during Inventory appears. See Table 17 on page 684, or Table 18 on page 685, for an example of a file header.

Both Inventory files contain up to 32 bytes of Identification Programmable Read-Only Memory (ID PROM) information for each inventoried card or telephone that is physically present. The 32 bytes are actually 32 ASCII characters representing different data elements. See Table 16 for more information.

Table 16
ID PROM information

Data Element Name	Maximum Number of Characters
Product Engineering Code (PEC)	08
Color (numeric representation)	02
Release	02
Blank	01
Product Serial ID	12
Blank	01
Other (Free Field)	06

Card Inventory files

Following the file header, each record of the Card Inventory file contains:

- the card type
- the card TN, which contains:
 - loop, shelf, and card numbers for IPE modules
 - loop number for Network modules
 - Core and slot numbers for Core cards
- 32 bytes of ID PROM information

Note: The Small System's card TN only includes the card number.

See Table 17 for an example.

Table 17
Card inventory example for Meridian 1 Option 61C

Card inventory:
17 8 1999 11 5 27, 17 8 1999 11 5 40, 15
CP , 0 14, NT9D19CA 03 NNTM1830TVFK
CCNI , 0 12, NT6D65AA 08 NNTM18304UY9
CMDU, 0 0, NT6D64AB 01 NNTM183227YT
CONF , 17, <Unavailable>
DTR , 004 0 00, NT8S16AB 03 NNTM18310C7D0000000
....

Note: <Unavailable> indicates the ID PROM information is not available because the card is not physically present.

Set Inventory files

Following the file header, each record of the Telephone Inventory file contains:

- the telephone type
- the telephone's TN (loop, shelf, card, and unit numbers)
- 32 bytes of ID PROM information
- the device's descriptor information (DES field in LDs 10 and 11)
- the primary DN

Note: The Small System or CS 1000S system telephone's TN only includes a card number and a unit number.

See Table 18 for an example.

Table 18
Telephone inventory example for Small Systems and CS 1000S systems

Set inventory:				
17 8 1999 10 42 44,	17 8 1999 10 42 45,	4		
2616, 08 01, M2616	NT2K16XC 35 01 69409A,	RODNEY,	1000	
2006, 08 01, M2006	NT2K05XH 93 10 C10C19,	CHRIS ,	1100	
2008, 08 02, M2008	NT9K08AD 03 03 945272,	DEBBIE,	1200	
2616, 08 03, M2616	NT2K16XD 35 01 CC9C98,	DANNY ,	1300	
2616, 02 10, <Unavailable>,	TROY ,	5902		
....

Note:

<Unavailable> indicates the ID PROM information is not available because the telephone is not physically present, or is disabled (“DSBL” in LD 32).

Backup files

The system keeps a current file and a backup file for each Inventory file. Each request to generate an Inventory file causes the previous current file of the same type to become a backup file. The system can use the backup file in the event that the generation of a new file is not successful.

Files in use

If you request to generate an Inventory file while the system is generating that file, you will receive a "Card (or Set) file is Generating, try again later" message.

Abort generation

You can abort the generation of Inventory files. If there is any generation of a Card or Set Inventory file when you execute the **INV GENERATE ABORT** command, the system stops gathering data for the Inventory generation.

If the system receives an abort request and there is no activity on a file, the request is rejected, and you will receive a "No generation to abort" message.

Midnight Routine

To schedule Inventory Reporting for the virtual midnight routine, use the commands in LD 117. See Table 19 for a list of commands and their descriptions.

Table 19
Inventory Reporting midnight routine commands

Command	Description
INV MIDNIGHT ALL	Schedule Card and Telephone Inventory file generation.
INV MIDNIGHT CARDS	Schedule Card Inventory file generation.
INV MIDNIGHT OFF	Unschedule Card and Telephone Inventory file generation.
INV MIDNIGHT SETS	Schedule Telephone Inventory file generation.
INV MIDNIGHT STATUS	Print state of virtual midnight routine schedule of Inventory Reporting.

Printing Inventory files

The process of generating an Inventory file is separate from the process of printing an Inventory file on the TTY. You can print an Inventory file on the TTY from the CLI in LD 117. See Table 20 on page 687 for a list of commands and their descriptions.

Table 20
Inventory Reporting print commands

Command	Description
INV PRT	Print out the status of the Inventory feature
INV PRT ALL	Print out both the card and the Telephone Inventory files
INV PRT CARDS	Print out the Card Inventory file
INV PRT SETS	Print out the Telephone Inventory file
INV PRT STATUS	Print out the status of the Inventory feature

When you execute the print command, the selected Inventory file is scrolled onto the TTY. When you print an Inventory file, the system automatically selects the current file (rather than the backup file). Printing an Inventory file cannot be scheduled by the system.

Once the printing process has started, you can abort it by exiting out of LD 117 using four asterisks (****).

There is no notification of completion for printing out an Inventory file onto the TTY.

Inventory Reporting status

There are two commands that can be used to query the Inventory Reporting feature:

- INV PRT
- INV PRT STATUS

The response to a status query contains two responses, one for the Card Inventory file and another for the Set Inventory file. You only need to make a single request for both files.

The response indicates whether each file is:

- OK (Idle)
- DOWNLOADING
- BUSY
- GENERATING

Note: Only the status of the current file(s) is provided. The status of the backup file cannot be obtained using the status command.

See Table 21 for a list of status responses and their descriptions.

Table 21
Inventory Reporting status responses

Response	Description
BUSY	When the Inventory file is in use.
DOWNLOADING	When the Inventory file is being downloaded.
GENERATING	When the system is generating the Inventory file.
OK	When there is no activity using the Inventory file(s).

Operating parameters

When a telephone is installed, but not configured in software, the system has no record of the telephone, and therefore, will not be inventoried. A telephone that is installed, but configured in software as a different type of telephone, may not be included in the inventory file.

The Inventory Reporting feature can only report ID PROM information from cards and telephones that are physically present. If a card or telephone is configured in software, but is not present in the system, then the ID PROM information will not be inventoried.

Any new cards, or existing cards, that emulate another type of card in the system, when inventoried is noted to have the card type of that emulated card, and not its correct card type. The correct engineering code and vintage of the actual card is listed in the Card ID PROM information, if available.

When there is a dual processor (redundant) system, the Inventory Reporting feature will not incorporate the standby processor and associated cards (Central Processor and Core Network Interface cards) in the card report.

Inventoried cards

Table 22
Card types are included in the Card Inventory file

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
BRSC	Basic Rate Signaling Concentrator	NT6D72	AA	North America
CMDU	Core MultiDrive Unit	NT6D64	AA	North America
CCNI	Core to Network Interface	NT6D65	AA	North America
COT	CO Trunk	NT5K93	AA, AB, BA, BB	Global
CP	CP68030/24MB, Call Processor	NT6D66	AA	Global
CP	CP68030/48MB, Call Processor	NT9D66	DA	Global

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
CP-2	CP68040/48MB, Call Processor	NT9D19	AA, AB	Global
CP-2	CP68040/64M/32M, Call Processor	NT9D19	HA	Global
CP-2	CP68040/64MB, Call Processor	NT9D19	CB	Global
CP-2	CP68040/96MB, Call Processor	NT9D19	HB	Global
CP-3	CP68060/112MB, Call Processor	NT9D10	JA	Global
CP-3	CP68060/48MB, Call Processor	NT9D10	AA	Global
CP-3	CP68060/64MB, Call Processor	NT9D10	CA	Global
CP-3	CP68060/80MB, Call Processor	NT9D10	EA	Global
CP-3	CP68060/96MB, Call Processor	NT9D10	HA	Global
CP-4	CP4 Call processor	NT5D03	AA-UA	Global
CPP	System Utility Card	NT4N67	AA	Global
CPP	System Utility Transition Card	NT4N68	AA	Global
CPP	LED/LCD Display Panel	NT4N71	AA	Global
CPP	CCNI Card	NT4N65	AA	Global
CPP	CPU Card	A0810496	N/A	Global
CPU	68K Processor Card - Card Option CPU	NTAK14	AA, BA	North America
CT2	Line Card, Mobility	NTCK93	AA	International
DDP	Digital Trunk, DTI/PRI, Double	NT5D12	AF	North America
DDP2	Digital Trunk, DTI/PRI, Double E1	NT5D97	AB	International
DID	DID Trunk	NT5K84	AA, AB, BA	International

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
DID	DID Trunk, on board PPM, extended three wire	NT5K60	AA, AB	International
DID	DID Trunk, on board PPM, on board detection	NT5K36	AB, BA	International
DID	Trunk Card	NT5D28	AA	India
DPRI	Digital Trunk, PRI2, Double E-1	NTCK43	AC	International
DTI/PRI	1.5 MB DTI/PRI	NTAK09	DA	North America
DTI2	CIS Trunk for Small Systems and CS 1000S systems	NTCG02	BA, BB	CIS
DTI2	CIS Trunk for Large Systems	NTCG01	BA, BB	CIS
DTI2	2.0 MB DTI	NTAK10	DC	International
DXUT	Universal Trunk	NT5D31	AA	International
DXUT	Universal Trunk, Extended	NTAD14	EA, DA	International
EIMC	Embedded Intelligent Mobility Controller	NT7R01	CA	North America
EXALCC	Analog Line Card	NTRA08	AA, AB, BA	China
EXUTAP-1	Universal Trunk, Busy Tone detect Trunk, 400Hz	NTRA26	AA	Global
EXUTAP-2	Universal Trunk, Busy tone detect Trunk, 425Hz	NTRA26	BA	Global
EXUTC	Universal Trunk, Extended	NTRA10	AA, AB	China
EXUTJ	Universal Trunk	NT8D14	DA	Japan
EXUTJ	Universal Trunk, Extended	NT5D15	AA	Japan
FXNET	Fiber Extended Network	NTIP61	BA	Global
FXPEC	Fiber Extended Peripheral Equipment	NTIP62	CA	Global

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
IODU	I/O Disk Unit	NT5D20	BA	Global
IODUC	I/O Disk Unit w/ CD-ROM	NT5D61	AA, AB, BA	Global
IOP	I/O Processor	NT6D63	BA	Global
ITG	24 Ports ISDN	NTZC44	AA, BA	Global
LCI	Local Carrier Interface	NT7R51	AC, AD	North America
LE1	Line Side E1	NT5D33	AA, AB	International
LT1	Line Side T1	NT5D11	AB, AC	North America
MGATE	Meridian Mail Gateway - IPE version of MCE	NTRH14	AA	North America
MGATE	Meridian Mail Gateway - MM	NTRB18	AA	North America
MGATE	Meridian Mail Gateway - Tower version of MCE & MM	NTRB18	AA	North America
MICA	Integrated Call Assistant	NT5G11	AA	Global
MICB	Integrated Conference Bridge Base	NT5D51	AA, AB, AC	North America
RAN	Integrated Recorded Announcer	NTAG88	AA	North America
MISP	Multi-Purpose ISDN Signaling Processor	NT6D73	AA	North America
MXC	MicroSystem Transcoder	NTEX80	AA	North America
NCE	Fiber in Junctor Interface Motherboard	NTRB3301	N/A	Global
NCE	Fiber in Junctor Interface Jumper Daughterboard	NTRB3303	N/A	Global
NCE	3 Ports CCNI	NTRB34	AA	Global
PRI2	2.0 MB PRI	NTAK79	BC	International

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
PRI2	2.0 MB PRI	NTBK50	AA	International
RCI	Remote Carrier Interface	NT7R52	AC, AD	North America
SILC	S/T Interface Line Card	NT6D70	AA, BA	North America
TMDI	T1 Multi-purpose digital interface for Small Systems	NTRB21	AA	North America
UILC	U Interface Line Card	NT6D71	AA, AB	Global
VPS	Voice Processing Application Server	NTAG36	AA	North America
XALC	Analog Line Card	NT8D03	AA-Ak	North America
XALCC	Analog Line Card	NTRA05	AA	Global
XCOT	CO Trunk	NT5K82	AA, AB	Global
XCOT	CO Trunk	NT5K90	AA, AB, BA, BB,	Global
XCOT	CO Trunk	NT5K99	AA, BA	Global
XCOT	Trunk Card	NT5D29	AA	India
XCOTI	CO Trunk	NTRA29	AA	Global
XDAC	X-Calibur Data Access	NT7D16	AA	North America
XDID	DID Trunk, Extended	NT5K36	AA	International
XDID	DID Trunk, Extended	NT5K84	HA	International
XDID	DID Trunk, Extended	NTAG04	AA	International
XDID	DID Trunk, Extended	NTRA28	AA	International
XDID	DID Trunk, Extended Flexible	NT5K17	AB, BA, BB	International
XDID	DID/LDR Trunk, Extended	NTCK22	AA, AB	International
XDLC	Digital Line Card	NT8D02	GA	Global

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
XDTMF	Extended DTMF Receiver	NTRA11	AA	International
XDTR	Extended DTMF Receiver	NT8D16	AB	North America
XDTRC	Extended DTMF Receiver	NTRA11	AA	China
XEM	E & M Trunk Leads PCBA, Extended	NT8D15	AF, AH, AA	North America
XEMC	E & M Trunk, Extended	NTRA03	AA	China
XFALC	Analog Line Card, Flexible High Voltage	NT5K96	EA, HA, JA, JB, KA, NB	Global
XFALC	Analog Line Card, Flexible High Voltage	NT5K02	AA, AB, AC, DA, DB, EA, EB, JA, JB, JC, KA, KB, LB, LC, LD, MA, MB, MC, NB, NC, PA, PB, PC, QA, QB, QC, SA, SB, TA, TB	Global
XFALC	Analog Line Card, Flexible High Voltage, Message'	NT5K96	MA, MB, NB, PB, SA, TA	Global
XFALCC	Analog Line Card, Message Waiting	NTRA04	AA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NT5K18	AA, AB, BA, BB	Global
XFCOT	CO Trunk, Extended Flexible PPM	NT5K61	AA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NT5K82	BA, BB, CA, HA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NTAG03	AA, AB	Global

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
XFCOT	CO Trunk, Extended Flexible PPM, 4 unit	NT5K71	AA, AB	Global
XFCOT	CO Trunk, Extended Flexible PPM, 8 unit	NT5K70	AA, AB	Global
XFCOT	CO Trunk, Extended Flexible	NTCK16	AA, BA, BC, BD, BE	Global
XFCOT	CO Trunk, Extended Flexible PPM	NTCK18	AA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NTCK24	AA	Global
XFCOT	CO/FX/WATs Trunk	NT9C14	AA, BA	Global
XFEM	E & M Tie Trunk, Wire with recorded ann. & Paging	NT5K83	BA, BB, CA, CB	International
XFEM	E & M Tie Trunk, 4 Wire with recorded ann. & Paging	NT5K19	BA, BB,	International
XFEM	E & M Tie Trunk, Extended Flexible	NT5K50	AA	International
XFEM	E & M Tie Trunk, Extended Flexible	NT5K83	AA, AB, DA, DB, FA, GA, HA, KA, LA	International
XFEM	E & M Tie Trunk, Extended Flexible, 4 unit	NT5K72	AA	International
XFEM	E & M Trunk, Extended Flexible	NT5K19	AA, AB, AC	International
XMFC	Extended Multi-Frequency Compelled Sender Receiver	NT5K21	AA	International
XMFR	Extended MF Receiver	NTAG26	AA	International
XMLC	Message Waiting Line Card	NT5D49	AA	International
XMLC	Message Waiting Line Card	NT5D09	AA, BA, LA, PA	International

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
XMWLC	Analog Line Card, Message Waiting	NT8D09	BA, AL	North America
XNET	Extended Network	NT8D04	BA	Global
XOPS	Analog Line Card	NT1R20	AA	North America
XOPSC	Analog Line Card	NTRA06	AA, AB	Global
XPEC	Ext Peripheral Equipment Controller 2 Superloop	NT8D01	BD	Global
XPEC	Ext Peripheral Equipment Controller 2/4 MB	NT8D01	DA	Global
XPEC	Ext Peripheral Equipment Controller 2MB	NT8D01	EA	Global
XPEC	Ext Peripheral Equipment Controller 4 MB	NT8D01	CA	Global
XPEC	Ext Peripheral Equipment Controller 4 Superloop	NT8D01	BC	Global
XSM	Extended System Monitor	NT8D22	AC	Global
XTD	Extended Tone Detector	NT5K48	AA-HA	International
XUT	Universal Trunk	NT8D14	BB, BC	North America
XUTC	Universal Trunk	NTRA02	AA	China

The following card types are not included in the Card Inventory file:

- TTY or PC cards
- Power Supply
- Any non-Nortel (third-party) cards including those designed to simulate included cards.

Inventoried telephones

The Telephone Inventory file includes the following telephones:

- M2006
- M2008
- M2016
- M2216
- M2616
- M3110
- M3310
- M3820
- M3901
- M3902
- M3904
- M3905

The Telephone Inventory file does not include ID PROM information for the following telephones:

- 500/2500 telephones
- Other digital telephones or any non-Nortel (third-party) telephones, including those designed to simulate included telephones.

Data units

A data unit's TYPE is listed in the Telephone Inventory file as the TYPE of the telephone that it is attached to, not as a data unit. Data units can be identified in the Telephone Inventory file by determining which TN is assigned to the data unit, or by its descriptor information (DES field in LDs 10 and 11).

The Telephone Inventory file does not include ID PROM information for the following data units:

- Data units on:
 - M2006
 - M2008
 - M2016
 - M2616
 - M2216
 - M390X
 - M3110
 - M3310
 - M3820
- 500/2500 data units.
- Other digital data units.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

IP Network-wide Virtual Office

Contents

This section contains information on the following topics:

Feature description	701
Operating parameters	703
Feature interactions	704
Feature packaging	706
Feature implementation	706
Feature operation	707

Feature description

The IP Network-wide Virtual Office feature enables users to log into any IP Phone using their own User ID and password. This redirects the end user's telephone calls and other features to the Virtual Office logged-in IP Phone. The end users can perform most IP Phone functions exactly as if they were using their regular IP Phone.

Note: For information on the Virtual Office feature for M3900 series telephones, refer to “M3900 (Single Site) Virtual Office” on page 807. For more information on phantom TNs and virtual TNs refer to the Software Licenses chapter in Book 3.

Upon login, the IP Phone de-registers with the Call Server and registers to the Call Server associated with the given User ID. This can be the same Call Server or another Call Server within the network. If it is another Call Server, a Nortel Meridian Gatekeeper is required to provide the address of the IP Phone Terminal Proxy Server (TPS) node. Upon logout from IP Network-wide Virtual Office, the IP Phone registers to the Call Server associated with the settings stored in its EEPROM: the S1 server and Terminal Number (TN).

In order to login using IP Network-wide Virtual Office, the TN associated with the current IP Phone registration must be configured with the class of service (CLS) VOLA (Virtual Office Login Allowed). The TN associated with the User ID for the login must be configured with the CLS VOUA (Virtual Office User Allowed). For more information on VOLA and VOUA, refer to LD 11 and LD 81 in *Software Input/Output: Administration* (553-3001-311).

The Nortel IP Phone 2002, IP Phone 2004, IP Softphone 2050, and Mobile Voice Client (MVC) 2050 support the IP Network-wide Virtual Office feature. Refer to the following documents for more information:

- *IP Phones: Description, Installation, and Operation* (553-3001-368)
- *IP Phone 2002 User Guide*
- *IP Phone 2004 User Guide*
- *Mobile Voice Client 2050 User Guide*

The IP Network-wide Virtual Office feature supports only one customer group. If more than one customer group is configured, the customer group with the lowest customer number is supported.

The Emergency Services for Virtual Office feature allows IP Network-wide Virtual Office users to place an emergency (E911) call to the correct Public Safety Answering Point (PSAP) for their geographic location. For more information on the Emergency Services for Virtual Office feature, refer to *Emergency Services Access: Description and Administration* (553-3001-313).

When an IP Phone performs an IP Network-wide Virtual Office login to another IP Phone on the same Call Server, but registered with a different Signaling Server, or Media card, the preempted telephone remains logged out with the Logged Out screen, even after the login telephone has logged out. When the user returns to the home office, the Home softkey is used to log back into the home TN.

Operating parameters

The following is the minimum software and hardware required for IP Network-wide Virtual Office:

- Succession 3.0 software and hardware
- IP Line 3.1
- IP Softphone 2050 software build 338 or later
- Element Manager

Firmware upgrade

The IP Network-wide Virtual Office feature requires UNISlim protocol version 2.5, which is supported in firmware version 1.33 or later. No firmware upgrade takes place during a n IP Network-wide Virtual Office login.

The umsUpgradeAll command has no impact on IP Phones logged into IP Network-wide Virtual Office. These telephones do not get reset. If the IP Network-wide Virtual Office login is within the same Call Server, the IP Phone firmware is upgraded after the user has logged out. If the IP Network-wide Virtual Office login is between different Call Servers, the IP Phone simply registers back to its home TPS, and follows the normal firmware upgrade rules for regular registration.

Feature interactions

Automatic Call Distribution (ACD)

Automatic Call Distribution (ACD) agents requiring the IP Network-wide Virtual Office login, must have a separate, single appearance DN assigned to a programmable feature key. This unique DN is the User ID for IP Network-wide Virtual Office login.

Branch Office DN

When an IP Network-wide Virtual Office login is for a Branch Office DN, the branch office IP Phone is preempted. When the branch office IP Phone is in survival mode and there is an IP Network-wide Virtual Office login for that DN, the branch office DN becomes registered to both the main office and the branch office. This situation is resolved when WAN connectivity resumes and the IP Phone, in local mode, is redirected to register with the Main Office TPS in a logged out state.

Branch Office using UDP

An IP Network-wide Virtual Office login using UDP at a Branch Office is supported; however, it will fail if the WAN connection to the Main Office is down.

Gatekeeper end points

IP Network-wide Virtual Office support is limited to IP Phones registered with Call Servers that are configured as end points in the same Gatekeeper. IP Network-wide Virtual Office login between IP Phones registered with Call Servers that are configured as end points of different Gatekeepers is not supported.

IP Phone options

The IP Phone options are retained within the telephone regardless of the registered User ID. Remote IP Network-wide Virtual Office logins display the time and date of the remote Call Server.

Multiple Appearance Directory Number (MADN)

Upon IP Network-wide Virtual Office login using a Multiple Appearance Directory Number (MADN), the TN is selected to match the provided SCPW. If this is not desirable, then a separate, secondary, single appearance DN can be assigned. After login using the single appearance DN, the user receives the assigned keymap and feature key list including the MADN.

If there is no matching SCPW, an *Invalid ID* error displays. The login session assumes all the features of this TN (the same as a regular registration).

Optivity Telephony Manager (OTM)

The OTM End-User Station Administration includes the CLS VOLA/VOLD, and VOUA/VOUD from LD 11.

Phantom Terminal Numbers

Refer to the Software Licenses chapter in Book 3 for more information.

Registration lockout

If a user enters an incorrect password three times, the TN is locked from IP Network-wide Virtual Office login for one hour. This is known as *Password guessing protection*. When locked, an information message is written to the Call Server history file and printed to the TTY. The craftsperson can unlock the TN by disabling and then enabling it in LD 32. This lockout does not survive re-registration of the IP Phone.

Virtual Office preemption

A user who is already logged into IP Network-wide Virtual Office can log in again on another IP Phone. This is useful if the user forgets to log out of an IP Phone and returns to his/her desk. The home IP Phone or the logged in IP Network-wide Virtual Office IP Phone is preempted upon a successful login on another IP Phone. The preempted IP Phone remains registered to the TPS but not to the Call Server, and is forced to register to the TN configured on the IP Phone.

Since only one registration can exist for a TN within a Call Server, the IP Phone is no longer operational, as indicated by the Logout Screen on the display.

The preempted IP Phone can be used by another user for a IP Network-wide Virtual Office login or it can be re-registered as the home IP Phone. The preempted Call Server registration may be a regular registration (one in which the IP Phone’s EEPROM S1 and TN settings match the login TN within the associated Call Server), an IP Network-wide Virtual Office login, or a Branch User login. If it is a regular registration, then the subsequent login is resolved within the Call Server to be a regular registration, not an IP Network-wide Virtual Office login or a Branch User login.

When a virtually logged in IP Phone resets, it attempts to register with the Call Server associated with its S1 and TN. If the TN has an IP Network-wide Virtual Office login or Branch User login, then it does not register to its Call Server but displays the Logout Screen.

When attempting to login, if there is an existing login to the same User ID or a home IP Phone for the User ID and it is not in the idle state (for example, ringing, ringback, or in a call) the new login attempt gets a Login Busy message.

Feature packaging

IP Network-wide Virtual Office requires the following packages:

- Virtual Office (VO) package 382
- Virtual Office Enhancement (VOE) package 387

Feature implementation

LD 11 – Configure IP Network-wide Virtual Office. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW/CHG	
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
CUST	xx	Customer number, as defined in LD 15
BUID	<user id>	Dialable DN, Main Office User ID. Enter X to delete.

LD 11 – Configure IP Network-wide Virtual Office. (Part 2 of 2)

Prompt	Response	Description
MOTN		Main Office TN
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
CLS	(VOLA) VOLD	Allowed/deny IP Network-wide Virtual Office login operation on this TN.
CLS	(VOUA) VOUD	Allow/deny IP Network-wide Virtual Office user onto this TN using another telephone.

Feature operation

The IP Network-wide Virtual Office feature supports the following operations:

- IP Network-wide Virtual Office login
- IP Network-wide Virtual Office connection
- IP Network-wide Virtual Office logout

IP Network-wide Virtual Office login

IP Network-wide Virtual Office Login does not support Digit Manipulation or multiple Home Location Codes (HLOCs) as defined in BARS/NARS. If the HLOCs have common leading digits Virtual Office can support multiple HLOCs on the same Call Server. The IP Network-wide Virtual Office feature supports only one customer. If two or more customers are configured, the one with the lowest customer number is supported.

Since the IP Phone 2004 and IP Softphone 2050 have more key functions than the IP Phone 2002, a IP Network-wide Virtual Office login from an IP Phone 2002 to an IP Phone 2004 or IP Softphone 2050 TN is blocked if:

- Key 0 is ACD.
- Any key (from key 1 to key 15) is defined as AAK, CWT, DIG, DPU, GPU, ICF, MCN, MCR, MSB, PVN, PVR, SCR or SCN.

Since the IP Softphone 2050 does not support Digital Telephone Handsfree Denied (HFD) Class of Service:

- An IP Network-wide Virtual Office Login from an IP Softphone 2050 to an IP Phone 2001 is blocked.
- An IP Network-wide Virtual Office Login from an IP Softphone 2050 to an IP Phone 2002 or IP Phone 2004 with HFD Class of Service is blocked.

If a login is attempted in the above situation, an error message is displayed.

Note: Features configured on DN/Feature keys higher than key 3 on the IP Phone 2004, the IP Softphone 2050, or the MVC 2050 are not accessible when logged in from an IP Phone 2002.

Procedure 1

Performing IP Network-wide Virtual Office login

This procedure explains how to log into IP Network-wide Virtual Office. The IP Phone is operating in Normal Mode.

- 1 Press the **Services** key to display the **Options** menu.

Note: The IP Phone 2002 screen displays only one line at a time. Use the **up/down arrow** key to scroll through the menu.

- 2 Use the **down arrow** key to highlight **Virtual Office Login**.

- 3 Press the **Select** softkey.

The screen prompts for the User ID.

- 4 Enter the User ID.

The User ID is the user's internal telephone number. Depending on the network configuration of the system and where the IP Network-wide Virtual Office login takes place, the User ID can be:

User ID	Explanation
UDP number	A user with a Home Location Code (HLOC) of 343 visits a site where the HLOC is 393. The User ID is 6 343 5555, where: 6 = network access code (access to ESN) 343 = Home Location Code (HLOC) 5555 = Directory Number (DN).
CDP number	A user with a HLOC of 343 wants to do an IP Network-wide Virtual Office login from the same site (HLOC = 343), on a different IP Phone. The User ID is 5555. Note: The User ID of 6 343 5555 is also acceptable.
Transferable DN	A user with HLOC of 343, using a transferable DN, is permanently transferred to a site where HLOC is 393. The previous location DN (5555) is retained as the User ID. Note: The User ID of 6 393 5555 is also acceptable.

- 5** Press the **Select** softkey.

The screen prompts for the Station Control Password (SCPW).

- 6** Enter the SCPW for the Main Office IP Phone.

When the User ID entered is not found locally, the message *Locating Remote Server* displays, indicating that connection setup is ongoing. A Nortel Meridian Gatekeeper provides the node IP address of the Home TPS associated with the User ID. The local TPS confirms connectivity to the remote TPS, then the IP Phone is redirected to the remote Home TPS.

End of Procedure

IP Phone registered to the same Call Server

To log in to IP Network-wide Virtual Office from an IP Phone registered to the same Call Server, the User ID is the end user's DN.

IP Phone registered to a different Call Server on the same Network

To log in to IP Network-wide Virtual Office from an IP Phone registered to a different Call Server on the same network, the User ID is comprised of the following:

- Access Code (AC1 or AC2 depending on which Access Code is used for the Uniform Dialing Plan [UDP])
- HLOC (defined in the Customer Data Block for the lowest numbered customer)
- DN of the end user

The following is an example of an IP Network-wide Virtual Office Login User ID using a 4-digit DN:

- AC1 is defined as 6
- HLOC is defined as 123
- DN is defined as 4567

Therefore, the IP Network-wide Virtual Office Login User ID is defined as 61234567.

The following is an example of an IP Network-wide Virtual Office Login User ID using a 5-digit DN:

- AC1 is defined as 6
- HLOC is defined as 12
- DN is defined as 34567

Therefore, the IP Network-wide Virtual Office Login User ID is defined as 61234567.

Login failures and errors

A IP Network-wide Virtual Office login fails if any of the following occurs:

- The login User ID is not local and there is a failure to get a response from a Gatekeeper.
- The User ID is not local and the Gatekeeper does not know the endpoint of the User ID.
- The User ID is not local and the Home TPS is unreachable.
- The User ID is not local and the IP Phone firmware required by the remote TPS node software is incompatible with that provided by the local TPS node.
- The User ID is not known or a MADN cannot be resolved at the Home Call Server.
- An SCPW is not configured for the User ID.
- The destination TN has Virtual Office User Denied (VOUD).
- There already exists a non-idle registered instance for the User ID.
- The user selects **Cancel** after a password failure.
- The password fails to authenticate after three attempts.
- The User ID entry in the Gatekeeper database points back to the originating Call Server.

Refer to Table 2 for system messages, potential causes, and available actions.

Table 2
System messages (Part 1 of 3)

Message	Cause	Action
Busy, try again	Remote IP Phone is active (not idle). ACD is logged in. Make-Set-Busy is inactive on ACD IP Phone.	Wait for remote IP Phone to become idle and try again. Logout ACD before IP Network-wide Virtual Office login from another IP Phone. Set Make-Set-Busy active on ACD IP Phone.
Invalid ID (1)	Incorrect User ID entered. User ID is not in Gatekeeper database.	Enter correct User ID. Update Gatekeeper database to include User ID.
Invalid ID (2)	Incorrect User ID entered.	Enter correct User ID.
Invalid ID (3)	Incorrect User ID entered. User ID in Gatekeeper database points to originating Call Server.	Enter correct User ID. Change Gatekeeper configuration for the User ID to point to the correct endpoint.
Locked from Login	Three failed attempts to enter the correct SCPW.	Wait one hour for lock to clear automatically, or disable and enable the remote IP Phone in LD 32 at the Call Server to clear the lockout.
Logged Out	Home TN in use by IP Network-wide Virtual Office.	Login to another TN using IP Network-wide Virtual Office. Re-register as the Home (or Branch) IP Phone.
Permission Denied (1)	SCPW is not configured or enabled.	Configure a SCPW for the remote IP Phone.

Table 2
System messages (Part 2 of 3)

Message	Cause	Action
Permission Denied (3)	Incorrect User ID entered. SCPW is not configured.	Enter correct User ID. Configure a SCPW for the remote IP Phone.
Permission Denied (4)	Incorrect User ID entered. Attempt to login to an IP Phone 2004/IP Softphone 2050 TN from an IP Phone 2002.	Enter correct User ID. Go to an IP Phone 2004/IP Softphone 2050 and try again.
Permission Denied (5)	Incorrect User ID entered. The destination TN has Virtual Office User Denied (VOUD) configured.	Enter correct User ID. Configure the remote IP Phone with Virtual Office User Allowed (VOUA).
Permission Denied (6)	Incorrect User ID entered. Incorrect SCPW is entered.	Enter correct User ID. Enter correct SCPW.
Permission Denied (7)	Attempted Login to an IP Phone 2001 from an IP Softphone 2050. Attempted Login to an IP Phone 2002 or IP Phone 2004 with CLS HFD from an IP Softphone 2050.	Go to an IP Phone 2001, IP Phone 2002, or IP Phone 2004 and try again. Go to an IP Phone 2002 or IP Phone 2004 and try again.
Required FW Vers	The User ID is not local and the firmware required by the remote TPS node software is incompatible with that provided by the local TPS node.	Update firmware.

Table 2
System messages (Part 3 of 3)

Message	Cause	Action
Server Unreachable (1)	Gatekeeper is down.	Bring Gatekeeper up.
	The link to Gatekeeper is down.	Restore link to Gatekeeper.
Server Unreachable (2)	Remote TPS is down.	Restore remote TPS.
	Link to remote TPS is down.	Restore link to remote TPS.
	Remote Call Server is down.	Bring remote Call Server up.

IP Network-wide Virtual Office connection

An IP Phone is registered with the TN in its EEPROM and then a User ID and password are used to determine the home TPS for the IP Phone during the IP Network-wide Virtual Office connection. A Nortel Succession Gatekeeper is required, if the home TPS is not the TPS where the IP Phone is registered when the user initiates an IP Network-wide Virtual Office login.

Upon login, the IP Phone receives the features, time, date, and tones of the home Call Server. The IP Phone becomes part of the home zone and receives call service from this Call Server. When this zone is remote the voice quality may be less than ideal because codec selection is based on the IP Phone being in its expected location (subnet). Firmware upgrade on a TPS node does not upgrade the telephones logged into IP Network-wide Virtual Office.

The IP Phone options stored locally in the telephone's non-volatile memory retain the characteristics of the IP Phone. That is, items from the Option menu such as language, display contrast, date and time format, and ring type retain the IP Phone properties and do not change to reflect the preferences on the IP Network-wide Virtual Office user's home IP Phone.

If the IP Network-wide Virtual Office user changes these settings, the changes persist in the IP Phone even after logout, power-up, or reboot. In other words, changes to Telephone Options menu items are retained (in the IP Phone's EEPROM) regardless of who is registered. When changing any of these preferences, the original settings should be restored as a courtesy upon logout.

When connected to a Call Server through IP Network-wide Virtual Office, local trunks are the home CO and a call for emergency service is directed to the home PSTN. This is not ideal when the home is remote.

IP Network-wide Virtual Office logout

The IP Network-wide Virtual Office user initiates a logout by:

- Performing a direct IP Network-wide Virtual Office logout on the active IP Phone (see Procedure 2 on page 716).
- Returning to the home location and re-registering the home IP Phone (using the **Home** softkey). This forces a logout on the idle IP Network-wide Virtual Office IP Phone registered to the same User ID.
- Performing an IP Network-wide Virtual Office login on another IP Phone. This forces a logout on the idle IP Network-wide Virtual Office IP Phone registered to the same User ID.

The IP Network-wide Virtual Office user is forced to logout when:

- the IP Phone power cycles
- the IP Phone loses connectivity to the Home TPS
- the automatic logout activates (see "IP Network-wide Virtual Office auto-logout" on page 716)

Upon logout, the IP Phone returns to its regular keymap unless the TN owner has an active IP Network-wide Virtual Office login or Branch User login. In these cases, the IP Phone displays the Logout screen. If connectivity to the Home Office is lost during an IP Network-wide Virtual Office login, calls are not maintained and the IP Phone re-registers to its configured TN and Call Server.

Procedure 2
Performing IP Network-wide Virtual Office logout

This procedure explains how to logout of IP Network-wide Virtual Office. The IP Phone is operating in Normal Mode.

- 1 Press the **Services** key to display the **Options** menu.

Note: The IP Phone 2002 screen displays only one line at a time. Use the **up/down arrow** keys to scroll through the menu.

- 2 Use the **down arrow** key to highlight **Virtual Office Logout**.
- 3 Press the **Select** softkey.

End of Procedure

IP Network-wide Virtual Office auto-logout

The IP Network-wide Virtual Office user can be configured to automatically logout all IP Network-wide Virtual Office connections at a specified hour. This is configured in LD 15 using the following prompts:

- VO_ALO (YES/NO)—enables automatic logout.
- VO_ALOHR (0-23)—sets the hour to activate automatic logout.

Refer to *Software Input/Output: Administration* (553-3001-311) for more information on prompts and responses in LD 15.

IPE blocking

Contents

This section contains information on the following topics:

Feature description	717
Operating parameters	718
Feature interactions	718
Feature packaging	719
Feature implementation	719
Feature operation	719

Feature description

This feature introduces a blocking facility that disables all the cards, loops, and terminal numbers (TNs) configured on Intelligent Peripheral Equipment (IPE) shelves. This feature is active immediately after the install/upgrade.

The feature includes the following:

- A warning message displays during install/upgrade, which the user must acknowledge to complete the process.
- A reporting facility in LD 81 lists the hardware components that are blocked.
- A post blocking message displays if the user attempts to modify a TN or create a new TN on IPE shelves.

Operating parameters

The operating parameters are as follows:

- If a TN is in a call, the call is dropped after the terminal is upgraded.
- A loop that is disabled before upgrade remains disabled after upgrade, and cannot be enabled. Meridian Mail TNs configured on this loop cannot be enabled.
- This feature does not affect Meridian Mail TNs, DTI loops, and PRI loops.
- Loop numbers on IPE shelves cannot be reused until the blocks are manually removed.
- Even background loop tests and audits cannot enable the disabled units and cards.
- The user can **OUT** the existing TNs configured on IPE shelves.

Feature interactions

This feature does not affect Meridian Mail TNs, DTI loops, or PRI loops configured on IPE shelves. Once the hardware is disabled, no further handling on IPE shelves is possible.

Station administration

The FEAT prompt in LD 81 accepts a new value, **PEPE**, that prints all the TNs, loops, and cards configured on IPE shelves. Moreover a new **SCH1469** error message displays when the user attempts to change an existing TN or create a new TN on IPE shelves.

Maintenance

OTM retrieves and displays the status of loops, cards, or units configured on the system. After the feature implementation, loops, cards, or units configured on IPE shelves show a status of **IPE disabled**.

The affected components are:

- Network loops

- IPE shelves
- IPE cards
- IPE units

The **SCH1469** error message displays when the user attempts to change an existing TN or create a new TN on IPE shelves.

Feature packaging

No new software packages are introduced for this feature.

Feature implementation

This feature is implemented immediately after an installation or upgrade to Succession 3.0 Software.

Feature operation

There are no specific procedures required to operate this feature.

Italian Central Office Special Services

Contents

This section contains information on the following topics:

Feature description	721
Operating parameters	721
Feature interactions	722
Feature packaging	723
Feature implementation	723
Feature operation	724

Feature description

This feature allows callers to access “1xx” special services of the Italian Central Office (CO). The special services are accessed by dialing a Flexible Feature Code (FFC) of up to four digits in length. This FFC is configured in LD 57.

This feature is available on Meridian 1 proprietary telephones, analog (500/2500 type) telephones, as well as attendant consoles.

Operating parameters

This feature can only be activated by callers on the same node as the Central Office trunk; it is not supported on Integrated Services Digital Network (ISDN), Digital Private Network Signaling System 1 (DPNSS1), or other trunks.

This feature is only allowed for a simple call, and cannot be accessed in consultation state.

As a result, if the attendant makes a “1xx” service call on the source side, a call cannot be made on the destination side; therefore, the special service call cannot be extended or transferred.

Outgoing digits are outpulsed according to the trunk Class of Service, dial pulse (DIP) or digitone (DTN).

An attendant or a set accessing a special “1xx” service cannot establish a conference by pressing the Conference key or Loop key.

Analog trunks on Small Systems and CS 1000S systems are not supported.

Feature interactions

The following features are not allowed if a special “1xx” service is being accessed:

- Multi-Party Operations
- Conference
- Transfer
- Call Join, and
- Consultation Hold (on 500 and 2500 sets).

The following features are not allowed from an attendant to a set making a special “1xx” service call:

- Priority Override
- Attendant Break-in
- Attendant Barge-in, and
- Busy Verify.

Call Detail Recording

The start timing on the Call Detail Recording record corresponds to the seizure of the Central Office trunk or to the answer signal, when received.

Periodic Pulse Metering

Periodic Pulse Metering pulses are received from the Central Office according to the charge of the accessed service, and are collected and stored as per normal procedures.

Switchhook flash

A switchhook flash is ignored while a special “1xx” service is being accessed.

16-Button Digitone/Multifrequency Operation

The special service FFC is not supported on the ABCD keys of 16-button DTMF sets.

Feature packaging

The following packages are required:

- End-to-end Signaling (EES) package 10
- 2 Mbit Digital Trunk Interface (DTI2) package 129 to support digital trunks
- International Supplementary Features (SUPP) package 131
- Trunk Hook Flash 157; and Flexible Feature Codes (FFC) package 139

Feature implementation

LD 57 – Configure the Flexible Feature Code required to access “1xx” special services.

Prompt	Response	Description
REQ	CHG	Change
TYPE	FFC	Flexible Feature Code data block
...		
CODE	a...a	FFC to be changed
...		

ITXX	1-4	FFC to access "1xx" special services.
RTXX		The CO route number for the "1xx" special service, prompted only if ITXX has been configured.
	0-512	For Large Systems

Feature operation

Dial the Flexible Feature Code (up to four digits in length) that was configured in LD 57 to access "1xx" special services.

Only the **Rls** and **Hold** keys may be activated during a call to a special "1xx" service.

Italian Periodic Pulse Metering

Contents

This section contains information on the following topics:

Feature description	725
Operating parameters	726
Feature interactions	726
Feature packaging	727
Feature implementation	727
Feature operation	727

Feature description

A new vintage 2 Mbps Digital Trunk Interface (DTI2) card is introduced with this feature. The Italian Periodic Pulse Metering (PPM) feature enables this new DTI2 card to count PPM pulses on Italian DTI2 trunks.

In Italy, a pulse on the A bit while the B bit is zero (P0UU) is considered a valid PPM pulse. However, a pulse on the A bit while the B bit is one (P1UU) should not be considered a valid PPM pulse.

When the DTI2 card detects that a pulse on the PPM bit (A in Italy) has met all PPM timing requirements, the DTI2 card checks to see if the Italian PPM feature is enabled. If so, the state of the B bit is also checked. At this point, the PPM count will be incremented (in the card) only if the B bit is zero. Using the Italian PPM option, the new card no longer reports the P1UU case as a PPM pulse. With this feature enabled all state changes with B bit set to one (for example, P1UU) are reported immediately by the DTI2 card. This allows the main Central Processing Unit (CPU) to recognize Italian Release Control pulses.

Operating parameters

This feature is not supported on Small Systems and CS 1000S systems, since there is no XDTI2 card supporting the hardware requirements).

The feature does not work on the following DTI2 cards: QPC915A, QPC915B, QPC536A, QPC536B, QPC536C, and QPC 536D. All of these DTI2 cards, do not have the required firmware modifications.

The firmware checks whether the B bit is zero. This is hard coded in the new DTI2 cards. Other combinations are not possible (for example, it is not possible to report PPM pulses on the A bit only when the C bit is zero, and it is not possible to report PPM pulses on the A bit only when the B bit is 1).

The Italian PPM option is stored for each loop. Hence, the Italian PPM option is set the same for all channels on the loop.

Feature interactions

Call Detail Recording

This feature now allows Call Detail Recording on Italian DTI2 trunks to show the cost of the call calculated from the PPM pulses.

Periodic Pulse Metering

This feature now allows PPM pulses to be counted on Italian DTI2 trunks. The Italian DTI2 option default is set to NA (that is, not active when software prior to the introduction of this feature is upgraded). The existing operation thus continues unaffected by the new feature.

Feature packaging

This feature is packaged under the existing 2 Mbps Digital Trunk Interface (DTI2) package 129. Periodic Pulse Metering/Message Registration (MR) package 101 is required for its operation.

Feature implementation

LD 73 – Configure the Italian PPM option.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	2 Mbit digital trunk.
FEAT	LPTI	Loop timers.
LOOP	nnn	Loop number.
...		
ITPP	(NA) YES NO	<p>Italian PPM option. If this is set, PPM pulses are only counted when the B bit is zero.</p> <p>NA = The DTI2 card is not capable of Italian PPM (the default).</p> <p>YES = Turn on Italian PPM in DTI2 card.</p> <p>NO = Turn off Italian PPM in DTI2 card.</p>

Feature operation

No specific operating procedures are required to use this feature.

KD3 Direct Inward Dialing/Direct Outward Dialing for Spain

The KD3 Direct Inward Dialing (DID)/Direct Outward Dialing (DOD) for Spain feature is introduced to enable the system to meet the specifications of the Spanish signaling protocol. Prior to the introduction of the KD3 interface, the only Central Office trunk support available in Spain from a system perspective was an analog Central Office Trunk (COT) type of interface (that is, non Digital Trunk Interface (DTI) or DID/DOD).

Only KD3 to Meridian Customer Defined Network (MCDN) tandeming will be supported (no other networking protocols will be supported at this time).

The KD3 interface utilizes the following:

Digital Interface

A 2.048 Mbit digital link physical interface conforming to International Telegraph and Telephone Consultative Committee (CCITT) G700 series specifications, and whose frame and multiframe structure conform to CCITT recommendations G732 and G734, is specified.

Multifrequency Interregister Signaling

A Multifrequency Interregister Signaling protocol is used for passing certain information such as addressing and Call Class. It is similar to Multifrequency Extended (MFE), but must support both 2/5 or 2/6 frequency encoding on a system basis. It also uses different signals, and adds several new timing parameters. The new signals are mainly used to provide Class of Call information, broken down as Regular Subscriber, Special Services, National and International calls.

For more information on KD3 Signaling, please see the KD3 Signaling document contained in the IPE supplement for Spain.

Last Number Redial

Contents

This section contains information on the following topics:

Feature description	731
Operating parameters	732
Feature interactions	732
Feature packaging	736
Feature implementation	736
Feature operation	738

Feature description

Last Number Redial (LNR), which is defined on a customer and a telephone basis, allows the last number dialed by a user to be automatically stored. The stored number can be redialed by pressing a key on Meridian 1 proprietary telephones, or by dialing SPRE + 89 on analog (500/2500 type) telephones. The number is stored whether the call rings, is busy or answered, or a valid access code is dialed with the number. Only one number, composed of up to 32 digits (including access codes), can be stored at any one time. The new number overwrites the previously stored number.

If the telephone has a Digit Display (DDS), the called number is displayed.

Operating parameters

When making a call using Last Number Redial (LNR), no digits can be dialed before the stored number except Authorization, Charge Account, or Forced Charge Account codes. However, additional digits can follow the outpulsed LNR number.

The M2317 telephone has LNR as a local telephone (firmware) feature instead of as a system feature.

Feature interactions

AC15 Recall: Transfer from Meridian 1

Autodial and Last Number Redial are supported with the AC15 Recall: Transfer from system on the first transfer, provided that the digits are outpulsed on the trunk after the End-to-End Signaling Delay timer expires. If the far end is not ready, the call will fail because no dial tone detection is performed by the system.

Additional transfers are supported if the stored digits are outpulsed without any treatment. For example, a route is seized and the route access code is outpulsed to the far end and interpreted as a Directory Number. No dial tone detector or timer is started, so the digits are outpulsed immediately without checking the state at the far end.

Authorization Code Security Enhancement Charge Account Charge Account, Forced

These codes are not stored in Last Number Redial (LNR). To use these features when calling the number stored in LNR, the code must first be dialed manually. When dial tone is returned, LNR can be used to complete the dialing.

Autodial

A number dialed using Autodial will become the LNR number on all telephones, except the M2317 telephone.

Autodial Tandem Transfer

Normally, when the ADL key is pressed during the dialing stage, the ADL number will replace the Last Number Redial number. In the ATX feature, however, when the ADL key is used during the established stage, the ADL digits will not substitute the Last Number Redial number.

Automatic Redial

An Automatic Redial (ARDL) call can be activated on a number dialed using the Last Number Redial (LNK) key or by pressing the DN key twice. The ARDL number is saved as the last number redialed.

Call Forward/Hunt Override Via Flexible Feature Code

The Call Forward/Hunt Override via Flexible Feature Code and the dialed DN are stored under Last Number Redial.

Call Modification

When a Call Modification takes place at the called Directory Number, the originally dialed number and not the number reached through Call Modification is stored as the LNR. This applies to the following features:

- All Call Forward features
- Call Pickup
- Conference
- Hunting
- Integrated Messaging System (IMS) when using Operator Revert, and
- Transfer.

The stored LNR number will not be affected when making calls using the following features:

- Numbers dialed on Call Transfer or Conference
- Attendant Recall from Meridian 1 proprietary telephones (using key)
- Call Park
- Dial Intercom

- Group Call, and
- Special Services Access Codes.

Calling Party Privacy

The Last Number Redial (LNR) feature will set a Calling Party Privacy (CPP) flag in the LNR data space if the CPP was included in the last number dialed by the user. Any subsequent outgoing redialed call will send the Privacy Indicator to the far end.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Barred DN's will be stored by Last Number Redial (LNR). DN's redialed using LNR are checked against the active OCB level.

OCB Flexible Feature Codes are not stored as the last number dialed.

China Number 1 Signaling Enhancements

Delay Digit Outpulsing will be denied when dialing is done by way of Last Number Redial.

Conference

When a M2317 telephone conferences in another call, goes on-hook and activates the Last Number Redial (LNR), the LNR feature redials the last number dialed during conference. However, on sets other than the M2317, LNR dials the DN dialed prior to conference.

Group Hunt

A Pilot DN will be stored as a Last Number Redial (LNR) number when it is dialed directly.

Multiple Appearance Directory Number

A last number dialed on a Directory Number (DN) with multiple appearances is stored only against the telephone from which the number was originally dialed.

Multi-Party Operations

For analog (500/2500 type) telephones, the Last Number Redial/Stored Number Redial feature can be used when normal or special dial tone is received. The last number redialed that can be stored is the first call of a consultation connection, and can be stored only after the connection is completely released.

Network Intercom

A Hot Line key cannot be redialed using the Last Number Redial feature.

Off-Hook Alarm Security

Off-Hook Alarm Security treatment may apply to these features if the ASTM expires.

Speed Call

A number dialed using Speed Call will become the LNR number on all telephones, except the M2317.

Speed Call, System

A number dialed using a System Speed Call key becomes the Last Number Redial number on all telephones, except the M2317. A number dialed using SPRE-activated System Speed Call becomes the Last Number Redial number on all telephones. The original Class of Service and NCOS restrictions of the telephone apply when using Last Number Redial.

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

Last Number Redial on an E3W trunk will fail for toll calls. The reason is that E3W trunks do not wait for the ANI request from the Public Exchange, that is expected to appear after the toll access code is dialed. The Public Exchange will not accept the call due to the failure to receive ANI information.

Transfer

When a M2317 telephone transfers a call, goes on-hook and activates Last Number Redial (LNR), the LNR feature redials the last number dialed during the transfer. However, on sets other than the M2317, LNR dials the DN dialed prior to transfer.

Feature packaging

Last Number Redial (LNR) package 90 has no feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Enable or disable LNR for a customer.
- 2 LD 10 – Add or change LNR for analog (500/2500 type) telephones.
- 3 LD 11 – Add or change LNR for Meridian 1 proprietary telephones.

LD 15 – Enable or disable LNR for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- OPT	(LRD) LRA	LNR (denied) allowed.

LD 10 – Add or change LNR for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(LND) LNA	LNR (denied) allowed.
LNRS	4-(16)-31	LNR size. Enter the maximum number of digits that can be stored. Valid entries are 4, 8, 12, (16), 20, 24, 28, 31. Invalid entries are rounded up to the next valid entry. Prompted if CLS = LNA.

LD 11 – Add or change LNR for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(LND) LNA	LNR (denied) allowed.
LNRS	4-(16)-31	LNR size. Enter the maximum number of digits that can be stored. Valid entries are 4, 8, 12, (16), 20, 24, 28, 31. Invalid entries are rounded up to the next valid entry. Prompted if CLS = LNA.
KEY	xx LNK	LNR key, where, xx = key number.

Feature operation

To automatically redial the last number dialed:

- Lift the handset or select a free Directory Number (DN).
- Press the **Last No.** or the **DN** key again.

To automatically redial the last number dialed (analog (500/2500 type) telephones):

- Lift the handset.
- Dial SPRE+89.

Limited Access to Overlays

Contents

This section contains information on the following topics:

Feature description	739
Operating parameters	742
Feature interactions	742
Feature packaging	743
Feature implementation	743
Feature operation	747

Feature description

Limited Access to Overlays allows the administrator to limit access to a configured database. It allows an administrator to define up to 100 login passwords in the configuration record (LD 17), each with its own set of access restrictions. For each Limited Access Password (LAPW), define the level of access the password provides:

- Only the Overlay numbers defined for each password can be accessed.
- Only the customer data specified can be modified by users of each password.
- Only the tenant numbers allowed can be accessed.
- Access to Print Routine LD 20 may or may not include access to the Speed Call lists.

- Access to the Configuration Record (CFN) LD 17 can be restricted to:
 - no access at all to LD 17
 - changing a user's own password only
 - full access to modify the system configuration
- With the Print Only option defined, certain users are limited to the following:
 - Access only to administration Overlays that contain print commands, and can only use the print commands in those Overlays.
 - Full access to all print routines: LDs 20-22 and LDs 81-83.
 - System commands in Traffic Overlay 02 are accessible only to users with access to all customers. Customer-defined commands are accessible according to the customer numbers defined for each password.

Only the highest level password users – Level 2 or PWD2 – can configure or change access for other passwords. These users are the administrators.

Implementing and using the LAPW feature does not interfere with the use of any existing passwords in the system. For a complete listing of the passwords currently used, refer to LD 17, prompts PWD2, NPW1, NPW2, and LD 15, prompts ATAC and SPWD in *Software Input/Output: Administration* (553-3001-311).

Each password can access up to 32 customer-tenant combinations. Each combination is defined by a number designator that includes the customer number (0-99) and the tenant number (0-511).

Each new Limited Access Password (LAPW) must be:

- any combination of numbers and letters (uppercase letters only)
- four to sixteen characters in length with no spaces
- leftwise unique, and
- different from existing passwords.

For example, acceptable passwords can include:

- JSMITH
- 0001
- 2GUEST, and
- TECHNICIAN.

System administrators using PWD1 and PWD2 in LD 17 define access to Overlays with this feature. They may also define certain command use levels within a given Overlay. For instance, the administrator can specify print only access in the Configuration record (LD 17). Any other requests generate the following system message:

SCH8836 PASSWORD HAS PRINT ONLY CLASS OF SERVICE.

After calling up an Overlay, certain commands can be restricted from use by the same password, if that password is properly defined. Trying to use those commands without the correct password is not successful – access is denied.

Logon attempts are monitored for security. Failed attempts with invalid passwords are counted and the tally is compared with a predefined threshold. If the threshold is met or passed, the entry point (TTY or terminal) is locked out for a predetermined time set in Service Change (and password protected). Access from that point is ignored by the system for the lock-out timer defined. Lock-out conditions are reported to all maintenance terminals when they occur, with a special report to the next system administrator who logs on.

The system can keep an Audit Trail to record login information. The four columns in the Audit Trail printout contain:

- column 1 – DAT (date, appears at beginning of each day), or
LOG (a login record)
- column 2 – aa/bb (month/day), or
cc:dd (hours: minutes)
- column 3 – #ee (number associated with password)
- column 4 – ff ff . . . (LD numbers accessed)

Figure 17
Example of Audit Trail printout (LD 22)

DAT	01/02									
LOG	08:01	#03	10	11						
LOG	09:32	#04	15	10	21	57	22	11	15	21
			14	15						
LOG	11:21	#99	12							
LOG	16:35	PWD2	15	17						

Only system administrators, logged in using PWD1 or PWD2, can access the Audit Trail from LD 22.

Administrators can change the size of the Audit Trail buffer, which can be from 50 to 1000 words (divisible by 50). When the buffer is full, new records overwrite the oldest information in the buffer (message OVL401 is sent to the active TTY and all maintenance TTYs). Printing the Audit Trail in LD 22 clears the buffer.

Operating parameters

The LAPW feature should only be enabled on a system with a completed Configuration record in LD 17 (a system that is already up and running). All passwords defined within the feature must be unique. Users and administrators cannot have more than one password defined for any one access configuration.

Feature interactions

Set-Based Administration Enhancements

The Set-Based Administration access passwords which are added to LAPW are subject to the same conditions as the overlay access passwords with the following exceptions:

- Set-Based Administration passwords must be numeric.

- There is no maximum number of login attempts for Administrator or Installer sets. Lockout procedures are not used.
- TTY users are not permitted to login using a Set-Based Administration password.
- Administration sets and User sets are not permitted to login using overlay access passwords.

The total number of LAPW passwords allowed, including overlay access and Set-Based Administration access, is 100.

The permissions and restrictions associated with a Set-Based Administration password used to login to an Administration set or Installer set remain unchanged throughout the login session. Thus, if a TTY user changes a Set-Based Administration password (in LD 17) while an Administration or Installer set is logged in with the same password, the permissions and restrictions associated with the session are not affected. The changes come into effect the next time a user logs in.

Feature packaging

This feature requires Limited Access to Overlays (LAPW) package 164.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Define LAPW options and passwords.
- 2 LD 17 – Change user’s LAPW password (user must log in using current LAPW).
- 3 LD 22 – Check options available for LAPW passwords (administrator).
- 4 LD 22 – Print options for LAPW password (user).
- 5 LD 22 – Print contents of Audit Trail buffer (allowed if using PWD1 or PWD2).

Implementing the LAPW feature requires that you change the Configuration record (CFN) in LD 17.

LD 17 – Define LAPW options and passwords.

Prompt	Response	Description
REQ	CHG END	Change data, or terminate overlay.
TYPE	CFN PWD	Configuration Record. Gate opener.
- PWD2	xxxx	Current level 2 master password.
- NPW1	xxxx	New level 1 login password.
- NPW2	xxxx	New level 2 master password.
- LAPW	0-99	LAPW password number.
-- PWnn	dd...d <CR>	New password for “nn” above. No more changes to LAPW.
-- OVLA	xx xx xx . . .xx, ALL (XALL)	Add these overlays to the list access by password PWnn. Xnn removes the overlay.
-- CUST	0-99, ALL (XALL)	Customer number, all customers (no customers).
-- TEN	xxx xxx . . . xxx, ALL (XALL)	Tenant list for the above customer for password access. XALL removes tenant access for this password.
-- HOST	(NO) YES	Host mode.
-- OPT	aaaa (CFPA) CFPD (LLCD), LLCA (PROD) PROA (PSCA) PSCD	Password Options allowed. Changes to all LD 17 prompts (allowed) denied. Line Load Control commands (denied) allowed. Print Only Class of Service (denied) allowed. Printing Speed Call lists (allowed) denied.
- LAPW	<cr>	Stop defining passwords.
- FLTH	0-(3)-7	Failed logon attempt threshold.
- LOCK	0-(60)-270	Lock-out time in minutes.

- AUDT	(NO), YES	Audit Trail (denied) allowed.
- SIZE	(0)-65534	Word size stored in the Audit Trail buffer.
- INIT	(NO) YES	Reset ports locked out during manual INIT.

LD 17 – Change user’s LAPW password (user must log in using current LAPW).

Prompt	Response	Description
REQ	CHG	Change password options.
TYPE	CFN PWD	Configuration Record. Gate opener.
- PWD2	<CR>	Level 2 master password.
- LPWD	aaaa	Logon Password for LAPW user.
- - NLPW	xx . . . x	New logon password for LAPW user.

LD 22 – Check options available for LAPW passwords (administrator).

Prompt	Response	Description
REQ	PWD	Lookup password options.
PWD2	xxxx	Level 2 master password.
<p>Note: LAPW password options are output to the active TTY only. Options format is shown below:</p>		
FLTH	x	Failed logon attempt Threshold.
LOCK	xx	Lock-out time in minutes.
AUDT	aaa	Audit Trail allowed (denied).
SIZE	xxxx	Word size stored in the Audit Trail buffer.
INIT	aaa	Reset ports locked out during manual INIT.
PWD1	xxxx	Level 1 master password.
PWD2	xxxx	Level 2 master password.
PWxx	aaaa . . .	LAPW password number and password.
OVLA	xx xx xx . . .	Overlays accessible by this password.
CUST	xx TEN xxx	Customer number and tenant numbers accessible.
HOST	No	Host mode.
OPT	aaaa . . .	Password options allowed.

LD 22 – Print options for LAPW password (user).

Prompt	Response	Description
REQ	PWD	Print passwords.
PWD2	<CR>	Administrator's password.
<p>Note: Options available to the logged on password are printed. The format is shown below:</p>		
PWxx	aaaaaa . . .	LAPW password number and password.
OVLA	xx xx xx . . .	Overlays accessible by this password.
CUST	xx TEN xxx	Customer number and tenant numbers accessible.
Host	No	Host mode.
OPT	aaaa . . .	Password options allowed.

LD 22 – Print contents of Audit Trail buffer (allowed if using PWD1 or PWD2).

Prompt	Response	Description
REQ	PRT	Print.
TYPE	AUDT	Audit Trail.

Feature operation

To bypass a specific restriction imposed by the Limited Access to Overlays feature, enter the appropriate password as defined in LD 17.

Limited Access to Overlays Password Enhancement

Contents

This section contains information on the following topics:

Feature description	749
Operating parameters	750
Feature interactions	750
Feature packaging	750
Feature implementation	750
Feature operation	751

Feature description

The Limited Access to Overlays Password (LAPW) protection mechanism has been enhanced to recognize a LAPW option that can be associated with a user login. Access options are used for ensuring that only a Loss Planning Expert will have the capability to customize entries in any of the Loss Planning tables, including the Static Loss Plan Download (SLPD) table and the Dynamic Loss Switching (DLS) table.

The options provide for Loss Planning data customization Allowed (LOSA) and Loss Planning data customization Denied (LOSD). These password options are configurable using LD 17, and are used to provide password protection for Loss Planning data including the existing Static Loss Plan Download (SLPD) table and the Dynamic Loss Switching (DLS) Alternate Levels table.

Operating parameters

LDs 24 and 88 on all machines have their own passwords. These passwords are unaffected by the Limited Access to Overlay feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Limited Access to Overlays (LAPW) is packaged under package 164.

Feature implementation

LD 17 – The OPT prompt associated with LAPW Password Option Access Rights accepts the access rights for Loss Planning Customization Allowed (LOSA) or Denied (LOSD).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PWD	System password and limited access to overlay password.
- PWD2	xxx...x	Current Level 2 master password.
- LNAME_OPTION	(NO) YES	Require login name for password access?
- NPW1	xxx...x	Level 1 log-in password.
-- LOGIN_NAME	aaa...aaaa	Login name for password access.
- NPW2	xxx...x	Level 2 master password.
- LAPW	0-99	Limited Access password number to change.
-- PWnn	xxx...x	Current LAPW password for password nn.

-- OVLA	xx xx ... xx ALL (XALL)	Overlays (02-99) accessible with PWnn.
-- CUST	0-99 ALL (XALL)	Customers who can access overlays with password PWnn.
-- TEN	xx xx ... xx ALL (XALL)	Tenant list for password access.
-- HOST	(NO) YES	Enable HOST mode log-in for PWnn.
-- OPT	(PSCA PSCD (RDBD) RDBA (LLCD) LLCA (CFPA) CFPD (PROD) PROA (LOSD) LOSA	The following options are accessible with PWnn: Print Speed Call Lists Allowed/Denied Resident Debug Access Denied/Allowed Line Load Control Access Denied/Allowed Change Configuration Allowed/Denied Print Only Access Denied/Allowed, and Loss Plan Customization Denied/Allowed.
- FLTH	0-(3)-7	Failed log-in attempt threshold.
- LOCK	0-(60)-270	Lock-out time in minutes.
- AUDT	(NO) YES	Audit trail (denied) allowed.
-- SIZE	(50)-1000	Word size of audit trail buffer.
- INIT	(YES) NO	Reset locked-out ports on Initialization.

Feature operation

To be able to customize entries in any of the Loss Planning tables, including the Static Loss Plan Download (SLPD) table and the Dynamic Loss Switching (DLS) table, enter the appropriate password as defined in LD 17.

Line and Trunk Cards

Contents

This section contains information on the following topics:

Feature description	753
Operating parameters	755
Feature interactions	755
Feature packaging	755
Feature implementation	755
Feature operation	755

Feature description

In addition to providing a definition for card types, this section lists system cards.

Line Cards

Line Cards provide the interface between the system and telephones, their associated data options, and attendant consoles.

- Digital Line Cards
 - NT8D02 Digital Line Card (16 digital telephones plus 16 associated data options/attendant console)
 - NTDK16 Digital Line Card (Chassis systems only; 48 telephones plus 16 associated data options/attendant console)

- analog (500/2500-type) telephone Line Cards
 - NT1R20 Off-Premise Station Analog Line Card
 - NT8D03 Analog Line Card (16 analog in-line telephones)
 - NT8D09 Analog Message Waiting Line Card (16 analog single-line telephones with Message Waiting lamps)

In addition, Data Line Cards are available to interface data communication products.

Note: For information on ITG Line cards, refer to *IP Line: Description, Installation, and Operation* (553-3001-365).

Trunk Cards

Trunk Cards provide the interface between the system and all trunk facilities, including not only public and private network trunks (CO, TIE), but those that connect the system to special features (Recorded Announcement, Paging, and so forth).

- NT8D14AA Universal (any combination of eight: CO, DID, FX, RAN, Paging [low resistance], WATS, TIE, Music)
- NT8D15AA E&M (any combination of four: two-wire E&M, four-wire E&M, four-wire duplex, Paging [high resistance], Emergency Recorder)

Note: For information on ITG Trunk cards, refer to *IP Trunk: Description, Installation, and Operation* (553-3001-363).

Digitone Receivers (DTR)

Digitone Receivers convert Dual-tone Multifrequency (DTMF) signals to a digital format acceptable by the Central Processing Unit (CPU). They are required for all 2500 telephones, some incoming TIE trunks, and Digitone DID trunks. Because DTRs perform a service rather than support an item, the quantity depends on the volume of Digitone traffic generated in a system.

- NT8D16AA Digitone Receiver (eight Digitone Receivers)

Controller Cards

Controller Cards provide the interface and control between the network cards and telephones, consoles, and trunks. These cards are always installed in a dedicated slot in the Intelligent Peripheral Equipment (IPE) module. One Controller Card is required per IPE module.

- NT8D01AD Controller-2 (connects up to two Superloops to one IPE module)
- NT8D01AC Controller-4 (connects up to four Superloops to one IPE module)

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

There are no specific packaging requirements associated with this feature.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Line Load Control

Contents

This section contains information on the following topics:

Feature description	757
Operating parameters	759
Feature interactions	760
Feature packaging	760
Feature implementation	760
Feature operation	762

Feature description

Line Load Control (LLC) is a manually activated feature that denies a percentage of call originations from defined groups of stations. Four distinct levels of control are provided:

- LLC OFF Control is set to OFF (default value)
- LLC F Control of First level only
- LLC S Control of Second level only
- LLC T Control of Third level only

When the active Line Load Control (LLC) level is set to OFF, there is no LLC in effect for the system. When the active level is F, S, or T, every line or trunk of the controlled stations has an equal probability of being denied origination. Each LLC level has its own blocking probability percentage (0-100), which is assigned in system software.

The selection of controlled stations is based on the Class of Service of the station or trunk. There are four Class of Service options for LLC:

- LLC N No LLC
- LLC 1 First LLC Class of Service
- LLC 2 Second LLC Class of Service
- LLC 3 Third LLC Class of Service

The control levels are enabled manually through LD entry and operate in a hierarchical manner. Only one control level can be active at a time. Progressive in sequence, each operating level restricts another class of stations and the classes below it.

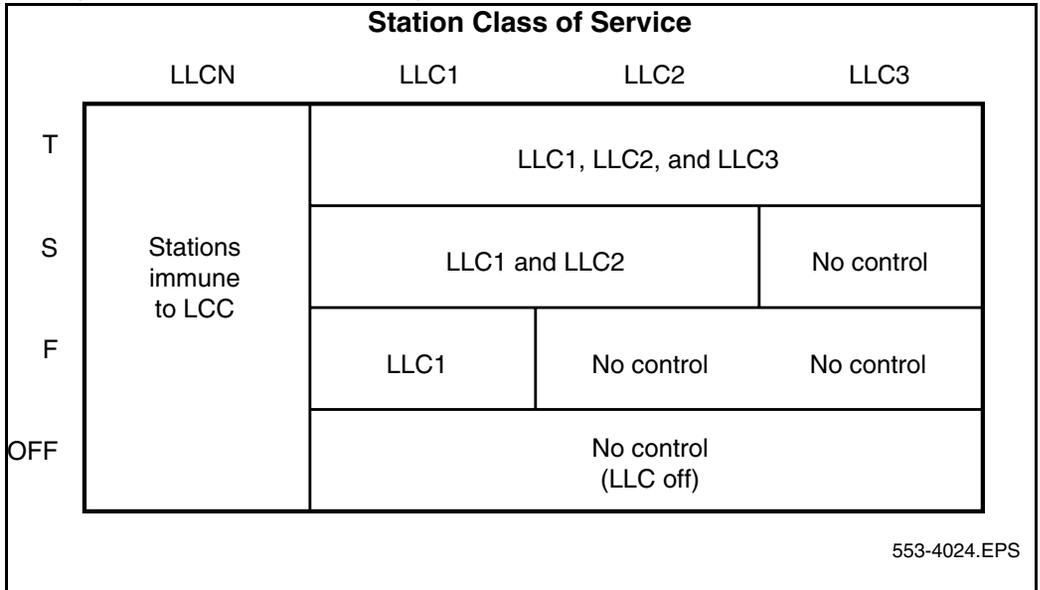
Figure 18 describes the hierarchical nature of LLC. Restrictions are based on the number of originating calls blocked by the probability level set in the LD program.

For example, when LLC S level is enabled, all stations with LLC 1 and LLC 2 Class of Service are limited by the feature, while LLC 3 calls function normally. When LLC T is enabled, only those stations with LLC N Class of Service are allowed to originate calls without restrictions.

Probability levels set by the LD program are whole numbers between 0 and 100. A probability set at 0 (the default value) means no call origins are restricted for that Class of Service. A probability setting of 100 means all calls are restricted when that Class of Service is enabled. Numbers between 0 and 100 are treated as a percentile of calls blocked.

During call processing, LLC screens calls to find the Class of Service for that Directory Number (DN) and the active LLC level, and then decides if the originating set is to receive a dial tone. Sets that are blocked during an LLC level upgrade do not receive a dial tone.

Figure 18
LLC, system control levels (hierarchy and overlap of operative levels)



Operating parameters

The following services are not subject to LLC:

- Attendant stations
- Direct Inward System Access (DISA), and
- Hot Line services.

Established calls are not affected by LLC upgrades, only new calls attempted.

The system counts the calls denied for each Class of Service, and prints the traffic data periodically as part of the Processor Load Format TFS004.

Feature interactions

Automatic Redial

Automatic Redial (ARDL) attempts are controlled and restricted by Line Load Control.

Feature packaging

Line Load Control (LLC) package 105 must be enabled for this feature to operate.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Add or change Line Load Control for analog (500/2500 type) telephones.
- 2 LD 11 – Add or change Line Load Control for Meridian 1 proprietary telephones.
- 3 LD 2 – Set Line Load Control levels.

LD 10 – Add or change Line Load Control for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(LLCN) LLC1 LLC2 LLC3	LLC not enabled (the default). LLC class 1. LLC class 2. LLC class 3.

LD 11 – Add or change Line Load Control for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(LLCN) LLC1 LLC2 LLC3	LLC not enabled (the default). LLC class 1. LLC class 2. LLC class 3.

LD 2 – Set Line Load Control levels.

Prompt	Response	Description
SCTL	x aaa	Set blocking probability. x = F (LLC, level F). S (LLC, level S). T (LLC, level T). aaa = 0-100.
SLLC	x	Activate LLC at level x. x = F (LLC, level F). S (LLC, level S). T (LLC, level T). OFF (deactivate LLC)
TLLC		Print blocking probability and current active LLC level.

Feature operation

No specific operating procedures are required to use this feature.

Line Lockout

Contents

This section contains information on the following topics:

Feature description	763
Operating parameters	764
Feature interactions	764
Feature packaging	766
Feature implementation	766
Feature operation	767

Feature description

When a user remains off hook without dialing any digits, a timeout occurs. The transmission path is released for other uses. Dial tone timeout and interdigit timeout for telephone and Direct Inward System Access (DISA) trunks are considered Line Lockout situations.

The 2500 telephones lock out after 15 seconds. Meridian 1 proprietary telephones, and 500 telephones lock out after 30 seconds. When Line Lockout occurs, the system gives overflow tone for 14 seconds and then puts the telephone in a lockout state. Meridian 1 proprietary telephones are idled, and analog (500/2500 type) telephones appear busy to any incoming calls. DISA calls receive overflow tone.

Flexible Line Lockout-This feature provides three options for lockout treatment for stations and DISA calls. Flexible Line Lockout can perform any of the following functions:

- provide the existing overflow tone and then lockout treatment
- immediately intercept calls to the attendant, or
- receive overflow tone and then intercept to the attendant.

When a call is intercepted to the attendant, ringback is returned and the call appears at the attendant console on a designated Line Lockout (LCT) Incoming Call Indicator (ICI) key. If an LCT ICI key is not defined, the call is treated as a normal incoming call.

When the attendant answers the call, the Directory Number (DN) of the originating telephone, followed by the name (if Call Party Name Display is enabled), is displayed on the console. The attendant may then terminate the call or offer assistance to the call originator.

Flexible Line Lockout Timers – This enhancement to Flexible Line Lockout provides three variable Line Lockout timers. The timers are defined in LD 15, and range from 0 to 60 seconds.

Operating parameters

TIE trunk calls do not receive overflow tone during Line Lockout, and do not receive Flexible Line Lockout treatment.

Feature interactions

Attendant Blocking of Directory Number

If an Attendant Blocking of DN attempt is made on a set in Line Lockout state, busy tone will be returned.

Attendant Overflow Position

A call intercepted to the attendant due to Flexible Line Lockout receives Attendant Overflow Position (AOP) treatment if the feature package is equipped and the AOP Directory Number (DN) is defined.

Call Detail Recording

If a Direct Inward System Access (DISA) call routes to the attendant due to Flexible Line Lockout, and Call Detail Recording (CDR) is selected for incoming trunk calls, a call record generates when the attendant terminates the call after answer. The CDR record shows the attendant number and the route and member numbers.

If the attendant extends the call, the CDR record generates when the call is terminated. The CDR record does not show the attendant Directory Number (DN).

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is not allowed for any telephone that is in Line Lockout state.

Direct Inward System Access

The defined Flexible Line Lockout treatment is provided to Direct Inward System Access calls.

Display

If a call from a telephone equipped with a display is intercepted to the attendant due to Flexible Line Lockout, the telephone displays the digits dialed, if any, before the intercept. If no digits are dialed, the attendant DN and name (if configured) will be displayed. When the attendant answers the call, the console displays the DN and the number zero (0), or any digits dialed and the name (if configured) of the telephone intercepted.

Off-Hook Alarm Security

Off-Hook Alarm Security treatment occurs when a telephone with ASCA Class of Service receives an interdigit or dial tone timeout. The ASTM is used instead of the dial tone and interdigit timers (DIDT and DIND, respectively) normally used for LLT and DLT line lockout treatment.

Recorded Overflow Announcement

Calls intercepted to the attendant due to Flexible Line Lockout receive Recorded Overflow Announcement (ROA) treatment if the Line Lockout (LCT) Incoming Call Indicator (ICI) key is configured for ROA.

System Overflow Tone

If the option for Flexible Line Lockout to the attendant is enabled, any call that is given overflow tone (for example, if the wrong access code is dialed, or if the telephone is not allowed to dial the Trunk Access code) is intercepted to the attendant on overflow timeout.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 15 – Implement Flexible Line Lockout for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	INT	Intercept treatment options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
ICI	0-19 LCT	Assign a Flexible Line Lockout Incoming Call Indicator (ICI) key to attendant consoles.
- LLT		Line Lockout treatment.
	(OVF)	Overflow tone, then lockout.
	OFA	Overflow tone, then attendant intercept.
	ATN	Attendant intercept.

- DLT	(OVF) OFA ATN	Line lockout treatment for Direct Inward System Access (DISA) calls. Overflow tone, then lockout. Overflow tone, then attendant intercept. Attendant intercept.
TYPE	TIM	Timers.
- DIND	2-(30)-60	Dial tone and interdigit timeout for Meridian 1 proprietary telephones, and 500 telephones.
- DIDT	2-(14)-60	Dial tone and interdigit timeout for 2500 telephones.
- BOTO	2-(14)-60	Busy tone and overflow tone timeout for all telephones.

Feature operation

No specific operating procedures are required to use this feature.

Listed Directory Numbers

Contents

This section contains information on the following topics:

Feature description	769
Operating parameters	769
Feature interactions	770
Feature packaging	770
Feature implementation	770
Feature operation	771

Feature description

Each customer within the system can have up to four Listed Directory Numbers (LDNs) in the public directory on Direct Inward Dialing (DID) trunks. Each Listed Directory Number (LDN) is assigned to an Incoming Call Indicator (ICI) key, enabling the attendant to answer an incoming call appropriately. For systems without DID facilities, LDNs can be provided on incoming Public Exchange/Central Office (CO) trunks assigned to a trunk group and an Incoming Call Indicator (ICI) key on the console. Local telephones and TIE trunks can call the attendant using any of the four DNs.

Operating parameters

A maximum of four LDNs can be assigned per customer.

Feature interactions

Call Forward No Answer

A Listed Directory Number (LDN) that is assigned to an Incoming Call Indicator (ICI) has a higher priority than a Call Forward No Answer ICI. When a call is forwarded to an LDN via Flexible DN, the call is presented on an LDN ICI.

Call Party Name Display

Call Party Name Display (CPDN) is not supported for LDNs. If the LDN call is from an incoming trunk route, the CPND assigned to the route access code is displayed.

Directory Number Expansion

LDNs can have up to seven digits if the Directory Number Expansion (DNXP) package is equipped.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 15 – Assign Listed Directory Numbers for each customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	LDN	Departmental Listed Directory Numbers
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

- LDN0	xxx...x	LDN0.
- LDN1	xxx...x	LDN1.
- LDN2	xxx...x	LDN2.
- LDN3	xxx...x	LDN3.

Feature operation

No specific operating procedures are required to use this feature.

Listed Directory Numbers, Network Wide

Contents

This section contains information on the following topics:

Feature description	773
Operating parameters	774
Feature interactions	774
Feature packaging	775
Feature implementation	776
Feature operation	778

Feature description

Listed Directory Numbers (LDNs) can be defined as Incoming Call Indicator (ICI) keys on an attendant console, making it possible to have different presentations when different DN's are dialed. This feature makes it possible to define six LDNs on a system.

If the dialed DN is an LDN and an LDN key exists corresponding to the dialed LDN, the call will be presented on that ICI LDN key.

This feature also enables LDNs to be recognized network wide when Network Attendant Service (NAS) is used. The same LDNs must be configured in multiple nodes. Network LDN is defined on a customer basis.

Operating parameters

The network part of this feature works in a Meridian Customer Defined Network (MCDN) environment with NAS configured.

The LDNs to be used network wide cannot be used in conjunction with Distant Steering Codes.

Feature interactions

Call Forward No Answer

With this feature, the LDN ICI has a higher priority than CFNA ICI. When a call is forwarded to an LDN via Flexible DN, the call will be presented on the LDN ICI.

Centralized Attendant Service

Centralized Attendant Service (CAS) is mutually exclusive to the NAS package. As the network wide LDN feature requires NAS for its networking functions, the network part of this feature will not work with CAS, but the two extra LDNs can be used locally.

Console Operation - Console Presentation

Console Operation makes it possible for each console to select which ICI call types will be presented to the console. Network wide LDN does not work with the Console Presentation feature because it is not supported by NAS. Console Operation can, however, be configured with two additional LDNs.

Console Operation - Queue Thermometer

The queue thermometer indicates how many calls are in the queue for a certain ICI key. An ICI key can correspond to more than one ICI type. Even though the ICI type of a call may be different with or without this feature active, it will not interact with queue thermometer operations.

Console Presentation Group Level Services

This feature provides two more LDNs per Console Presentation Group.

Departmental Listed Directory Number

Departmental LDN is not supported over the network; however, this feature does provide two more LDNs for the DLDN feature.

Network Attendant Service

The way the network LDN calls are presented in a NAS environment is changed by this feature. The presentation on the NDID, NTIE, NCO, NFEX or NWAT, and the LDN0 key is changed to the correct LDN key, if it exists. Otherwise, it will be presented as it previously was on the NDID or LDN0 key.

Network Message Center

With this feature, the LDN ICI has a higher priority than MWC ICI. When a call is forwarded to an LDN over the network to a message center, the call will be presented on the LDN ICI.

Feature packaging

Since Network Wide LDN requires Network Attendant Service routing, the following existing software packages must be provisioned: Network Attendant Service (NAS) package 159; Network Alternate Route Selection (NARS) package 58; Network Class of Service (NCOS) package 32; Basic Routing (BRTE) package 14; and applicable ISDN options depending upon customer requirements.

To use the attendant queue thermometer, Console Operations (COOP) package 169 must be provisioned.

For Departmental LDN to be configured with six LDNS, Departmental LDN (DLDN) package 76 must be provisioned.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Activate Network Wide LDN in CDB. Four prompts define the extended LDN numbers and the Listed Attendants (LDAs) belonging to the LDNs. The prompts can be answered in the same way as the prompts LDN0, 1, 2, 3. The LDA prompts only appear if DLDN is set to YES. These store the attendant console number associated with the LDN number.
- 2 LD 15 – Add or change LDN keys.
- 3 LD 93 – Add or change LDN keys in CPG.

LD 15 – Activate Network Wide LDN in CDB. Four prompts define the extended LDN numbers and the Listed Attendants (LDAs) belonging to the LDNs. The prompts can be answered in the same way as the prompts LDN0, 1, 2, 3. The LDA prompts only appear if DLDN is set to YES. These store the attendant console number associated with the LDN number.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	CDB LDN	Customer Data Block. Departmental Listed Directory Numbers.
...		
- DLDN	YES	YES if no Console Presentation Group (CPG) is configured.
...		
- LDN4	xxxx(xxx)	Listed Directory Number 4. If the DN Expansion (DNXP) package is equipped, up to seven digits are allowed; otherwise, only four digits are allowed.
- LDA4	xx xx... ALL	Attendant consoles associated with LDN4.

- LDN5	xxxx(xxx)	Listed Directory Number 5. If the DNXP package is equipped, up to seven digits are allowed; otherwise, only four digits are allowed.
- LDA5	xx xx... ALL	Attendant consoles associated with LDN5.
- OPT	NLDN (XLDN)	Enable network wide LDN. Exclude LDN.

LD 15 – Add or change LDN keys.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	LDN	Departmental Listed Directory Numbers.
...		
- ICI	x LD4	Listed DN 4, where x is the key number.
- ICI	x LD5	Listed DN 5, where x is the key number.

LD 93 – Add or change LDN keys in CPG.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CPGP	Changes affect the Console Presentation Group parameters.
CUST	xx	Customer number, as defined in LD 15
CPG	x	CPG number.
...		
LDN4	xxxx(xxx)	Listed Directory Number 4. If the DNXP package is equipped, up to seven digits are allowed; otherwise only four can be entered.

LDN5	xxxx(xxx)	Listed Directory Number 5. If the DNXP package is equipped, up to seven digits are allowed; otherwise only four can be entered.
...		
ICI	x LD4	x is the key number for listed DN 4.
ICI	x LD5	x is the key number for listed DN 5.

Feature operation

Calls to node 1 on an LDN, routed by NAS to node 2, are presented to the attendant on node 2 on an ICI according to the following rules.

Note: The feature option in the origination and terminating node is turned on.

- 1 If an LDN key exists corresponding to the dialed DN, the call is presented on this LDN ICI key.
- 2 If no LDN key corresponding to the dialed DN exists, and an ICI key for the trunk type exists, the call is presented on a matching trunk type key.
- 3 If neither of the above cases exists, the call is presented to LDN key 0.
- 4 If there is no LDN zero and no trunk type ICI keys, the call is only presented on the loop key.

Lockout, DID Second Degree Busy, and MFE Signaling Treatments

Contents

This section contains information on the following topics:

Feature description	779
Operating parameters	780
Feature interactions	780
Feature packaging	781
Feature implementation	781
Feature operation	781

Feature description

This feature allows networking treatment to be applied to Multifrequency Signaling for Socotel (MFE), provides an intercept treatment for sets in lockout state, and allows calls to Second Degree Busy sets to be disconnected or routed to the attendant.

These components are described below:

- Calls to a telephone in lockout state are given full intercept treatment, rather than receiving busy tone. Depending on the configuration, the calls are either routed to the attendant, or given overflow tone. This treatment applies to standalone and networking environments.

- Direct Inward Dialing (DID) calls to a telephone in Second Degree Busy (that is, a set that is busy on a call, and has another call waiting or camped-on) state are either disconnected, receive busy tone, or routed to the attendant. If the Second Degree Busy Disconnect (DSTD) option is defined, the call treatment depends on the Class of Service of the second degree busy telephone; Forward Busy Allowed (FBA) causes the calls to be call forwarded busy to the attendant, while Forward Busy Denied (FBD) causes the calls to receive busy tone.
- MFE signaling provides call status information for DID calls over MFE-registered trunks. If a call tandems across an Integrated Services Digital Network (ISDN) network, this enhancement allows the call status information to be sent to the incoming MFE trunk from any outgoing ISDN trunk.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Automatic Call Distribution

The lockout and second degree busy treatments do not apply to Automatic Call Distribution DNs.

Call Forward

Call Forward Busy

Hunting

Message Waiting Forward Busy

Flexible Feature Code (FFC) Boss Secretarial Filtering

Call Forward, Call Forward Busy, Call Hunt, Message Waiting Forward Busy, and FFC Boss Secretarial Filtering take precedence over lockout and second degree busy.

Feature packaging

This feature is packaged as International Supplementary Features (SUPP) package 131; Network Attendant Service (NAS) package 159; Integrated Services Digital Network (ISDN) package 145; and Multifrequency Signaling (MFE) package 135.

Feature implementation

LD 15 – Define an option for DID calls to a second degree busy telephone, and define a new intercept treatment for calls in a lockout state.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	FTR	Features and options.
...		
- OPT	(DSTD) DSTA	DID call to Second Degree Busy treatment (denied) allowed. If allowed, DID calls forwarded to a busy set are disconnected. If denied, calls forwarded to a busy set follow the set's CLS (FBA/FBD) treatment.
TYPE	INT	Intercept treatment options.
...		
INTR	YES	Change Intercept Treatment.
- LCKT	(BSY) OVF ATN RAN NAP SRC1 SRC8	Four of these entries must be entered. The default value is BSY BSY BSY BSY.

Feature operation

No specific operating procedures are required to use this feature.

LOGIVOX Telephone

Contents

This section contains information on the following topics:

Feature description	783
Operating parameters	783
Feature interactions	784
Feature packaging	784
Feature implementation	784
Feature operation	785

Feature description

The LOGIVOX is a digital telephone designed to work on the Swedish A345 500/2500 (a system with modified software). The system echoes dialed digits to the telephone, while the A345 does not. The LOGIVOX uses its own firmware to display dialed digits. Therefore, to allow the use of the LOGIVOX telephone with the system, a Class of Service is provided that suppresses dialed digits from the system, including Last Number Redial. All other digit-display messages are provided through the system, as required. Expanded LOGIVOX telephones, with up to two extra key/lamp strips also may be configured, as required.

Operating parameters

Call party name display is not supported on LOGIVOX telephones.

The LVXA Class of Service cannot be defined or changed through Attendant Console LD 12. In addition, LXVA Class of Service telephones cannot be tested through LD 31.

A telephone assigned LXVA Class of Service cannot be a maintenance set.

The LVXA Class of Service should only be given to a LOGIVOX telephone.

Feature interactions

Digit Display

During manual dialing or last number redial, the display shows the dialed digits, even if the set has display denied Class of Service. If the set has LOGIVOX denied Class of Service, each digit is shown twice.

On-hook Dialing

Because of the firmware on the LOGIVOX set, the DN key 0 is automatically selected when the first digit is dialed, and no other DN has been selected.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

LD 11 – Modify the system hardware and software parameters to allow logivox Class of Service.

Prompt	Response	Description
...		
CLS		Class of Service.
	(NDD)	No Digit Display.
	ADD	Automatic Digit Display.
	DDS	Digit Display Standard.
	(LVXD) LVXA	LOGIVOX Class of Service (denied) allowed.

Feature operation

No specific operating procedures are required to use this feature.

Loop Start Supervisory Trunks

Contents

This section contains information on the following topics:

Feature description	787
Operating parameters	788
Feature interactions	788
Feature packaging	789
Feature implementation	789
Feature operation	790

Feature description

This feature permits the system to detect disconnect and answer supervision, when provided by the Public Switched Telephone Network (PSTN), for outgoing Central Office (CO), FEX, or WATS loop-start trunks. Answer and disconnect supervision signals, provided by the PSTN and subsequently detected by the system, reverse the battery polarity on the tip and ring leads of the trunk (reverse-battery signaling).

Polarity Sensitive Packs (PSPs) or Polarity Insensitive Packs (PIPs) are identified in LD 14.

This feature has the following options:

Toll Definition Coincident

The toll definition allows any digit dialed as the first digit after the trunk access code to define the call as a toll call (refer to LD 16).

Answer Supervision

An answer supervision signal received from the PSTN indicates the call is established for the purpose of other features such as Call Detail Recording (CDR) with answer supervision.

Disconnect Supervision

A disconnect supervision signal is sent when either the calling or called party disconnects thereby freeing the trunk for other use.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Automatic Call Distribution

Since Loop Start Supervisory trunks do not provide disconnect supervision on incoming calls it is not recommended that these trunks be used to auto terminate on an Automatic Call Distribution (ACD) DN.

Call Detail Recording

Call Detail Recording (CDR) will use the toll definition digits as defined in a trunk's Route Data Block instead of using "0" or "1" to identify toll calls.

Call Detail Recording with Answer Supervision

For outgoing calls, the Answer Supervision received from the far end, on Loop Start trunks, will determine when the "CDR with Answer Supervision" feature will start recording the duration of the call.

Call Transfer

If an internal station user transfers an answered outgoing call to another station in the ringing state, then any disconnect signal received from the far end causes the trunk to be released and ringing of the internal set to stop. This operation eliminates the problem of holding trunks and extensions due to lack of supervision on Loop Start trunks.

China – Busy Tone Detection

The interaction with Intelligent Peripheral Equipment (IPE) trunks occurs because Busy Tone Supervision (BTS) can be configured in conjunction with any existing supervision type. For the EXUT, BTS can now be configured with a supervision type of BST (both incoming and outgoing battery reversal) and Polarity Insensitive (PIP). These supervision type's call processing methods are not changed, except that now the first type of supervision received is the one acted upon.

1.5 Mbit Digital Trunk Interface

The CO Loop Start Supervisory trunk will not be supported as a 1.5 Mbit Digital Trunk Interface (DTI) type.

Feature packaging

Loop Start Supervisory Trunks is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 14 – Create or modify trunk data blocks on a per trunk basis.
- 2 LD 16 – Create or modify trunk route data blocks.

LD 14 – Create or modify trunk data blocks on a per trunk basis.

Prompt	Response	Description
...		
SIGL	LOP	Loop start supervision.
SUPN	YES (NO)	Trunk Supervision required (not required).
STYP	PSP (PIP)	Polarity sensitive packs. Polarity insensitive packs.

LD 16 – Create or modify trunk route data blocks.

Prompt	Response	Description
...		
NATL	(YES) NO	North American toll scheme (a toll call has 0 or 1 as first digit after the trunk access code). Prompted when SUPP package is equipped or OAL = YES or OTL = YES.
TDG	0-9	Toll digits – list of digits after the trunk access code which indicates toll calls. Prompted when NATL = NO.

Feature operation

No specific operating procedures are required to use this feature.

Loop Start Supervisory Trunks (Incoming Calls)

Contents

This section contains information on the following topics:

Feature description	791
Operating parameters	792
Feature interactions	792
Feature packaging	792
Feature implementation	793
Feature operation	793

Feature description

This feature adds disconnect supervision for incoming calls from the Public Switched Telephone Network (PSTN) or Central Office (CO), FEX, or WATS loop-start trunks. This is in addition to the existing answer and disconnect supervision available on outgoing trunks for the loop start supervisory trunk feature.

The disconnect supervision on incoming calls applies only to Polarity Insensitive Packs (PIPs). It is the change in polarity (reverse battery), rather than the absolute polarity, that must be detected.

A change in polarity from the PSTN side indicates that the calling party has discontinued the call. The detection of this supervision signal allows a Call Detail Recording (CDR) record to be produced and the trunk to be idled.

Operating parameters

The Central Office cannot disconnect until one second after it is answered by an attendant or station.

This feature is not compatible with the Japan Trunk feature, on a trunk basis.

Polarity detection is disabled during outpulsing. Therefore, polarity state changes of less than 200 milliseconds are ignored after trunk seizure, as are power interruptions of unlimited duration.

If a system station goes on-hook first, a far-end disconnection cannot be detected.

Feature interactions

Automatic Call Distribution

Loop Start trunks with Both Way Supervisory (BST) Class of Service may be used to auto terminate on an Automatic Call Distribution (ACD) DN. Caller disconnection can be detected on trunks designated as BST and removed from the ACD queue.

Call Modification

If an incoming call that is transferred by the attendant to a station is in the ringing state, and the far-end (the Central Office) disconnects, the trunk is released and the ringing stops.

Integrated Voice Messaging Service and Integrated Messaging Service

Integrated Voice Messaging Service (IVMS) and Integrated Messaging Service (IMS) use ACD queues, therefore trunks designated BST may be used for these services.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

LD 14 – Create or modify trunk data blocks on a per trunk basis.

Prompt	Response	Description
SIGL	LOP	Loop start supervision.
SUPN	YES (NO)	Trunk Supervision required (not required).
STYP	BST	Both way Supervisory Trunk - Supervision on both incoming and outgoing loop start PSTN (CO) trunks.

Feature operation

No specific operating procedures are required to use this feature.

Loopback on Public Exchange/ Central Office Trunks

Contents

This section contains information on the following topics:

Feature description	795
Operating parameters	795
Feature interactions	796
Feature packaging	796
Feature implementation	796
Feature operation	796

Feature description

When a Loop Start signaling arrangement Public Exchange/Central Office (CO) trunk unit is disabled a loopback is performed – the unit is hardware seized to prevent the far end switch from making an incoming call; the CO trunk appears to be in an off-hook state. This enhancement prevents loopback from being performed in this scenario.

Operating parameters

This enhancement applies to the Central Office trunk card used in France, which is the NTD9742A.

This enhancement does not apply to CO trunk cards located on Intelligent Peripheral Equipment shelves (loopback prevention is handled by the trunk card in this configuration).

This enhancement does not apply to Direct Inward Dialing (DID)/Direct Outward Dialing (DOD) trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature requires French Type Approval (FRTA) package 197.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

M3900 Full Icon Support

Contents

This section contains information about the following topics:

Feature description	797
Operating parameters	798
Feature interactions	799
Feature packaging	799
Feature implementation	799
Feature operation	799

Feature description

Using distinct icons and flashing cadences, the M3900 Full Icon Support feature informs users of various call states. The icons appear on the LCD next to the Directory Number (DN) keys on the following telephones:

- M3903 series digital telephones (Phase II and Phase III)
- M3904 series digital telephones (Phase II and Phase III)
- M3905 series digital telephones (Phase III)

The icons also appear on the Key-Based Accessory module and the Display-Based Accessory module.

The Full Icon Support feature provides icons for the following functions:

- I-Ringing: The I-Ringing icon appears on the ringing DN of the called telephone.
- I-Active: Telephones in an active call state display the I-Active icon.
- U-Active: The U-Active icon appears on the Multiple Appearance Directory Number (MADN) of a telephone when another telephone sharing the MADN is in the active call state.
- I-Hold: The I-Hold icon appears on the DN of a telephone with a call on hold.
- U-Hold: The U-Hold icon appears on the MADN of the telephone when another telephone sharing the MADN has a call in the hold state.

With Full Icon Support enabled, the Ringing, I-Hold, U-Hold, and Active DN keys display the icons in the following table.

Table 3
Icons and Cadences

Call/Feature state	DN key icon	Cadence
Ringing		Flash
I-Hold		Wink
U-Hold		Flicker
I-Active		On
U-Active		On

Operating parameters

The M3900 Full Icon Support feature requires a minimum of Release 9 of the Key-Based Accessory (KBA) module.

Feature interactions

No feature interactions are associated with this feature.

Feature packaging

The M3900 Full Icon Support feature requires the following packages:

- M3900 Full Icon Support (ICON_PACKAGE) package 397
- Digital Sets (DSET) package 88

Feature implementation

To enable M3900 Full Icon Support, use LD 17.

LD 17 - Enable M3900 Full Icon Support

Prompt	Response	Description
REQ	CHG	Change existing data
TYPE	PARM	System Parameters
.....		
ICON	(NO) YES	Enable the M3900 Full Icon Support feature NO = Disable the M3900 Full Icon Support feature

Feature operation

No specific operating procedures are required to use this feature.

M3900 Set-to-Set Messaging

Contents

This section contains information about the following topics:

Feature description	801
Operating parameters	802
Feature interactions	803
Feature packaging	803
Feature implementation	803
Feature operation	805

Feature description

Use the Set-to-Set Messaging feature to send text messages from one M3900 telephone (called party) to another M3900 telephone (calling party). On receiving a call, an enabled telephone sends a single text message, as specified from the Applications menu.

The following telephones support Set-to-Set Messaging:

- M3903
- M3904
- M3905

During active Set-to-Set Messaging, the caller receives both an audible tone and the sent message. After that, the caller receives a ringback tone, and the call switches to voice messaging. If the called telephone is busy, the calling party receives a call-waiting tone.

Use the Applications menu to activate Set-to-Set Messaging and select which message you want to send. To access the Applications menu, press the Applications key.

Table 4 shows some sample Set-to-Set Messages.

Table 4
Examples of message text

OUT TO LUNCH
BACK TO WORK: 4 Dec 02
BACK TO OFFICE: Jan 03
WILL REPLY AFTER 1 PM
BACK @ 4:00 PM
NOT IN TODAY
RETURN SOON -- 8:10 AM
GONE FOR THE DAY

Operating parameters

Set-to-Set Messaging accepts a maximum of 24 characters per configured message (equivalent to one line on the telephone display).

Using the Applications menu, you can configure up to 10 text messages. However, M3900 telephones support only one Set-to-Set message at a time. To activate Set-to-Set Messaging, you must first define at least one message.

Password protection (if active) also applies to Set-to-Set Messaging.

Feature interactions

Multiple Appearance Redirection Prime/Multiple Appearance Directory Number

If the Multiple Appearance Redirection Prime (MARP) feature is active, then MARP determines which DN's receive the Set-to-Set Message. If MARP is inactive, then Multiple Appearance Directory Number (MADN) determines which DN's configured on the telephone receive the Set-to-Set Message.

Feature packaging

M3900 Set-to-Set Messaging requires the Set-to-Set Messaging package 380.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 11 – Configure Class of Service for M3900 Set-to-Set Messaging
- 2 LD 15 – Modify Set-to-Set Messaging

LD 11 – Configure Class of Service for M3900 Set-to-Set Messaging

Prompt	Response	Description
REQ	NEW CHG	Add new data Change existing data
TYPE	a..a	Type of telephone 3903 = M3903 3904 = M3904 3905 = M3905 Note: Only M3903, M3904, and M3905 support Set-to-Set Messaging.

LD 11 – Configure Class of Service for M3900 Set-to-Set Messaging

Prompt	Response	Description
...		
CLS	(STSD) STSA	(Deny) Allow Set-to-Set Messaging

LD 15 – Modify Set-to-Set Messaging

Prompt	Response	Description
REQ:	NEW	Add new data
	CHG	Change existing datablock information
TYPE:	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T
...		
STS_MSG	(NO) YES	Modify Set-to-Set Messaging
MSG 01	<CR>	Keeps current message
	<text string>	Input the new message to be displayed (up to 24 characters)
...		
MSG 10	<CR>	Keeps current message
	<text string>	Input the new message to be displayed (up to 24 characters)

Feature operation

For more information about the operation of Set-to-Set Messaging, see the *Meridian Digital Telephones: M3901, M3902, M3903, M3904 User Guide*.

M3900 (Single Site) Virtual Office

Contents

This section contains information on the following topics:

Feature description	807
Terms	807
Description	808
Operating parameters	810
Feature interactions	811
Feature packaging	811
Feature implementation	812
Feature operation	815

Feature description

Refer to “IP Network-wide Virtual Office” on page 701 and the Software Licenses chapter in Book 3 for more information on related features and functionality.

Terms

Host Terminal—A physical M3903 or M3904 telephone at which a user logs in to begin a Virtual Office session.

Virtual Office worker—The user who logs into the physical telephone and uses their own personal Virtual Office configuration at the Host Terminal.

Virtual Set— The user’s personal, non-physical-telephone configuration programmed on a phantom TN.

Description

The M3900 (Single Site) Virtual Office feature allows a user to log in to a designated M3903 or M3904 telephone (Host Terminal) and use an individual telephone configuration (virtual set configuration) at that telephone. Calls to the DN assigned to the virtual set (the user’s primary DN) are routed to the Virtual Office Host Terminal where the Virtual Office worker is logged in. The Host Terminal is the physical telephone that a user logs in to as a Virtual Office worker.

This feature maximizes the use of office space and desktop equipment by offering functionality referred to as “Hotelling” or “Hot-desk”. This feature allows office space to be set up with designated, host telephones for the use of visiting telecommuters who can log in using a Flexible Feature Code and their individual DN.

This capability is useful for telecommuters, visitors, and workers who are frequently out of the office. The visitor can log in at any one of the designated telephones set aside for this purpose.

M3903 and M3904 telephones can be configured as Host Terminals.

A Virtual Office worker is required to log in to a Host Terminal that matches their virtual set telephone type. For example, when the individual configuration (the virtual set) of a Virtual Office worker is configured as an M3904, the login process is blocked, if they attempt to log in to an M3903 Host Terminal.

The Virtual Set is a set of features configured for a user and defined on a phantom loop. There is no permanent physical telephone associated with a Virtual Set.

The M3900 (Single Site) Virtual Office feature operates on stand-alone Meridian 1 and CS 1000 systems only.

The Virtual Office worker is identified by a primary DN, which cannot be used as the primary DN for any other telephone, virtual or physical, in the system.

Use the Station Control Password (SCPW, configured in LD 11), to validate the login.

In order to log in using the M3900 (Single Site) Virtual Office feature, the TN associated with the Host Terminal must be configured with the Virtual Office Login Allowed (VOLA) Class of Service (CLS). The TN associated with the User ID for the login must be configured with the CLS VOUA (Virtual Office User Allowed). For more information on VOLA and VOUA, refer to LD 11 and LD 81 in *Software Input/Output: Administration (553-3001-311)*.

Nortel recommends that the Host Terminal have at least internal call and emergency call (911 in North America) capability.

Clearing of the Directory Services Password

With M3900 Phase III, the system can clear the Directory Services password when a Virtual Office worker logs in or out of an M3903 or M3904 Host telephone, if Erase List is allowed. The system administrator configures this functionality by defining the Class of Service as Erase List Allowed (ELA) in LD 11 for the M3903 or M3904 Virtual Set.

This Clearing of Password functionality allows multiple virtual workers, using the same Host telephone, to have access to password-protected features if one of the users sets the password and does not turn it off when they log out.

Clearing of the Callers List and Redial List

The contents of the Redial List, Personal Directory, and Call Log are stored on the M3900 telephone itself between login sessions.

With M3900 Phase III, the system can clear the Redial and Callers lists when a Virtual Office worker logs in or out of an M3903 or M3904 Host telephone. The system administrator configures this functionality by defining the Class of Service as Erase List Allowed (ELA) in LD 11 for the M3903 or M3904 Virtual Set. When the ELA Class of Service is defined, the Callers List and Redial List are automatically cleared when the virtual worker logs in or out. If ELA is not defined, other workers using the same Host telephone can view the Callers and Redial Lists of the previous users.

Automatic Logout for Virtual Office

M3900 Phase III introduced automatic logout for Virtual Office workers. If a Virtual Office worker, who is already logged on to telephone A, tries to log on to telephone B, the system automatically logs the Virtual Office worker off at telephone A and logs them on to telephone B (provided that the Virtual Office worker enters the correct login password). The system administrator enables this functionality in LD 15 at the Virtual Office Automatic Logout (VO_ALO) prompt.

The system administrator can also define a time at which all virtual sets are automatically logged out. The system administrator configures the automatic logout time at the Virtual Office Automatic Logout Time (VO_ALOHR) prompt in LD 15.

If the telephone is busy at the automatic logout time (for example, if the Virtual Office worker is using Corporate Directory or Set-to-Set Messaging), logout occurs when the telephone becomes idle.

Note: If a user logs in to a Host telephone after automatic logout has occurred, the telephone does not automatically log out a second time.

Speed Call for Virtual Office

With M3900 Phase III, M3900 telephones support Speed Call (SCU/SCC) and System Speed Call (SSU only) on virtual set TNs.

Operating parameters

Only one active session per user login ID is allowed at one time in the system.

The Virtual Set Primary DN cannot be a Primary DN on another terminal. The primary DN of virtual set A can be the secondary DN of another virtual set. If both virtual set users are logged in, a call to user A's primary DN can be answered by user B's secondary DN.

If Virtual Office worker A logs out, Virtual Office worker B logs in, and a user calls the primary DN of virtual set A, the scenarios are as follows:

- If Virtual Office worker A has Call Forward configured before logout, the call is forwarded.
- If Virtual Office worker A does not have Call Forward configured, but has the default Call Forward (DCFWD) configured, the call is forwarded to the DCFWD DN. (The DN can be a voice mail DN.)
- If neither of the above two scenarios apply, the caller receives overflow tone.

The virtual set recognizes all system configurations related to the user.

Feature interactions

Speed Call

With M3900 Phase III, M3900 telephones support Speed Call (SCU/SCC) and System Speed Call (SSU only) on virtual set TNs.

Feature packaging

M3900 (Single Site) Virtual Office requires the following packages:

- Virtual Office (VO) package 382
- Virtual Office Enhancement (VOE) package 387

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 97 – Configure a phantom loop for virtual Set.
- 2 LD 57 – Configure Virtual Office Flexible Feature Codes.
- 3 LD 11 – Configure the Virtual Set with Erase List Allowed.
- 4 LD 81 – Print a list or count of Virtual Office terminals.
- 5 LD 20 – Print Terminal Number Block (TNB) data for virtual sets and host terminals.

LD 97 – Configure a phantom loop for virtual Set.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	SUPL	Superloops.
SUPL	Naaa	Superloop designation, where N designates the superloop as a phantom loop, and aaaa = superloop number.
...

LD 57 – Configure Virtual Office Flexible Feature Codes. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW	Add new data block information.
	CHG	Change data block information.
	OUT	Remove data block information.
	END	Exit data block overlay program.

LD 57 – Configure Virtual Office Flexible Feature Codes. (Part 2 of 2)

Prompt	Response	Description
TYPE	FFC	Flexible Feature Codes data block.
...	...	
CODE	VTLN	FFC for virtual set login.
	ALL	Every FFC is prompted.
	<CR>	No further prompt; returns to REQ.
VTLN	xxxx	Virtual set login code.
	<CR>	Returns to “CODE”
CODE	VTLF	FFC type for virtual set logout.
	ALL	Every FFC is prompted.
	<CR>	No further prompt; returns to REQ.
VTLF	xxxx	Virtual set logout code.
	<CR>	Returns to “CODE”
		Note: A phantom TN cannot be moved or copied.

LD 11 – Configure the Virtual Set with Erase List Allowed. (Part 1 of 2)

REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number

LD 11 – Configure the Virtual Set with Erase List Allowed. (Part 2 of 2)

	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(ELD) ELA	Erase Lists (Denied) Allowed.

LD 81 – Print a list or count of Virtual Office terminals.

Prompt	Response	Description
REQ	LST	Print a list of telephones.
	CNT	Print a count of telephones.
CUST	xx	Customer number, as defined in LD 15.
...
FEAT	aaa	Designate a feature mnemonic.
	3900	Print M3900-type telephones, including virtual sets and host terminals.
	DCFW	Print default call forward for phantom TNs, including virtual sets.
...

LD 20 – Print Terminal Number Block (TNB) data for virtual sets and host terminals.

Prompt	Response	Description
REQ:	PRT	Print data block for the requested terminal type(s).
	LTN	List Terminal Numbers of the requested terminal type(s).
TYPE:	a...a	Telephone type, where a...a = 3903V (M3903 Virtual Set), 3904V (M3904 Virtual Set), 3903H (M3903 Host Terminal), or 3904H (M3904 Host Terminal).
	TNB	<p>Note 1: The only telephone types of the M3900 Series that can be configured as a virtual set or host terminal are the M3903 and M3904.</p> <p>Note 2: The Print TNB and List TNB requests always show the logged-off TNB data. In logged-in state, an indication of the logged-in TN (“HOST TN” or “VIRTUAL TN”) is added.</p>

Feature operation

For more information on the operation of this feature, refer to the *Meridian Digital Telephones: M3901, M3902, M3903, M3904 User Guide*.

Make Set Busy

Contents

This section contains information on the following topics:

Feature description	817
Operating parameters	818
Feature interactions	818
Feature packaging	822
Feature implementation	822
Feature operation	823

Feature description

The Make Set Busy (MSB) feature allows a Meridian 1 proprietary telephone to appear busy to all incoming calls. Outgoing calls can still be made from the telephone. To activate this feature, a separate MSB key/lamp pair must be assigned. Incoming calls to Multiple Appearance Directory Numbers (MADNs) in the MSB mode are still signified by the indicator next to the Directory Number (DN) key, and can be answered even while MSB is active. Calls to any Single Appearance Directory Number on the telephone receive a busy indication.

Make Set Busy Flexible Feature Codes

You can activate Make Set Busy from an analog (500/2500 type) telephone by dialing the Make Set Busy Activate (MSBA) FFC (defined in LD 57). To deactivate Make Set Busy, the user dials the Make Set Busy Deactivate (MSBD) FFC (defined in LD 57) or the general Deactivate (DEAF) FFC (also defined in LD 57).

Operating parameters

Make Set Busy does not affect incoming Private Line calls.

Feature interactions

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Make Set Busy feature. If the dialed DN of the set that has the Make Set Busy feature is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Attendant Break-In

For a telephone with Make Set Busy in effect, Break-In is temporarily denied to the attendant. The Break-In lamp uses a slow flash to indicate this situation. Using the Break-In key prior to dialing the destination DN circumvents this situation. After the Break-In, the telephone returns to its prior status.

If the controlling party goes on hook in a Break-In conference, and is being re-rung by the attendant, the ringing takes precedence over Make Set Busy that may be applied to the set.

Attendant Overflow Position

If a telephone that is the only idle AOP DN has MSB activated, calls will not overflow.

If the AOP DN is a multiple appearance DN, the MSB key should be added to all telephones with an AOP DN.

If MSB is activated in a Multiple Call Ringing arrangement, the telephone appears busy. All other appearances of the AOP DN will still receive calls. This allows the user to leave the telephone and prevent callers from overflowing and receiving ringback with no answer.

If the AOP DN is a Multiple Appearance, Single Call arrangement and MSB is activated, the AOP DN of that telephone will flash, but the telephone will not ring (the call can still be answered from that appearance).

Automatic Call Distribution

See *Automatic Call Distribution: Description* (553-3001-351) for information on MSB operations.

Automatic Set Relocation

If Make Set Busy is active when the telephone is relocated, Make Set Busy remains active.

Busy Lamp Field

When a Make Set Busy key is activated, the Busy Lamp Field array will indicate that the first DN only on that set is busy.

Call Forward All Calls

Call Forward All Calls and then Hunting take precedence over MSB.

Call Forward/Hunt Override Via Flexible Feature Code

Make Set Busy is overridden by the Call Forward/Hunt Override Via FFC feature, but there are no changes to the feature itself.

Call Park

Recall of a parked call to a telephone in the Make Set Busy mode is intercepted by the attendant.

Camp-On, Forced

Telephones with Make Set Busy active cannot be camped on to with Forced Camp-On. Overflow tone is returned to telephones attempting Forced Camp-On. Voice Call is blocked by Make Set Busy.

China – Attendant Monitor

If an attendant attempts to monitor a DN which has Make Set Busy activated and is idle, idle DN treatment is given.

China – Flexible Feature Codes - Customer Call Forward

Enhanced Flexible Feature Codes - Customer Call Forward

Customer Call Forward takes precedence over Make Set Busy if both are active.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is not allowed if either of these features is active at the requested party.

Flexible Feature Code enhancement

The Deactivate FFC can be used to deactivate Make Set Busy.

Group Call

A Group Call to a telephone in Make Set Busy or Individual Do Not Disturb mode cannot be completed. The telephone will not be rung and is not counted as part of the Group Call (that is, if all other members in the group have answered, the lamp next to the Group Call key on the originator's telephone lights steadily).

Group Hunt

Make Set Busy (MSB) has priority over Group Hunting. Group Hunting will skip over sets with MSB active.

Hot Line

Make Set Busy is overridden by the Hot Line feature. If a Meridian 1 proprietary telephone is in Make Set Busy mode, incoming Hot Line calls still terminate (ring) on the telephone.

Note: The Conference-Hot Line key overrides Make Set Busy only when the terminating key is HOT.

Idle Extension Notification

It is not possible to request Idle Extension Notification towards an extension that has the Make Set Busy feature activated.

If Idle Extension Notification is requested for a Multiple Call Arrangement DN, the first extension with this DN that becomes idle will cause the recall. This extension will also be blocked from receiving calls.

ISDN QSIG/EuroISDN Call Completion

Sets that have Make Set Busy (MSB) activated can request Call Completion to another DN, as the free notification overrides the MSB feature. Incoming Call Completion to Busy Subscriber (CCBS) requests do not override the MSB feature. A set is considered busy while MSB is active. A CCBS request is registered against a busy set, but only advances when the MSB feature is deactivated and the set remains free.

Make Set Busy and Voice Call Override

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary telephone, and to terminate on the telephone. The telephone is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Network Individual Do Not Disturb

The Individual Do Not Disturb (DNDI) intercept treatment takes precedence over Make Set Busy indication.

Network Intercom

Hot Type I calls terminating on a station in the Make Set Busy mode override Make Set Busy.

Override

Telephones with MSB active cannot be overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override. Voice Call is blocked by MSB.

Override, Enhanced

Priority Override

Telephones with MSB active cannot be affected by Priority Override. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Feature packaging

Make Set Busy (MSB) package 17 has no feature package dependencies.

The following packages are required for Make Set Busy FFCs:

- Background Terminal Facility (BGD) package 99.
- Flexible Feature Codes (FFC) package number 139, and

Feature implementation

LD 11 – Add or change MSB for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx MSB	Add an MSB key. xx = key number.

Feature operation

To make a telephone appear busy to callers:

- Without lifting the handset, press the MSB key. The indicator lights steadily and the telephone will not receive calls.

To cancel MSB:

- Without lifting the handset, press the MSB key. The indicator light is extinguished.

The following instructions are for using Make Set Busy FFCs:

- **Activate**
The user must dial the Make Set Busy Activate (MSBA) FFC.
- **Deactivate**
The user must dial the Make Set Busy Deactivate (MSBD) FFC or the Deactivate (DEAF) FFC.

Make Set Busy and Voice Call Override

Contents

This section contains information on the following topics:

Feature description	825
Operating parameters	825
Feature interactions	826
Feature packaging	826
Feature implementation	826
Feature operation	827

Feature description

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary telephone, and to terminate on the set. The set is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Operating parameters

A Voice Call key on a Meridian 1 proprietary telephone can only be programmed to a single appearance DN.

The set being voice called must be equipped with a speaker.

Feature interactions

Do Not Disturb

Voice calls are not allowed on a set with attendant-activated Do Not Disturb.

Make Set Busy

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary telephone, and to terminate on the telephone. The telephone is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 15 – Enable Make Set Busy Voice Call Override.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

...		
- OPT	VOBA	Voice Override Busy allowed. The response to the OPT prompt has to be VOBA to allow a voice call to override a Make Set Busy condition.

Feature operation

The following example illustrates how a voice call can be made to a set with MSB active:

In this example, Set A is a Meridian 1 proprietary telephone with a **VCC** key programmed with the DN of a single appearance key on set B.

Set B is a Meridian 1 proprietary telephone with a single appearance DN key. Set B has a **Make Set Busy** key which has been activated.

- 1 A goes off-hook, and receives dial tone.
- 2 A presses the **VVC** (Voice Call) key.
A's VCC key lamp is lit and A receives ringback tone. B receives a two-second burst of ring tone. B's terminating DN key lamp flashes.
- 3 After two seconds:
Set A has a one-way voice path to set B. B's DN key lamp is lit. Ring tone to B stops. Ringback tone to A stops. B's Make Set Busy lamp remains lit.
- 4 If B goes off-hook, A and B are connected in a normal two-way conversation.

Make Set Busy Improvement

Contents

This section contains information on the following topics:

Feature description	829
Operating parameters	830
Feature interactions	830
Feature packaging	831
Feature implementation	832
Feature operation	833

Feature description

This feature is designed for a boss/secretary environment. The same Directory Number (DN) appears on more than one set, and is defined as ringing on the secretary set and non-ringing on the boss set.

The Make Set Busy Improvement (MSBI) feature provides an audible notification to the executive non-ringing DN, when all of the secretaries have activated the Make Set Busy (MSB) key on the same appearance of the DN.

Example: The incoming call is directed to the executive DN, the key lamp flashes on the executive set, the secretary receives an audible notification of the same call. If the secretary is not available to answer the call, the secretary presses the MSB key and the call goes back to the executive with audible notification (buzzing or ringing).

The MSBI feature is configured as a new Class Of Service, Make Set Busy Improvement Allowed (MSIA) or Make Set Busy Improvement Denied (MSID). The MSBI feature is configured on a specific Terminal Number (TN) and affects the Single Call Non-Ringing (SCN), Multiple Call Non-Ringing (MCN) and the Private Line Non-Ringing (PVN) keys on that specific TN.

Operating parameters

This feature can be used on proprietary sets with DN key type SCN, MCN or PVN.

The MSBI feature does not support data terminals, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) sets or analog (500/2500) sets. However, the ringing appearances of the DN can be a (500/2500) set but not for a private line.

Feature interactions

Directory Number Delayed Ringing

The MSBI feature takes precedence over the Directory Number Delayed Ringing feature (DNDR). If the MSB key is active on all ringing SCR/MCR sets, the non-ringing SCN/MCN sets ring immediately even if the DNDR feature is active.

If the MSB key is not active on all of the SCR/MCR sets, then the DNDR feature is applied to the SCN/MCN keys.

Executive Distinctive Ringing/Distinctive Ringing by DN

With the distinctive ringing features, the MSBI feature can assign different audible notifications to specific DNs. The audible notification is defined even if the DN is non-ringing. If the MSBI feature turns a non-ringing key into a ringing key, the defined distinctive audible notification is heard.

Multiple Appearance Directory Number

The Make Set Busy Improvement (MBSI) feature affects Multiple Appearance DNs, since the MSB key can manipulate the ringing or non-ringing of multiple appearance DNs.

Ringling Change Key

If Single Call Ringing (SCR) or Multiple Call Ringing (MCR) is changed to non-ringing by Ringing Change Key (RCK) and all ringing sets have MSB active, the sets ring immediately. If MSB is not active on all ringing sets, the lamp flashes on the non-ringing SCR or MCR.

If the SCN or the MCN key is changed from non-ringing to ringing, SCN and MCN lines are rung immediately. If one set is defined as ringing then a lamp flashes at non-ringing sets.

Short buzz for Digital sets

If the MSB key is activated on a set, and there is an incoming call to another SCN/MCN DN key on the same set, a buzzing (or short-buzzing) is applied immediately.

Private Line Service

If the MSB key is active on all ringing appearances of a Private Line DN, the Private Line non-ringing appearances of the same DN rings.

Feature packaging

The MSBI feature requires:

- The Make Set Busy (MSB) package 17

If analog(500/2500 type) sets are used, these additional packages are required:

- Background Terminal (BGD) package 99
- Flexible Features Codes (FFC) package 139

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 11 – Activate the MSBI feature and define Primary DN set (boss) with non-ringing DN key.
- 2 LD 11 – Define another set (secretary) with ringing DN key and MSB key.

LD 11 – Activate the MSBI feature and define Primary DN set (boss) with non-ringing DN key.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...	...	
CLS	MSIA	Allow Make Set Busy Improvement feature. (MSID) = Deny Make Set Busy Improvement feature.
...	...	
KEY		Set function key assignments.
	xx SCN yyyy	xx SCN yyyy = Key number, Single Call Non-Ringing, DN.
	xx MCN yyyy	xx MCN yyyy = Key number, Multiple Call Non-Ringing, DN.
	xx PVN yyyy	xx PVN yyyy = Key number, Private Line Non-Ringing, DN.
...	...	

LD 11 – Define another set (secretary) with ringing DN key and MSB key.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...	...	
KEY	xx SCR yyyy xx MCR yyyy xx PVR yyyy xx MSB	Set function key assignments. xx SCR yyyy = Key number, Single Call Ringing, DN. xx MCR yyyy = Key number, Multiple Call Ringing, DN. xx PVR yyyy = Key number, Private Line Ringing, DN. xx MSB = Key number, Make Set Busy.
...	...	

Feature operation

No specific operating procedures are required to use this feature.

Malicious Call Trace

Contents

This section contains information on the following topics:

Feature description	835
Operating parameters	838
Feature interactions	839
Feature packaging	842
Feature implementation	843
Feature operation	852

Feature description

Malicious Call Trace (MCT) allows users of selected telephones to activate a call trace that results in a printed report of the calling and called parties. The report is generated on all system TTYs designated as maintenance (MTC) terminals.

Malicious Call Trace (MCT) is activated either by Dial Access from single-line (analog (500/2500 type) telephones) and Meridian digital telephones (Meridian 1 proprietary telephones), or by key access from Meridian digital telephones and attendant consoles.

If the initiator hears overflow tone, the call trace has failed for one of the following reasons:

- The station does not have Malicious Call Trace Allowed (MCTA) Class of Service (CLS)

- The station is not established on an active call, or
- The system could not allocate a print register to store the trace information.

An attendant can activate Malicious Call Trace (MCT) only from an attendant console by using the Trace (TRC) feature key. When the Trace (TRC) key is pressed, the system prints a trace report on the source party, the destination party, or both, depending on whether the source key, the destination key, or both keys are active.

The MCT record identifies the source or destination (or both) by printing S or D (or both) prior to the time and date stamp of the record.

Enhanced Malicious Call Trace (EMCT)

With EMCT, the above feature provides the following enhancements:

- Malicious Call Trace is supported on Central Office (CO), Direct Inward Dial (DID) trunks.
- The alarm has a flexible ring timer, allowing a user-selectable range of from 0-15 minutes instead of being fixed at 15 minutes.
- The malicious call can be recorded by using a recording trunk.
- The call trace record can be printed on any Serial Data Interface (SDI) port when MCT is defined as a user. It is also written to the history file.

Note: If MCT is not defined, the record is still printed on the maintenance TTY(s) only.

- The format of the call trace record tells you whether the call type is internal or external. The record identifier is either MCI for internal or MCE for external.

The user may configure an alarm to ring for a flexible period of time (0-15 minutes) for both internal and external calls. If the alarm DN goes off hook, it stops prior to the flexible alarm timer expiring.

Enhanced Malicious Call Trace for Saudi Arabia

From a user's perspective, the Malicious Call Trace feature activation remains the same as it was prior to this enhancement. However, with this enhancement the feature is now available for different types of analog and digital (CO, DID, and DOD) trunks. In order to send the MCT request, a special digit string is transmitted to the CO for an analog or digital trunk interface.

Enhanced Malicious Call Trace for Australia

In Australia, MCT can be activated during the established state of the call when interfaced with AXE-10 Australia on 2.0 Mbit Primary Rate Interface (PRI) trunks. MCT can also be activated during the call clearing state of the call (within a maximum of 30 seconds from the caller going on-hook). When MCT is activated, a special FACILITY message with a Key Pad information element is transmitted to the CO.

Trace Number (TRC) Key Lamp Status

The TRC key lamp status indicates the progress and success of the Malicious Call Trace request signaling to the CO and availability of the recorder. The following are the lamp states:

Lamp Winking

Activation of the TRC key changes the lamp from dark to winking (fast flashing) if the trunk involved in the call requires the signaling to be done. The lamp remains winking, indicating a transient state, until the call trace request signaling to the CO has been completed.

In a Meridian Customer Defined Network (MCDN) tandem scenario, the set which originated the call trace remains winking until a Facility message is received from the node nearest to the Central Office. The user cannot invoke MCT again while the lamp is in the winking state.

Lamp Lit

If the call trace request to the CO is successful and the recorder is conferenced in the call, the lamp state is changed to lit.

In an MCDN tandem scenario, the lamp goes from winking to lit if a Facility message received from the node nearest to the CO indicates that the MCT request was successful. Activation of the TRC key during this state is ignored.

Lamp Flashing

The lamp flashing (slower frequency than winking) indicates that the call trace request to the CO was transmitted successfully, but a recorder could not be conferenced in. Activation of the TRC key during this state regenerates the MCT record, activates the alarm, and again attempts to conference in the recorder. The call trace request signaling to the Central Office is not transmitted again.

Lamp Dark

This lamp state indicates an idle TRC key or failure of the call trace request to the CO.

In an MCDN tandem scenario, the lamp goes from winking to dark if a Facility message received from the node nearest the CO indicates that the MCT request was unsuccessful.

Activation of the TRC during this state initiates all call trace elements again including: transmission of trunk hook flash; conferencing a recorder (if one is not already hooked in); generating an MCT record; and activating an alarm.

Operating parameters

The MCT feature is implemented on a system basis.

Assignment of the Trace (TRC) key cannot be done through the Attendant Administration feature.

The Enhanced MCT feature is available with all telephone types except BRI.

The TRC key cannot be assigned as a soft key on Meridian digital telephones.

Any country using flexible firmware flash timing (60-1536 msec.) requires the Generic XFCOT cards NTCK16AE or NTCK16BE, or the Extended Flexible Universal Trunk (EXUT) card NT8D14BA. For any country not using either the Generic Extended Flexible Central Office Trunk (XFCOT) card or the EXUT card, the same functionality is provided by software control.

The Multi-purpose Serial Data Link (MSDL) (or Downloadable D-channel for Small Systems) must be used to support MCT for AXE-10 Australia (2.0 Mbit PRI).

MCT can be activated against only one established call at a time, regardless of the number of TRC keys defined.

The system is responsible for seizing the trunk to which recorders are connected. When a recorder is involved in the call, the call is treated as a conference call. The party on the source side is allowed to disconnect from the call; doing so also disconnects the recorder and resets the TRC key lamp to dark.

There is no special provision for warning tones while there is a conference with the recording device. The trunk is seized on the basis of the SRCH prompt in LD 16.

The following hardware is required to activate this feature on Large Systems: XFCOT card NTCK16AE, NTCK16BE; EXUT card NT8D14BA; 1.5 Mbps DTI interface QPC472E; 2.0 Mbps DTI interface QPC536B; PRI2 interface NT8D72AA; Digitone Receiver NT8D16AB; Tone and Digit Switch (TDS) NTAK03AA; Recorded telephone trunk; Conference card NT8D17CA; and MSDL card NT6D80AA. Note these are the minimum vintages required.

The following hardware is required for Small Systems: XUT NT8D14A; TDS/Digitone Receiver (DTR) NTAK03AA; CPU/CONF NAK01AA; 2.0 Mbps Primary Rate Interface (PRI) NTAK79AA; D-channel Handler (DCH) loadware NTBK50, NTBK51; 1.5 Mbps Digital Trunk Interface (DTI) NTAK09AA; 2.0 Mbps DTI NTAK10AA; Recorded telephone trunk NT8D14; and Generic XFCOT card NTCK16AE or NTCK16BE; and EXUT card NT8D14BA.

Feature interactions

Malicious Call Trace

China – Attendant Monitor

If a party involved in a monitored call activates the TRC key, monitoring is immediately deactivated.

Calling Party Privacy

Incoming calls to stations having the Malicious Call Trace feature enabled will continue to include the Terminal Number (TN) of the calling party in the Malicious Call Trace record, even if the caller has requested Calling Party Privacy.

Conference Call

When a station or console that is on the conference loop activates the MCT feature, the trace record shows only the conference loop number and conference number as the ORIGTN, and the Terminal Number (TN) of the station or console that activated the feature as the TERTN. No information on the other parties in the conference is given.

History File

The MCT records are stored in the History File if it has been defined as a maintenance (MTC) user in LD 17.

Meridian 911

The Malicious Call Trace (MCT) feature is modified to be supported on ACD sets. ACD sets are allowed to have the Malicious Call trace Allowed (MCTA) Class of Service and a Trace (TRC) key defined. The feature is activated by pressing the MCT key or dialing a MCT access code.

Meridian Mail

The Malicious Call Trace (MCT) feature is modified to be supported on Automatic Call Distribution (ACD) sets. ACD sets are allowed to have the MCTA Class of Service and a TRC key defined. The feature is activated by pressing the MCT key or dialing a MCT access code.

Enhanced Malicious Call Trace

Autodial Tandem Transfer

Enhanced Malicious Call Trace implements the ability to send a call trace request to the CO and provides the possibility to record the call using a recorder. This feature also uses the Centrex/Trunk Switchhook Flash feature; the same enhancement applies to the Autodial Tandem Transfer feature.

Automatic Call Distribution (ACD) Emergency Key (EMR)

The Malicious Call Trace feature operates in a similar manner to the Automatic Call Distribution (ACD) Emergency Key (EMR) feature when conferencing a recording. In this enhancement, the ACD set can activate both the Malicious Call Trace and ACD EMR features.

Called Party Control Option

Prior to this feature, the Called Party Control (CDPC) option was not supported for conference calls. The CDPC option is now supported if the conference contains exactly one recording trunk, one MCT activating party and one other trunk. This is done to make the recorder transparent to the user. The CDPC option remains unsupported for all other conference calls.

Centrex Switchhook Flash

Interaction with the Centrex switchhook flash results because the flash range is changed for this feature. Communication to the CO (trunk hook flash) is performed by using the Centrex switchhook flash feature base code. The enhanced range is available for the Centrex switchhook flash.

Collect Call Blocking

If a station activates Malicious Call Trace (MCT) while the Collect Call Blocking answer signal is being sent, MCT activation is ignored. This also applies to the case when MCT is activated from a remote node.

Conference Call

If MCT is activated during a conference, the trace record shows the conference number and the conference loop number. Trace records are printed for each party involved in the conference. The originator of the call's trace record is printed first.

History File

If the SDI port is defined as an MCT user in LD 17 or the SDI port as a maintenance (MTC) user in LD 17, the MCT records can be stored in the History File. If MCT and MTC users are both defined on the TTY in LD 17, MCT records can also be stored in the History File.

Malicious Call Trace DN/TN Print

If the option MCDC (in LD 15) is set, a second line is added in the MCT reports to show the DN of both parties of the call. If Calling Line Identification (CLID) is available, it is printed in the second line.

Malicious Call Trace Idle Signal

The existing operation of the Malicious Call Trace Idle Signal feature is unchanged.

Meridian 911

The Trunk Hook Flash functionality is used by Meridian 911, Enhanced Malicious Call Trace, and Autodial Tandem Transfer.

Feature packaging

Malicious Call Trace (MCT) and Enhanced Malicious Call Trace (EMCT) require Malicious Call Trace (MCT) package 107.

For ISDN environments, ISDN packages are required based on the node and network interface applicable to the specific country.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Enable MCT on an Analog (500/2500 type) telephone.
- 2 LD 11 – Enable MCT on a Proprietary Telephone.
- 3 LD 17 – Allow printing of the MCT record on a dedicated MCT TTY port.
- 4 LD 16 – Set up the recorder route.
- 5 LD 14 – Set up the recorder trunk.
- 6 LD 15 – Set up the recorder and alarm options.
- 7 LD 16 – Set up the alarm for external calls.
- 8 LD 57 – Define the MCT FFC.
- 9 LD 16 – Configure the call trace string.
- 10 LD 14 – Enable Firmware timing for trunk hook flash (if available).
- 11 LD 73 – Define the DTI2 flash time range.
- 12 LD 16 – Set up MCTM timer and tandem delay (2 Mbps PRI for AXE-10 Australia only).

Note: In order to activate Malicious Call Trace from an analog (500/2500 type) telephone, the user has to dial SPRE + two-digit access code (83) or the MCT Flexible Feature Code FFC.

LD 10 – Enable MCT on an Analog (500/2500 type) telephone. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Analog (500/2500 type) telephone data block.

LD 10 – Enable MCT on an Analog (500/2500 type) telephone. (Part 2 of 2)

Prompt	Response	Description
TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	MCTA, MCTD	Malicious Call Trace is allowed if Class of Service is MCTA.

Note: In order to activate Malicious Call Trace from a Meridian 1 proprietary telephone, it should have CLS MCTA, and the TRC key should be defined. However, the same function can be achieved using a transfer or conference key and the SPRE + 83 or the MCT FFC.

LD 11 – Enable MCT on a Proprietary Telephone. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(MCTD) MCTA	Malicious Call Trace is allowed if Class of Service is MCTA.

LD 11 – Enable MCT on a Proprietary Telephone. (Part 2 of 2)

Prompt	Response	Description
...		
KEY	xx TRC	Key number; Malicious Call Trace. Allowed when CLS = MTA. Key lamp not required. MCT is applied on a TN basis. This key can be configured on ACD telephones.

LD 17 – Allow printing of the MCT record on a dedicated MCT TTY port.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Configuration Record. Gate opener.
- ADAN	xxx TTY yy	xxx = NEW or CHG. yy = port number 0-63 or 0-15.
- USR	MCT	Dedicated TTY port for MCT record.

LD 16 – Set up the recorder route. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.

LD 16 – Set up the recorder route. (Part 2 of 2)

Prompt	Response	Description
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	RCD	Recorder trunk data block.
ACOD	xxxx	Recorder route access code.

LD 14 – Set up the recorder trunk.

Prompt	Response	Description
REQ	NEW	Add new data.
	CHG	Change existing data.
TYPE	RCD	Recorder trunk.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CUST	xx	Customer number, as defined in LD 15
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

LD 15 – Set up the recorder and alarm options.

Prompt	Response	Description
REQ:	CHG PRT END	Change, print, or end.
TYPE:	FTR	Features and options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
...		
- ALDN	xxxxxxx	DN for the alarm (the DN must be on the local system).
- ALRM	(NO) YES	The ALRM prompt appears only if ALDN is defined. ALRM has to be set to YES if the alarm is to be rung for any call (external or internal) when MCT is activated.
- TIME	0-(15)	Time is prompted only if ALRM is set to YES. Time for the alarm is set in one-minute increments from 1 to 15.
- INT	(NO) YES	INT is prompted only if ALRM is set to YES. In addition, INT must be YES if the alarm is to be rung when MCT is activated against internal calls.
- RECD	(NO) YES	If the user wants the recorder, set RECD to YES. This prompt does not appear when a new customer is being defined.
- - MCRT	xxxx	The user has to use the recorder route number defined in LD 16. It will only be prompted if the RECD is set to YES.

LD 16 – Set up the alarm for external calls.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
TKTP	DID COT	Direct Inward Dial or Central Office trunks.
ALRM	(NO) YES	Malicious Call Trace is allowed for external calls when the response is YES.

Note: In order to activate Malicious Call Trace from an analog (500/2500 type) telephone without using the SPRE and 83, the MCT FFC has to be defined.

LD 57 – Define the MCT FFC.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Code.
CUST	xx	Customer number, as defined in LD 15
CODE	MTRC	Malicious Call Trace.
MTRC	xxxx	Flexible Feature Code for Malicious Call Trace.

Note: For analog and 1.5 Mbps digital trunks, the flash range to be sent to the Central Office is configured using the FLH timer. In order to send the string to the Central Office, MCCD must be defined.

LD 16 – Configure the call trace string. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
RCLS	(EXT) INT	Class marked route as (external) or internal.
...		
CNTL	YES	Changes control or timers.
- TIMR	FLH <space> 60- (510)-32640	<p>Hook Flash timer (in msec.) The range for Centrex Switchhook flash timer is 256-(512)-1536. For CAS, it is recommended that the timer be set at 768 or greater.</p> <p>This timer must be at least 256 ms shorter than the remote OGF timer and 256 ms shorter than the ICF timer.</p> <ul style="list-style-type: none"> • 60-89 ms = Digit 1 is sent • 90 ms = Hard coded for XFCOT hook flash • 91-255 ms = Digit 1 is sent • 256-1536 ms = Existing software controlled hook switch flash <p>Range for Centrex Switchhook flash timer is 60-(510)-1536 msec (the value is rounded to the nearest 10 msec).</p> <p>Software controlled Centrex/Trunk Switch Flash timer range of 60- 127 msec is done by sending digit 1.</p> <p>The range of 128-1536 msec is already controlled by Centrex Switchhook Flash feature.</p> <p>Firmware flash user can enter any value from 60 to 1536.</p> <p>FWTM must be YES in LD 14 for the trunk associated with this route, if firmware timing is to be used.</p>
...		
MCTS	(NO) YES	Enter YES to get the new prompts

LD 16 – Configure the call trace string. (Part 2 of 2)

Prompt	Response	Description
MCCD	0-8 digits	The call trace request string can be 0-8 digits in length. Valid digits are 0-9, *, and #.
MCDT	(0)-4	Digit string delay is in seconds, in increments of one second.

Note: The FWTM prompt is provided for EXUT and XCOT cards. This prompt should be set to YES if firmware timing is to be done for the flash and the card supports this functionality. If the prompt is set to YES for one unit, it is also set to YES for all other units.

LD 14 – Enable Firmware timing for trunk hook flash (if available). (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	DID COT	Trunk type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
XTRK	EXUT XCOT	Card type
FWTM	(NO) YES	Firmware timing for the trunk hook flash is available. This prompt is set to YES if firmware timing for trunk hook flash is supported by the card.
CUST	xx	Customer number, as defined in LD 15

LD 14 – Enable Firmware timing for trunk hook flash (if available). (Part 2 of 2)

Prompt	Response	Description
RTMB	0-511 1-4000 0-127 1-4000	Route number and Member Number Range for Large System and CS 1000E system. Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

LD 73 – Define the DTI2 flash time range.

Prompt	Response	Description
REQ	NEW CHG PRT	New, change, or print.
TYPE	DTI2	
FEAT	abcd	Digital signaling category.
SICA	2-16	SICA table number.
...		
FALT (R)	abcd N	Received bits. If FALT (receive) signal is not required.
P RRC(S)	abcd	Register recall signal activated by MCT.
TIME	10-(100)-630	Time of RRC(S) signal in milliseconds. This is the flash duration used for 2.0 Mbit DTI trunks. It is programmable in one-millisecond increments from 10 to 630.

LD 16 – Set up MCTM timer and tandem delay (2 Mbps PRI for AXE-10 Australia only).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CDB	Customer data block.
CUST	xx	Customer number, as defined in LD 15
MCTS	YES NO	
MCTM	(0) - 30	Malicious Call Trace timer (in seconds).
MTND	(NO) YES	Malicious Call Trace disconnect delay for tandem calls for AXE-10 Australia.

Feature operation

To trace a malicious call from an analog (500/2500 type) telephone:

- 1 Flash the switchhook. A special dial tone signifies that the call is on hold.
- 2 Enter SPRE+83. You are reconnected to the call.

To trace a malicious call from a Meridian 1 proprietary telephone using Special Prefix (SPRE) code:

- 1 Press **Transfer** or **Conference**. A special dial tone signifies that the call is on hold.
- 2 Enter SPRE+83. You are reconnected to the call.

To trace a malicious call from a Meridian 1 proprietary telephone using the Trace (TRC) key:

- 1 Press **Call Trace**. You remain connected to the call.

Malicious Call Trace DN/TN Print

Contents

This section contains information on the following topics:

Feature description	853
Operating parameters	853
Feature interactions	853
Feature packaging	854
Feature implementation	854
Feature operation	854

Feature description

This feature enhancement adds a second line to the Malicious Call Trace (MCT) record, printed on the maintenance TTY. This second line provides information about the DNs of the calling and called parties. For trunk calls, the Calling Line Identification (CLID) number (if available) is printed. This enhancement does not change the functionality of the Malicious Call Trace feature.

Operating parameters

See the “Malicious Call Trace” feature in this document.

Feature interactions

See the “Malicious Call Trace” feature in this document.

Feature packaging

Malicious Call Trace (MCT) package 107.

Feature implementation

LD 15 – Enable Printing of Malicious call DN/CLID information.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options
...		
- MCDC	YES	Allow the printing of Malicious Call DN/CLID information for the originating and terminating parties.

Feature operation

The modified MCT record output format is as follows:

First Line

Field No.Field TypeContents

- 1 Record TypeMCT++
- 2 Customer No.CUSTxx++
- 3 Originator<*>TNlscu++/<*>TNlc++/<*>CFlc++
- 4 Terminator<*>TNlscu++/<*>TNlc++/<*>CFlc++
- 5 Source/Dest.+/S/D++
- 6 Time stamp hh:mm:ss++MM/DD/YYYY
- 7 CNIDCNI#xxxxxxxxxxxxxxxxxxxx

Second Line

Field No.Field TypeContents

1 Originator<*>DNxxxxxxx+++++

2 Terminator<*>DNxxxxxxx+++++

or it could be of the following combinations of a DN and CLID number:

1 Originator<*>CLID#xxxxxxxxxxxxxxxxxx++

2 Terminator<*>DNxxxxxxx+++++

or

1 Originator<*>DNxxxxxxx+++++

2 Terminator<*>CLID#xxxxxxxxxxxxxxxxxx++

Malicious Call Trace Idle

Contents

This section contains information on the following topics:

Feature description	857
Operating parameters	857
Feature interactions	858
Feature packaging	858
Feature implementation	859
Feature operation	861

Feature description

The Malicious Call Trace (MCT) Idle signal instructs the Public Exchange/Central Office to give the called party control of the call connection. If the called party does not go on-hook at the end of a conversation, the connection will be held through the Public Switched Telephone Network (PSTN) indefinitely by means of a Multifrequency Compelled (MFC) Idle Call Trace (IDCT) signal generated by the system. This feature allows the automatic call-tracing equipment in the PSTN to print out the appropriate details of the calling party.

Operating parameters

Direct Inward Dialing (DID) calls which terminate on idle trunks result in the IDLE signal being returned to the Central Office.

DID calls which terminate on an attendant console result in either a Multifrequency Compelled IDLE or IDCT signal being returned, depending on the customer option. This applies to both direct and intercept calls.

When an attendant console is in Night Service, the signal being returned is determined by the customer option and not by the classification of the night DN, unless a DID call comes into a night DN.

When a DID call is diverted prior to termination, either by Call Forward, Hunting, or Call Forward Busy, the signal being returned is determined by the called party extension classification.

If a DID call terminates at a Multiple Appearance DN in which at least one station has malicious call trace allowed Class of Service, then a Multifrequency Compelled IDCT signal is returned to the Central Office. If all stations sharing the DN have Malicious Call Trace denied Class of Service, a Multifrequency Compelled IDLE signal is returned.

Feature interactions

Malicious Call Trace - Enhanced

The existing operation of the Malicious Call Trace Idle Signal feature is unchanged.

Recorded Announcement for Calls Diverted to External Trunks

DID calls to a busy Recorded Announcement (RAN) trunk group are queued and receive ring-back tone. A Multifrequency Compelled IDLE signal is returned.

Trunk Supervision

Once a Multifrequency Compelled IDCT signal is returned, the disconnect trunk supervision is limited to the called party.

Feature packaging

Malicious Call Trace (MCT) package 107.

Dependency:

- Multifrequency Compelled Signaling (MFC) package 128.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Enable MCT on an Analog (500/2500 type) telephone.
- 2 LD 11 – Enable MCT on a proprietary telephone.
- 3 LD 15 – Enable the MCT signal.
- 4 LD 94 – Create or modify the MFC tables.
- 5 LD 16 – Create or modify data for each DID trunk route data block to allow or deny MFC Signaling option.
- 6 LD 14 – Create or modify data for each DID trunk data block to allow or deny MFC Signaling option.

LD 10 – Enable MCT on an Analog (500/2500 type) telephone.

Prompt	Response	Description
CLS	(MCTD) MCTA	Class of Service. Malicious Call Trace (denied) allowed. When MCTA is assigned, the station must also have XFA defined.
	(XFD) XFA	Call Transfer (denied) allowed.

LD 11 – Enable MCT on a proprietary telephone.

Prompt	Response	Description
CLS		Class of Service.
	(MCTD) MCTA	Malicious Call Trace (denied) allowed. When MCTD is assigned, the MCT key is removed.
KEY	xx TRC	MCT Key number.

LD 15 – Enable the MCT signal.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options
...		
- OPT	MCTA	Malicious Call Trace signal is allowed for attendants at this customer location.

LD 94 – Create or modify the MFC tables.

Prompt	Response	Description
TYPE	MFT	Multifrequency table.
ICOG	ICT OGT	Incoming Table, Outgoing Table.
TBNO	1 - 127	MFC Table number.
XMIT	IDCT n	Idle Call Trace Signal number.

LD 16 – Create or modify data for each DID trunk route data block to allow or deny MFC Signaling option.

Prompt	Response	Description
MFCI	(0) - 127	MFC Incoming table number.
AUTO	NO	Auto terminate.
MFCO	(0) - 127	MFC Outgoing table number.
AUTO	YES	Auto terminate.
CDCT	(NO) YES	Called Party Control (is not) is to be allowed on Malicious Call Trace Idle Calls.
CDPC	(NO) YES	Called Party Control (is not) is activated when the IDCT signal is sent for non-toll calls.

LD 14 – Create or modify data for each DID trunk data block to allow or deny MFC Signaling option.

Prompt	Response	Description
CLS		Class of Service.
	(DIP) DTN MFC	Dial Pulse. Dual Tone Multifrequency. R2 MFC Signal.
MFL	(0) - 7	MFC digit level required for signals to PSTN.

Feature operation

No specific operating procedures are required to use this feature.

Malicious Call Trace on Direct Inward Dialing

Contents

This section contains information on the following topics:

Feature description	863
Operating parameters	863
Feature interactions	864
Feature packaging	864
Feature implementation	864
Feature operation	866

Feature description

This feature provides an enhancement to the Malicious Call Trace (MCT) feature. If the MCT feature is activated by pressing the trace (TRC) key (on a Meridian 1 proprietary telephone or attendant console), or by dialing the SPRE and 83, a digit 1 is outpulsed to the trunk. This is an indication to the Public Switched Telephone Network (PSTN) to activate its own MCT feature.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the Malicious Call Trace on DID feature described above.

The Malicious Call Trace on DID feature is not available on 1.5 Mbit digital trunks or Japanese Digital Multiplex Interface (DMI) trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Enable MCT on an analog (500/2500 type) telephone data block.
- 2 LD 11 – Enable MCT on a Meridian 1 proprietary telephone data block.
- 3 LD 15 – Enable MCT signal.
- 4 LD 94 – Create or modify the MFC tables.

LD 10 – Enable MCT on an analog (500/2500 type) telephone data block.

Prompt	Response	Description
...		
CLS		Class of Service.
	MCTA	Malicious Call Trace allowed. When MCTA is assigned, the station must also have XFA defined.
	(XFD) XFA	Call Transfer (denied) allowed.

LD 11 – Enable MCT on a Meridian 1 proprietary telephone data block.

Prompt	Response	Description
...		
CLS		Class of Service.
	MCTA	Malicious Call Trace allowed. When MCTD is assigned, the MCT key is removed.
KEY	xx TRC	MCT Key number.

LD 15 – Enable MCT signal.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	FTR	Features and options
...		
OPT	MCTA	Malicious Call Trace signal is allowed for attendants at this customer location.

LD 94 – Create or modify the MFC tables.

Prompt	Response	Description
...		
TYPE	MFT	Multifrequency table.
ICOG	ICT OGT	Incoming Table, Outgoing Table.
TBNO	1-127	MFC Table number.
XMIT	IDCT n	Idle Call Trace Signal number.

Feature operation

No specific operating procedures are required to use this feature.

Manual Line Service

Contents

This section contains information on the following topics:

Feature description	867
Operating parameters	867
Feature interactions	868
Feature packaging	868
Feature implementation	869
Feature operation	869

Feature description

Manual Line Service allows all calls made from an analog (500/2500 type) telephones defined as manual telephones to be handled automatically by an attendant. When the caller goes off-hook, the attendant is contacted immediately. Calls can be placed to telephones with Manual Line Service.

Operating parameters

Manual Line Service applies only to analog (500/2500 type) telephones.

Feature interactions

Attendant Alternative Answering

When Attendant Alternative Answering (AAA) is defined, Manual Line Service follows the AAA parameters.

Attendant Overflow Position

When Attendant Overflow Position (AOP) is defined, Manual Line Service follows the AOP directions.

Automatic Wake Up

Automatic Wake Up (AWU) does not support these features; an AWU call cannot be programmed against a manual line or private line DN.

Night Service

When the system is in Night Service (NSVC) mode, all telephones with a manual Class of Service are routed to the telephone designated as the night number for the customer group.

Phantom Terminal Numbers

Manual Line Service cannot be enabled on a phantom terminal number.

Station-to-Station Calling

If a single line telephone has been assigned a Manual Line Class of Service, the telephone automatically rings the attendant when it goes off-hook.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 10 – Define Class of Service for Manual Line telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
DN	xxx...x	Directory Number assigned to the telephone.
CLS	MNL	Arrange telephone for Manual Line Service.

Feature operation

No specific operating procedures are required to use this feature.

Manual Service Recall to Attendant

Contents

This section contains information on the following topics:

Feature description	871
Operating parameters	871
Feature interactions	872
Feature packaging	872
Feature implementation	872
Feature operation	872

Feature description

This feature allows an incoming Direct Inward Dialing (DID) trunk with far-end control, that has been disconnected at the system end, to perform an attendant recall upon receiving a switchhook flash.

Operating parameters

The Public Exchange/Central Office must be equipped to handle the special signaling requirements associated with the Manual Service Recall to Attendant feature described above.

The Manual Service Recall to Attendant feature is not available on 1.5 Mbit digital trunks or Japanese Digital Multiplex Interface (DMI) trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

LD 16 – Create or modify data for each DID trunk route data block to have or deny MFC Signaling:

Prompt	Response	Description
...		
RCAL	(NO) ATT	Enter ATT to allow Manual Service Recall to the attendant.

Feature operation

To perform an attendant recall upon flash the switchhook. The switchhook flash is considered valid if it lasts at least 30 milliseconds.

When the switchhook flash signal is recognized by the system as being valid, the call is immediately presented to the attendant or to the Night Service number if the attendant is in Night Service.

Manual Signaling (Buzz)

Contents

This section contains information on the following topics:

Feature description	873
Operating parameters	873
Feature interactions	874
Feature packaging	874
Feature implementation	875
Feature operation	875

Feature description

Manual Signaling (Buzz) permits a Meridian 1 proprietary telephone user to sound a buzz tone at a specific telephone.

To activate this feature, a separate buzz key must be equipped. An associated lamp or indicator is not required.

The buzz tone continues as long as the key remains depressed. Manual Signaling (Buzz) has no impact on an existing call or on other active features. If the other telephone is busy on a call, it will still buzz, even if it is a Handsfree call.

Operating parameters

Manual Signaling (Buzz) does not apply to analog (500/2500 type) telephones.

Only Single Appearance Directory Numbers can be buzzed.

Feature interactions

Call Party Name Display

If the Signal key is pressed to buzz another telephone, no digit or name display appears on the telephone.

Network and Executive Distinctive Ringing

Network Distinctive Ringing and Executive Distinctive Ringing do not affect the buzzing of a set.

Voice Call

The same DN can be used for both Voice Call and Manual Signaling (Buzz) as long as it remains a Single Appearance DN.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 11 – Add Manual Signaling (Buzz) key for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx SIG yyy...y	Add a Manual Signaling (Buzz) key, where: xx = key number, and yyy...y = DN to be buzzed (must be a Single Appearance Directory Number).

Feature operation

To buzz a specific telephone:

- Press **Buzz**. The other telephone emits a buzz sound from the speaker for as long as you hold down the **Buzz** key.

Manual Trunk Service

Contents

This section contains information on the following topics:

Feature description	877
Operating parameters	877
Feature interactions	878
Feature packaging	878
Feature implementation	878
Feature operation	881

Feature description

Manual outgoing trunk service permits you to complete an outgoing call, after ringing the trunk, by dialing a predefined trunk access code. Manual incoming trunks, when seized at the far end, are automatically terminated on a specified Directory Number (DN) or, if no DN is specified, at the attendant.

Manual Trunk Service is defined by the trunk Class of Service, and can be applied to outgoing, incoming, and outgoing/incoming trunks. This feature is available to the Central Office (CO), FX, WATS, and TIE trunks with an immediate start arrangement.

Operating parameters

Manual incoming service can be applied to TIE trunks only.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Add or change an incoming manual trunk route.
- 2 LD 14 – Add or change an incoming manual trunk.
- 3 LD 16 – Add or change an outgoing manual trunk route.
- 4 LD 14 – Add or change an outgoing manual trunk.

LD 16 – Add or change an incoming manual trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	TIE	Incoming manual trunks (must be TIE trunks).

ICOG	ICT	Incoming route.
ACOD	xxxx . . x	Trunk route access code.

LD 14 – Add or change an incoming manual trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	TIE	TIE trunks are required for manual incoming trunks.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CUST	xx	Customer number, as defined in LD 15
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
MNDN	xxx...x	Directory Number for automatically terminate.
SIGL	aaa	Trunk signaling, where: aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, or OAD.
STRI	IMM	Incoming start arrangement.
SUPN	(NO) YES	Answer and disconnect supervision (not required) or required.
CLS	(MID) MIA	Manual incoming service (denied) allowed.

LD 16 – Add or change an outgoing manual trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	aaa	Outgoing trunk type, where: aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, ISL, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, or WAT.
ICOG	OGT	Outgoing route.
ACOD	xx . . x	Trunk route access code.
MANO	YES	Enable manual outgoing trunk route.

LD 14 – Add or change an outgoing manual trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	aaa	Outgoing trunk type.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CUST	xx	Customer number, as defined in LD 15
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
MNDN	xx...x	Directory Number for automatically terminate.
SIGL	aaa	Trunk signaling, where: aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, or OAD.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 1 Attendant Console Enhancements

Contents

This section contains information on the following topics:

Feature description	883
Operating parameters	898
Feature interactions	903
Feature packaging	908
Feature implementation	908
Feature operation	911

Feature description

The Meridian 1 Attendant Console Enhancements (MACE) feature expands existing Attendant Console functionality. This feature provides the following enhancements:

- Attendant Console Autoline
- Individual Attendant Console Directory Number (IADN)
- Attendant Emergency Codes

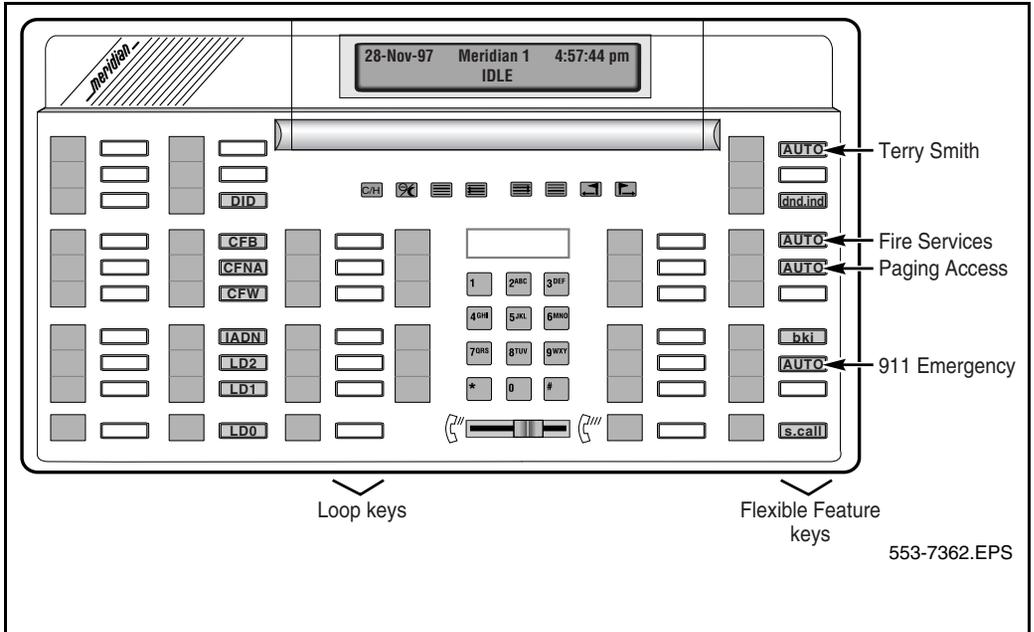
Attendant Console Autoline

The Attendant Console Autoline functionality provides secure autodial services for all types of attendant consoles. These services are programmed on Flexible Feature keys on an attendant basis. When the Autoline key is activated, the system automatically dials a pre-programmed Directory Number (DN). The DN that is stored for the Autoline key can be from 1-31 digits in length and can be either internal or external to the system.

The Autoline key's functionality is almost identical to that of the Autodial key. However, with Autoline functionality, the DN cannot be programmed from the console. Also, the display key function is simplified. With the Autoline functionality, to display a DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy. On an analog console, to display a DN that is longer than eight digits, the attendant presses the Display Source key after pressing the Autoline key.

Figure 3 illustrates an attendant console with four Autoline keys configured on Key Strip 5. This key strip holds the Flexible Feature keys. On Key 2, Autoline is configured to dial 911 for Emergency Calls; on Key 5, Autoline is configured for Paging Access; on Key 6, Autoline is configured to dial Fire Services; and on Key 9, Autoline is configured to dial Terry Smith's DN.

Figure 3
Attendant console with four Autoline keys configured



In order for an Autoline call to be placed, the attendant presses a Loop key and then presses the Autoline key. When the Autoline key is pressed, the pre-programmed number is automatically dialed.

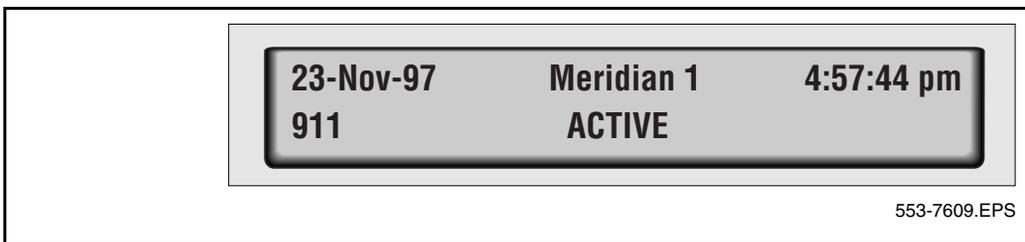
Figure 4 shows an attendant console display when an Autoline call is placed. In this example, the attendant places an Autoline call to Terry Smith at DN 2029. The attendant presses the Loop key and then the Autoline key that is configured to dial Terry Smith's DN. In this case, once the Autoline key is pressed, the attendant display is as shown in Figure 4.

Figure 4
Attendant display when the Autoline functionality is in progress



Figure 5 shows an attendant console display when an Autoline call is placed to an Autoline DN that is external to the system. In this example, the Autoline key is programmed for 911 Emergency. When the attendant presses the Loop key and then the Autoline key, the display shows the external DN that is programmed for the Autoline key. In this case, the external DN is 911.

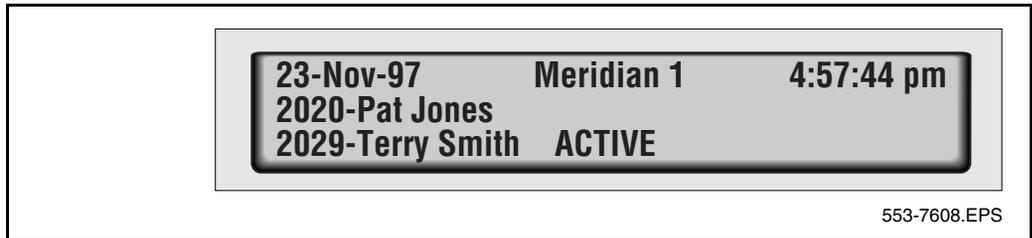
Figure 5
Attendant display when the attendant places an Autoline call to an external Autoline DN



If an attendant is already active on a call and wishes to extend that call to the Autoline DN, the Autoline key is pressed to extend the call.

Figure 6 shows an example of an attendant console display when the attendant is already involved in an established call. In this example, Pat Jones at DN 2020 dials the attendant, and a call is established. The attendant wishes to extend the current call to Terry Smith at DN 2029 and does so by pressing the Autoline key that is configured with Terry Smith's DN. Once the Autoline key is pressed, the attendant display is as shown in Figure 6. When the attendant presses the Release key, the display is cleared.

Figure 6
Attendant display when the attendant extends a call to the Autoline DN



Individual Attendant Console Directory Number (IADN)

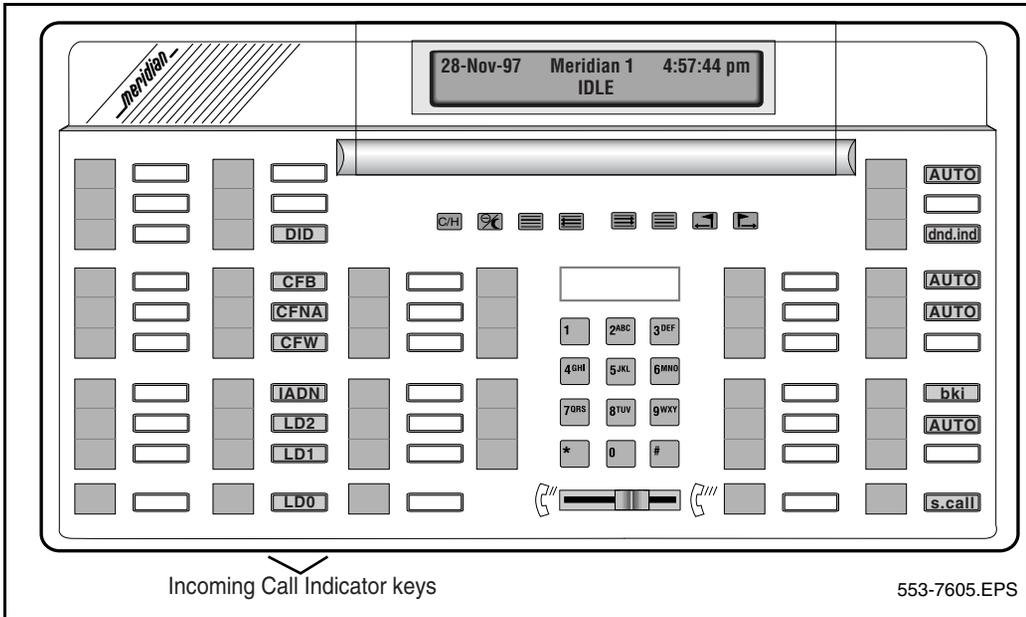
The Individual Attendant Console Directory Number (IADN) functionality allows digital attendant consoles (M2250) to be directly contacted from an internal or external set. Individuals who are paged by an attendant console can now re-call that specific console directly, using a new DN type - Individual Attendant Console Directory Number (IADN).

The IADN can have a maximum of four digits or seven digits if Directory Number Expansion (DNXP) package 150 is equipped. The IADN is defined at an attendant level. For an external set to reach the IADN console, the IADN must be defined as a Direct Inward Dialing (DID) number.

A new Incoming Call Indicator (ICI) key is also introduced with the IADN functionality. The IADN ICI key is defined at a customer level. It allows the attendant to answer an IADN call "out of turn" from the attendant queue. If there is at least one IADN call waiting in the attendant queue, the IADN ICI key lamp flashes.

Figure 7 illustrates an attendant console with an IADN ICI key configured on Key Strip 2. This key strip holds the ICI keys.

Figure 7
Attendant console with an IADN ICI key configured



When an IADN call is made to an attendant console that is already active, the call is placed in the attendant queue. An audible tone, Priority Buzing, may be provided to the active attendant as an indication that an IADN call is waiting to be answered.

Note: The system does not place IADN calls ahead of other calls in the attendant queue. It is the attendant who gives priority to IADN calls by answering them on the IADN ICI key.

For Priority Buzing to be provided to the active attendant, the Individual Attendant DN Buzing (IDBZ) prompt must be set to YES in the Customer Data Block. Also, the IADN ICI key must be configured by defining the Incoming Call Indicator (ICI) prompt in the Customer Data Block.

The default cadence for Priority Buzzing is two seconds on and ten seconds off. However, the cadence can be modified with the Priority Buzzing Cadence (PBUZ) prompt in the Customer Data Block. The PBUZ prompt is a prompt introduced with this feature.

The flexible cadence value range is from 2-16 seconds in multiples of two seconds for the on and the off buzzing phases. If the value entered for either of these two phases is an odd number in the valid range, it is rounded down. For example, if the value entered for the on or off buzzing phase is five, it is rounded down to four.

Idle Attendant Console

An attendant console is idle when it is available to receive incoming calls. When an internal or external party dials the idle attendant's IADN, the call is presented to the attendant on an idle Loop key. The IADN ICI key lamp, if configured, flashes when the call is presented, and the attendant console receives a continuous buzz. Hence, Priority Buzzing is not applicable in this case. When the attendant answers the call, the IADN ICI, Source (SRC), and Loop key lamps are all lit on the console.

Active Attendant Console

When an attendant console is in an active state, the Release (RLS) key lamp is not lit. When an internal or external set places a call to the active IADN attendant, the call waits in the attendant queue to be answered. The treatment given to such a call depends upon whether or not the IADN ICI key is configured as well as how the IDBZ prompt is defined in the Customer Data Block.

When an IADN ICI key is configured and the IDBZ prompt is set to NO in the Customer Data Block, Priority Buzzing is **not** provided when an IADN call is waiting to be answered in the attendant queue. Consider the following example:

- 1 An IADN attendant is involved in an active call.
- 2 An IADN call is placed to the active attendant and waits to be answered in the attendant queue. No Priority Buzzing is provided to the attendant console.
- 3 The attendant releases the active call.

- 4 The next call in the queue is presented to the attendant. All ICI keys on the attendant console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.
- 5 The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key.

When an IADN ICI key is configured and the IDBZ prompt is set to YES in the Customer Data Block, Priority Buzzing is provided when an IADN call is waiting to be answered in the attendant queue. Consider the following example:

- 1 An attendant is involved in an active call.
- 2 An IADN call is placed to the active attendant and waits to be answered in the attendant queue.
- 3 Priority Buzzing is provided to the attendant console. During this time, if another IADN call for the same attendant, is placed in the attendant queue, the Priority Buzzing is not affected.
- 4 The attendant releases the active call.
- 5 The next call in the queue is presented to the attendant.
- 6 The Priority Buzzing stops, and the attendant receives a continuous buzz for the newly presented call. All ICI keys on the attendant console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.
- 7 The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key. If there is another IADN call waiting for the attendant in the queue, Priority Buzzing is applied to the attendant again. If there is not another IADN call waiting, then the Priority Buzzing stops. If the attendant selects another call over the IADN call (using another ICI key or taking a non-IADN call if presented on the Loop key), Priority Buzzing begins again.

When an IADN ICI key is **not** configured and whether or not the IDBZ prompt is set to YES, Priority Buzzing **does not** function. The IADN ICI key must be configured for the Priority Buzzing functionality to be applicable. Consider the following example:

- 1 An attendant is involved in an active call.
- 2 An IADN call is placed to the active attendant and waits in the attendant queue. No Priority Buzzing is provided to the attendant console.
- 3 The attendant releases the active call.
- 4 The next call in the queue is presented to the attendant.
- 5 The IADN call is only presented to the attendant when its “turn” comes about in the attendant queue. The IADN call is presented on a Loop key in this case.

Attendant Console in Position Busy

An attendant console is not able to receive incoming calls when it is in a Position Busy state. In this case, IADN calls unable to reach the busy attendant are treated as normal attendant calls and are instead sent to an available attendant console in the system. Priority Buzzing is not provided to the available console, and the IADN ICI key does not flash, as the IADN call was not originally intended for this particular console. The IADN call is presented to the attendant on a Loop key when its “turn” comes about in the attendant queue. No ICI keys are lit for these calls.

When an IADN console leaves the Position Busy state, it receives Priority Buzzing for all of the IADN calls waiting in the attendant queue.

Customer/Tenant in Night Mode

A customer or tenant is in Night Mode when all of its attendant consoles are in Position Busy. When an IADN call is placed to an attendant console in this situation, the call receives the standard night treatment defined for the Customer. If Network Attendant Service (NAS) is equipped and also has NLDN, Priority Buzzing is provided (if configured).

An attendant console returns to an idle state from Position Busy with an IADN call waiting in the attendant queue. Priority Buzzing is only provided to this attendant console if there is more than one call waiting in the attendant queue and if the IADN call is not the first call in queue. Otherwise, normal attendant treatment occurs.

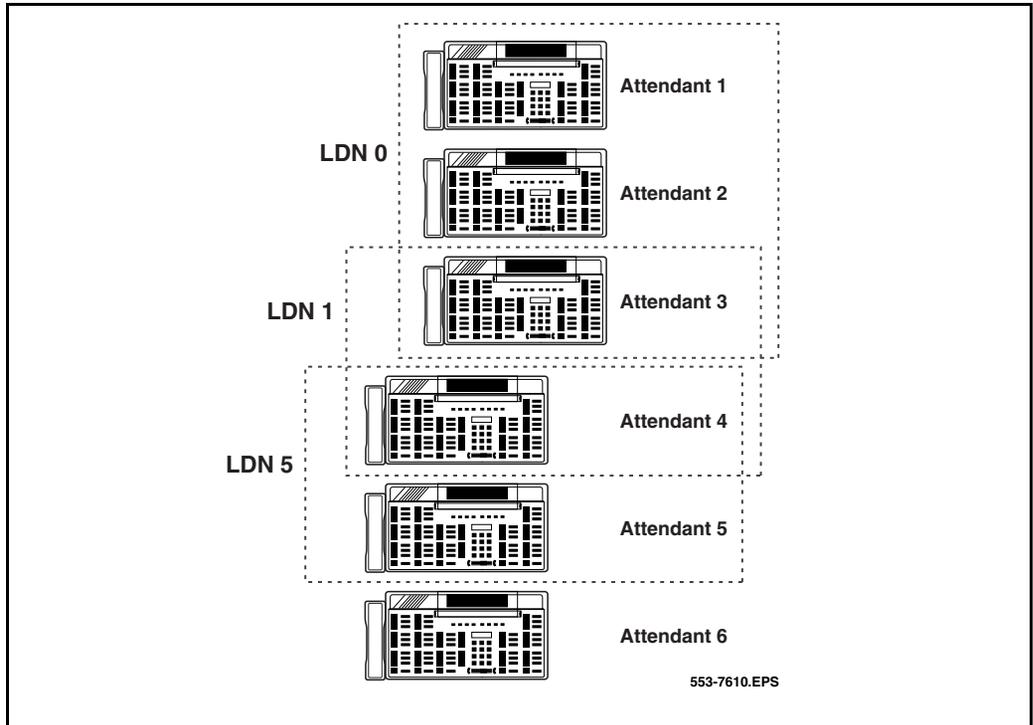
Attendant Emergency Codes

The Attendant Emergency Codes functionality allows an internal/external set to access a group of attendants by dialing an emergency code. This functionality is an enhancement to the existing Departmental Listed Directory Number (DLDN) feature.

The DLDN feature allows specified telephones that share the same numbering plan to belong to one out of a possible six subgroups in a customer. Each DLDN subgroup is identified by one of the customer's Listed Directory Numbers (LDNs). Each department consists of an LDN (0-5) and an associated list of attendant consoles (maximum 63) to which LDN calls are delivered.

Figure 8 provides an example of attendant console DLDN groupings. These groups are assigned using the LDA prompt in LD 15. In Figure 8, LDN 0 consists of Attendants 1, 2, and 3; LDN 1 consists of Attendants 3 and 4; and LDN 5 consists of Attendants 4 and 5. Attendant 6 does not belong to a DLDN group.

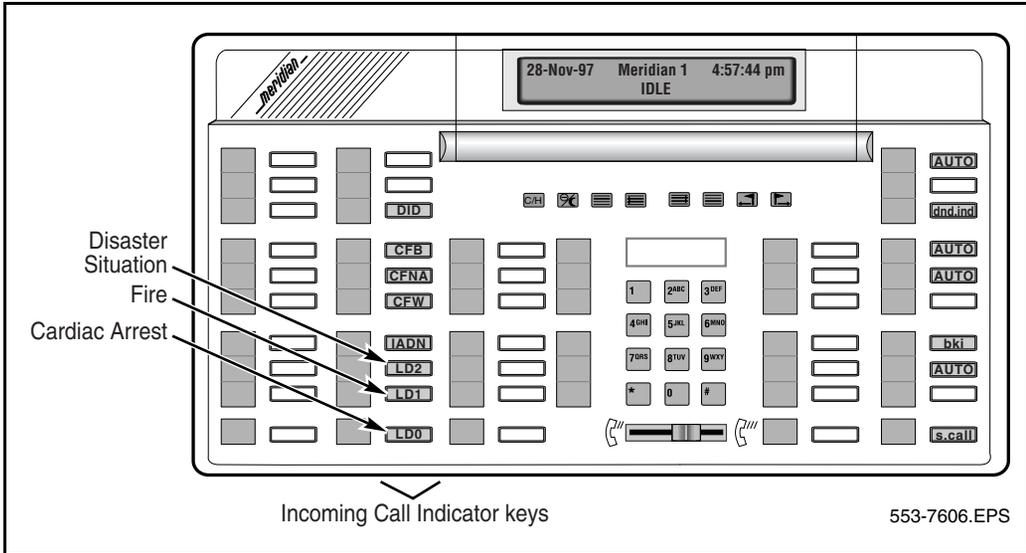
Figure 8
An example of attendant console DLDN groupings



ICI keys LDN 0 to LDN 5 can be configured for LDN calls. Emergency code calls use these same ICI keys, as the Attendant Emergency Codes functionality is an enhancement of the DLDN feature. One ICI key can be associated with more than one type of incoming call. Therefore, one ICI key can be configured to answer all emergency code calls.

Figure 9 shows an example of an attendant console with three LDN ICI keys configured. In this example, a hospital has three LDNs that are associated with a particular emergency situation. LDN 0 and the associated ICI key are used for Cardiac Arrest; LDN 1 and the associated ICI key are used for fire emergencies; and LDN 2 and the associated ICI key are used for disaster situations.

Figure 9
Attendant console with three LDN ICI keys configured



Attendant Emergency Codes functionality provides each DLDN group with the option for Priority Buzzing. Therefore, when the LDN Buzzing (LDBZ) prompt is configured in the Customer Data Block, an audible notification is presented to each of the consoles in the contacted DLDN group. This notification indicates that an emergency code call is waiting to be answered in the attendant queue. The LDBZ prompt allows the selection of each DLDN group that is to be buzzed when an emergency code call is queued.

Therefore, when an internal/external call is placed to LDN 0 as an alert of Cardiac Arrest, all of the attendants in this DLDN group are alerted with Priority Buzzing while the call is waiting in the attendant queue. The LDN 0 ICI key lamp is lit for all attendant consoles in the Customer. However, only the attendants of the selected DLDN group receive Priority Buzzing.

The default cadence for Priority Buzzing is two seconds on and ten seconds off. The cadence can be modified by defining the Priority Buzzing cadence (PBUZ) prompt in the Customer Data Block. The Priority Buzzing functionality for emergency code calls is the same as that for IADN calls.

Idle Attendant Console

When an internal/external emergency code call is placed, the system seeks an idle attendant in the DLDN group. The emergency code calls are presented on an idle Loop key in a “Round Robin” fashion. For example, when an LDN call is received, it is presented to the next listed attendant after the one that was last offered a call. This ensures that emergency code calls are distributed in an equitable fashion. Emergency code calls, dial-0 calls, and timed recalls are serviced according to a circular list for the particular LDN.

When the emergency code call is presented on the idle Loop key, the associated ICI key lamp is lit. The ICI lamp status of other attendant consoles in the Customer is not updated, since the call is already presented on the Loop key.

Referring to Figure 8, consider the following example:

- 1 Party 1, an internal set or external trunk, dials LDN 0.
- 2 The system finds that attendant consoles belonging to this group (Consoles 1, 2, and 3) have presentation status for this call.
- 3 An analysis is now performed to find the attendant that was last offered an LDN call for this group. It is found that Attendant Console 3 was offered the last LDN call.
- 4 The system attempts to present this call to the next available attendant of this group.
- 5 The scanning begins with Attendant 2. If Attendant Console 2 is idle, the call is presented to it.
- 6 If Attendant Console 2 is not available, the system searches for the next attendant console (Console 1) in a round robin fashion.
- 7 When the call is presented to the idle attendant on an idle Loop key, the associated Loop key lamp is lit. Also, the LDN 0 ICI key, if configured, is lit on this console. The Source (SRC) key winks.
- 8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

When a call is presented to the attendant console, the attendant console is buzzed continuously by the system, hence Priority Buzzing is **not** applied.

Active Attendant Console

An attendant console is in an active state when the Release lamp is dark and the Position Busy key is not activated. When an internal/external call is placed to a DLDN group in which all attendants are active, the call is placed in the attendant queue. The LDN ICI key corresponding to this LDN is updated whenever an attendant console of the Customer becomes idle. All active digital attendant consoles in the DLDN group receive Priority Buzzing if the LDN ICI key is configured and if this particular DLDN group is defined at the LDBZ prompt.

Referring to Figure 8, consider the following example:

- 1 Party 1 (an internal set or external trunk) dials LDN0.
- 2 The system finds that the attendant consoles belonging to this group (Consoles 1, 2, and 3) have presentation status for this call.
- 3 An analysis is now performed to find the attendant that was last offered an LDN call for this group. It is found that Attendant 3 was offered the last LDN call.
- 4 The system now attempts to terminate the call to the next available attendant of the group.
- 5 The scanning begins with Attendant 2, the next attendant, and proceeds in a "Round Robin" fashion until an idle attendant console is found.
- 6 If none of the LDN0 consoles are idle, the call is placed in the attendant queue. The call then waits for an idle attendant that has presentation status for the call.
- 7 The system searches for whether or not the LDN 0 ICI key is configured for the customer. If it is configured, the LDN 0 ICI key lamp is lit for all other attendant consoles not in the DLDN group.
- 8 Priority Buzzing is provided to the digital consoles of this DLDN group, depending on the value of the LDBZ prompt and the configuration of the ICI keys in the Customer Data Block.

When an emergency code call is placed, the corresponding LDN ICI key configuration and the value of the LDBZ prompt is checked. If the DLDN group is included for LDN Buzzing (LDBZ) and if an LDN ICI key is configured, all attendants of the group receive Priority Buzzing.

Referring to Figure 8, consider the following example regarding an active attendant console:

- 1 Party 1 (an internal set or external trunk) dials LDN0.
- 2 The LDN 0 ICI key lamp is lit for all attendant consoles not in the DLDN group.
- 3 The LDBZ prompt in the Customer Data Block is checked for whether or not LDN0 should be buzzed when an emergency code call is waiting in the attendant queue.
- 4 When LDN0 is included at the LDBZ prompt, Priority Buzzing is provided to all active digital consoles in this group.

Attendant Consoles 1 and 2 are found to be active and Console 3 in Position Busy. Hence, Consoles 1 and 2 (digital consoles) receive Priority Buzzing.

If Console 3 leaves the Position Busy state, it is presented with the next call in the attendant queue. When the attendant answers the call, Priority Buzzing is provided to the attendant console if there is at least one emergency code call waiting in the attendant queue.

- 5 When a call is waiting in the attendant queue, any one of the attendants in the Customer can pick up the call by pressing the ICI key.
- 6 When one of the attendants belonging to LDN 0 become free, the first call is presented on an idle Loop key.
- 7 When the emergency code call is presented, the associated Loop key lamp is lit and the Source (SRC) key lamp winks. Priority Buzzing stops for all of the DLDN attendants of this group and normal continuous buzzing is provided to the console where the call is presented.
- 8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

If the LDN ICI key is configured and the LDN group is **not** defined at the LDBZ prompt, the attendant consoles of the LDN group are **not** provided with Priority Buzzing.

Referring to Figure 8, LDN 0 is not included at the LDBZ prompt; therefore, no buzzing is provided to the LDN0 group of attendant consoles. The LDN 0 ICI key lamp is lit for all of the attendants not in the DLDN group.

If the LDN ICI key is **not** configured, the LDN call **does not** receive Attendant Emergency Codes treatment, regardless of how the LDBZ prompt is defined in the Customer Data Block. Without the LDN ICI key configured, the call cannot be taken “out of turn” from the attendant queue, and no Priority Buzing is provided.

Attendant Console in Position Busy

If all attendants in the DLDN group are in Position Busy when an emergency code call enters the attendant queue, the call is given the same treatment as an LDN call under the same conditions. Since all attendant consoles in the LDN group are in Position Busy when the call enters the attendant queue, no Priority Buzing is provided, and the call remains in the attendant queue. This call updates the corresponding LDN ICI key (if configured) on all available attendants in the Customer. Hence, the attendant can answer the call by pressing the ICI key.

When an attendant console leaves the Position Busy mode, all of the emergency code/IADN calls waiting in the attendant queue for this particular attendant receive priority treatment. Hence, if any of the attendant consoles in the DLDN group leave the Position Busy state before the call is removed from the queue, Priority Buzing is provided (if configured).

Customer/Tenant in Night Mode

The customer/tenant is in Night Mode if all of its attendants are in the Position Busy. When an LDN/emergency code call is placed, the call receives the standard night treatment as defined for the customer. If Network Attendant Service (NAS) is equipped and also has NLDN, Priority Buzing is provided (if configured).

Operating parameters

Existing limitations apply to the Meridian 1 Attendant Console Enhancements feature.

Attendant Console Autoline

Autoline functionality is supported on all attendant console types.

Any changes to the Autoline Directory Number must be made in LD 12 and cannot be done on the attendant console itself.

The DN programmed on the Autoline key is not verified for validity during configuration. If the DN is invalid, the attendant receives an overflow tone when the Autoline key is used.

The Attendant Autoline key lamp always remains dark.

Individual Attendant Console Directory Number (IADN)

IADN functionality is supported on digital attendant consoles (M2250) only.

IADNs must be unique DNs. Therefore, they cannot be Multiple Appearance DNs.

The IADN is a way to contact an attendant and not a DN key. Hence, when an attendant originates a call, the IADN is not relevant.

The IADN can be programmed from the existing range of DID numbers purchased by the customer.

The Calling Party Name Display (CPND) associated with an IADN is the same as the CPND associated with the Attendant DN.

When an IADN call is placed to a particular attendant when the customer/tenant is in Night Mode, the call receives standard Night treatment as defined for the Customer. During Night Treatment, the call has no priority over other calls in the queue.

As per existing operation, when an attendant places an IADN/LDN call on hold and the system initializes, the IADN/LDN call that is on hold is lost.

As per existing operation, when there is an IADN/LDN call in the attendant queue and the system initializes, all calls in the queue are dropped.

The Call Waiting lamp on the attendant console reflects the IADN calls waiting in the attendant queue.

When an IADN call is placed in the attendant queue, a maximum of a two second delay may occur before Priority Buzzing begins.

When an attendant console is service changed in LD 12 while it is active, the attendant console goes into a Position Busy state. In this case, Priority Buzzing stops for any buzzing IADN call waiting in the attendant queue.

If the attendant console is service changed in LD 12 and REQ = OUT, all IADN calls to this attendant are treated as normal attendant calls and are presented to any available attendant in the Customer/Console Presentation Group. ICI keys are not lit for these calls on other attendant consoles.

If the attendant console is service changed in LD 12 and REQ = CHG, all IADN calls for this attendant are presented to any available attendant in the Customer/Console Presentation Group, unless the IADN attendant leaves the Position Busy state before the call is taken out of the attendant queue and the attendant number is not changed. If this is the case, the call receives priority treatment as defined for IADN.

During service change, when the IADN DN is changed, the IADN calls for the originally intended attendant console can still terminate to that console as long as the attendant number remains the same.

When the IADN ICI key configuration is removed from the Customer Data Block, or if IDBZ = NO, then Priority Buzzing for any IADN calls waiting in the attendant queue is stopped. The attendant is no longer able to answer the IADN call “out of turn” from the attendant queue if the ICI key is removed.

If the IDBZ prompt is changed from NO to YES, the IADN calls waiting in the attendant queue do not apply Priority Buzzing to the respective attendants. However, when a new IADN call is placed in the attendant queue, the attendant console receives Priority Buzzing within two seconds for all of the IADN calls waiting for this particular console in the attendant queue.

If an IADN ICI key is configured for the Customer, Priority Buzzing is not provided for the IADN calls that are already waiting in the attendant queue. Priority Buzzing is only provided when new IADN calls are placed in the queue.

If the IADN ICI key is not configured, the IDBZ prompt is still given, but its value is ignored. Therefore, Priority Buzzing is not provided in this case.

When an IADN call is placed in the attendant queue and waits for a console that is already being buzzed (Recall Buzzing, Attendant Emergency Codes Priority Buzzing, or another IADN call Priority Buzzing) Priority Buzzing is not provided immediately.

Priority Buzzing is not provided when an IADN call is presented to an idle attendant console with normal buzzing.

IADNs cannot be configured as an Attendant Alternative Answering (AAA) DN, Attendant Overflow Position (AOP) DN, or Night DN.

Data calls to an IADN are not supported.

An IADN can be configured as a valid intercept computer DN.

An attendant cannot place a call to another attendant on the same node by dialing the attendant's IADN. If an attendant tries to do this, an overflow tone is given.

Attendant Emergency Codes

All existing limitations/interactions of the DLDN feature apply to emergency code calls.

Attendant Emergency Codes functionality is supported on digital attendant consoles (M2250) only.

The DLDN package must be equipped and enabled in order for Attendant Emergency Codes to function.

Attendant Emergency Codes functionality is supported at a customer level only.

A DLDN group may contain any type of attendant console; however, only digital consoles receive Priority Buzzing.

When the Attendant DN 0 is called, the call is routed to only those attendant consoles belonging to the LDN group. Dial 0 and Slow Answer Recalls are not treated as emergency code calls, and no Priority Buzzing is provided, regardless of how the LDBZ prompt is defined.

When an emergency code call is placed in the attendant queue, a maximum of a two second delay may occur before Priority Buzzing begins.

Each DLDN that is configured as an emergency code number decreases one customer LDN.

When an attendant console is service changed in LD 12 while it is active, the attendant console goes into a Position Busy state. In this case, Priority Buzzing stops for any buzzing emergency code call waiting in the attendant queue. If the attendant console leaves the Position Busy state while the emergency code call is still waiting in the attendant queue, the console receives Priority Buzzing.

If a new LDN ICI key is configured for the Customer, Priority Buzzing is not provided for the emergency code calls that are already waiting in the attendant queue. The console receives Priority Buzzing for new emergency code calls placed in the attendant queue.

If a new DLDN group is defined at the LDBZ prompt, Priority Buzzing is not provided for the emergency code calls that were already waiting in the attendant queue. When a new emergency code call is inserted in the attendant queue, however, Priority Buzzing is provided if the corresponding LDN ICI key is configured.

If an attendant console is removed from its LDN group while an emergency code call is waiting in the attendant queue, Priority Buzzing is stopped. The status of the LDN ICI key lamp remains the same. Also, the attendant console loses its presentation status.

If the ICI key and the LDBZ/IDBZ prompts are not configured appropriately, there may be calls waiting in the attendant queue that are not providing Priority Buzzing to any consoles. If, through service change, the ICI key and the IDBZ/LDBZ prompt are then configured appropriately, Priority Buzzing is still not provided until another valid call enters the queue or the appropriate attendant enters the Position Busy state and then leaves the Position Busy state.

When an attendant console is added to an LDN group, Priority Buzzing is not provided to the console for the emergency code calls that are already waiting in the attendant queue. The console only receives Priority Buzzing for new emergency code calls inserted in the attendant queue.

If the LDN ICI key configuration is removed from the Customer Data Block, or if an LDN group is removed from the LDBZ prompt, then Priority Buzzing for any emergency code calls waiting in the attendant queue is stopped. The attendant will no longer be able to answer the DLDN call “out of turn” from the attendant queue.

An emergency code call that enters the attendant queue to wait for an attendant console which is already being buzzed (for example, the recall buzzer, IADN Priority Buzzing, another Attendant Emergency Codes Priority Buzzing) is not given priority treatment immediately.

When an emergency code call is waiting in the attendant queue, the ICI key lamp on the attendant console is the only visual indication of the emergency. Audible indication, Priority Buzzing can still be provided.

Priority Buzzing is not provided when an emergency code call is presented to an idle attendant console with normal buzzing.

Feature interactions

Attendant Console Autoline

The feature interactions for Attendant Console Autoline are similar to those for Attendant Autodial.

Individual Attendant Console Directory Number (IADN)

Attendant Console

The Attendant Console feature provides equal load distribution among all available attendants. When an IADN call has been handled by an attendant, the system does not consider this attendant as the attendant last used.

Attendant Emergency Codes

If an attendant is already being buzzed for an emergency code call and an IADN call is placed in the attendant queue to wait for this particular attendant, Priority Buzzing is not provided immediately for the IADN call.

Attendant Alternative Answering

Presented IADN calls are given Attendant Alternative Answering (AAA) treatment as defined for the customer. After the predefined timing threshold, unanswered IADN calls are forwarded to the AAA DN. The AAA DN of a console cannot be defined as an IADN.

Attendant Calls Waiting Indication

The Call Waiting lamp on the console winks when the Call Waiting queue Update (CWUP) prompt is set to NO and there is at least one IADN call waiting in the attendant queue for the particular console.

If CWUP = YES in the Customer Data Block, the Call Waiting count on the console includes the IADN calls waiting in the queue. When CWUP = YES, the Call Waiting lamp always remains lit.

If a console is in Position Busy, the IADN call is counted against the Console Presentation Group (CPG) and it is reflected on all consoles of that particular CPG.

Attendant Forward No Answer

IADN calls are given Attendant Forward No Answer (AFNA) treatment as defined for the customer. If an IADN call is not answered in the specified time, it is put back in the attendant queue and the console is put in Position Busy mode. The IADN call now loses its priority and can terminate to any of the available attendant consoles or the NITE DN.

Attendant Overflow Position (AOP)

An IADN call is not forwarded to the Attendant Overflow Position (AOP) DN as long as the intended attendant is available. This is because the addressed attendant is still available and the call can eventually terminate to it once it is placed in the queue.

If the attendant is in Position Busy, its IADN calls will be forwarded to the AOP DN. The AOP DN cannot be an IADN.

Attendant Recall (Slow Answer Recall)

The Slow Answer Recall feature is not affected by Meridian 1 Attendant Console Enhancements.

For call presentation, slow answer recalls take priority over all other calls in the attendant queue. When an active attendant becomes idle, the system first searches for any recalls waiting to be presented and then it attempts to present calls from the main attendant queue.

For an IADN call to be recalled to the same attendant, the Recall to Same Attendant (RTSA) feature must be configured. The Recall ICI key lamp is lit when an IADN call slow answer recalls back to the attendant. The IADN ICI key lamp is not lit in this case, and Priority Buzzing is not applied.

When an analog (500/2500 type) set transfers a call to an IADN, this call is treated as an IADN call whether it is in the queue or presented to the console. When this call is presented to the console, the ICI key lamp is lit and the call is split onto the source and destination sides, as per existing recall functionality.

Attendant Recall (Set Recall)

For call presentation, set recalls do not take priority in the attendant queue.

When an analog (500/2500 type) set without CLS = XFA/TSA performs a switch hook flash or when a Meridian 1 proprietary set presses the Attendant Recall (ARC) key during an established call, this call is treated as an attendant recall. The Recall ICI key lamp is lit and the dialed DN is shown as the Attendant DN.

When an analog (500/2500 type) set with CLS = XFA/TSA performs a switch hook flash and then dials an IADN, the call is treated as a regular set recall while in the attendant queue. The Recall ICI lamp is lit while in the attendant queue. Once this call is presented to the console, it is split onto the source and destination sides as a recall normally does. The IADN ICI lamp is lit.

When a proprietary set transfers a call to an IADN, Set Recall functionality is applicable.

Automatic Call Distribution

An IADN can be configured as an ACD Night DN. When an ACD Night call attempts to terminate on the attendant console, it is treated as a priority call for this attendant.

Console Operations

The IADN feature overrides the presentation status defined by the Console Operations (COOP) feature. Therefore, even if presentation status is denied on the IADN ICI key, IADN calls are automatically presented on the Loop key.

Call Redirection features

Whenever an IADN call is made as a result of Call Redirection, this call receives the standard IADN treatment (that is, Priority Buzzing and IADN ICI). The Attendant IADN feature does not distinguish between forwarded calls and direct dial IADN calls.

Hunt

If an IADN is defined as part of a Hunt chain, calls terminate to the IADN, following the Hunt chain. Once a call is placed in the attendant queue, however, the next DN in the Hunt chain is not sought.

If the IADN console is in Position Busy, the call is presented to any one of the available attendants in the Customer/Console Presentation Group. Therefore, the next DN in the Hunt chain is not sought once an attempt is made to present the call to the IADN attendant.

Message Center

If an IADN is given as an MWK DN, the Message Waiting calls receive IADN treatment. Therefore, Priority Buzzing is provided, and the IADN ICI key is lit (if configured).

Multi-Tenant Service

Sets belonging to a Customer can be divided into customer subgroups known as tenants. A set belonging to one tenant can call an attendant belonging to another tenant by dialing the attendant's IADN. The IADN functionality takes precedence over the Multi-Tenant Service feature.

Network Attendant Service

Network Attendant Service (NAS) treatment is applied when the Customer/Console Presentation Group is in Night mode. An IADN call rerouted using NAS loses its priority at the remote node.

If the NAS ID of one node is defined as the IADN/emergency code number of the remote node, priority treatment is provided to all redirected calls, including IADN/emergency code calls. In this case, the IADN ICI key has a higher precedence than the corresponding NAS ICI key.

Network Message Services

The IADN ICI key takes priority over the MWC ICI key. When a call is forwarded to an IADN over a network to a Message Center, the call receives Priority Buzzing and the IADN ICI key is updated (if configured).

Night Service

When the system is in Night mode and an IADN call is the next call to be presented, the call receives Night treatment as defined for the Customer. Priority Buzzing is not provided to the Night DN. The IADN call is presented to the Night DN whenever its "turn" comes about.

If the system returns to Day Mode, the remaining IADN calls in the attendant queue are provided with priority treatment. The Night DN for the Customer/Console Presentation Group cannot be an IADN.

Enhanced Night Service

IADN calls from the public network lose their priority treatment when presented to the Enhanced Night DN. If the system returns to Day Mode, the remaining IADN calls in the attendant queue receive priority treatment. The Enhanced Night DN of a trunk cannot be an IADN.

Permanent Hold

If a set is in Permanent Hold and dials an IADN, the set receives overflow tone.

Attendant Emergency Codes

Attendant Forward No Answer

When an unanswered emergency code call is given Attendant Forward No Answer (AFNA) treatment, it is placed back in the attendant queue when it is not answered within the specified time, and the console is placed in Position Busy. If the other consoles of this particular DLDN group are in an active state, Priority Buzzing is provided for them, depending upon the configuration of the LDN ICI key and the value of the LDBZ prompt.

Individual Attendant Directory Number

If an attendant console is already receiving Priority Buzzing for an IADN call that is waiting in the attendant queue, Priority Buzzing is not provided immediately for an emergency code call that enters the attendant queue.

Network-wide Listed Directory Number

When the DLDN dialed at one node is configured as an emergency code number at a remote node, a call routed using Network Attendant Service (NAS) (when Network-wide Listed Directory Number (NLDN) is configured) terminates at the remote node and receives priority treatment.

Feature packaging

The Attendant Console Autoline and the Individual Attendant Console Directory Number (IADN) functionalities are included in base system software. For Attendant Emergency Codes functionality, however, Departmental Listed Directory Number (DLDN) package 76 is required.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Configure Priority Buzzing and an Individual Attendant Directory Number (IADN) Incoming Call Indicator (ICI) key for a digital attendant console.
- 2 LD 15 – Configure Departmental Listed Directory Number (DLDN) and Priority Buzzing for Attendant Emergency Code calls.
- 3 LD 12 – Configure an Autoline DN for an attendant console.
- 4 LD 12 – Configure an Individual Attendant Directory Number (IADN) for a digital attendant console.

LD 15 – Configure Priority Buzzing and an Individual Attendant Directory Number (IADN) Incoming Call Indicator (ICI) key for a digital attendant console.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	2250	Attendant console options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
...		

IDBZ	YES	Individual Attendant DN Buzzing-on for IADN calls in the attendant queue. NO = Individual Attendant DN Buzzing-off for IADN calls in the attendant queue (default).
PBUZ	xx yy	Flexible Priority Buzzing cadence for IADN and Attendant Emergency Code calls, where: xx = Priority Buzzing - on phase yy = Priority Buzzing - off phase The PBUZ range is from 2 to 16 seconds. If the value entered is an odd number between 2 and 16, it is rounded down to the next lowest even integer.
...		
ICI	xx IADN	ICI key for individual Attendant DN, where: xx = ICI key number (0 - 19).

LD 15 – Configure Departmental Listed Directory Number (DLDN) and Priority Buzzing for Attendant Emergency Code calls.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	LDN	Listed Directory Numbers.
CUST	xx	Customer number, as defined in LD 15
DLDN	YES	Departmental Listed Directory Numbers.
...		
LDN5	xxxx	Emergency code number.
LDA5	1-63	M2250 attendant console associated with LDN5.

ICI	xx LD0 xx LD1 xx LD2 xx LD3 xx LD4 xx LD5	Incoming Call Indication for Listed Directory Numbers 0-5. xx = key number 00-19.
LDBZ	n n n n n n	The DLDN groups which should be buzzed when an LDN/ emergency code call is in the attendant queue, where: n = 0, 1, 2, 3, 4, and/or 5.

LD 12 – Configure an Autoline DN for an attendant console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	2250	Attendant console type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
KEY	nn AUTO xxx...x	Direct Autoline DN, where: nn = Key number (0 - 19) and xxx...x = Autoline DN. The Autoline DN can be 1-31 digits in length.

LD 12 – Configure an Individual Attendant Directory Number (IADN) for a digital attendant console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	2250	Attendant console type.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
ANUM	1 - 63	Attendant Number.
...		
IADN	xxxx	Individual Attendant DN for this attendant console. The Individual Attendant DN can be 1-4 digits in length or 1-7 digits in length if DNXF package 150 is equipped. The IADN cannot be a Multiple Appearance DN.

Feature operation

Attendant Console Autoline key

To place an Autoline call:

- 1 The attendant presses a Loop key. The Loop key lamp is lit.
- 2 The attendant presses the Autoline key. The pre-programmed number on the Auto-line key is automatically dialed. The Source (SRC) lamp on the Attendant Loop key winks.
- 3 The dialed party answers the call, and the SRC key lamp is steadily lit.

To extend a currently active call to the Autoline DN:

- 1 The attendant is active on an established call.
- 2 The attendant presses the Autoline key to extend the call.
- 3 The pre-programmed number on the Autoline key is automatically dialed. The destination (DEST) lamp on the attendant console winks.

- 4 The dialed party answers the call, and the DEST lamp is steadily lit.
- 5 To complete the transfer, the attendant presses the Release (RLS) key. Once the Release key is pressed, the display is cleared.

To display the DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy.

On an analog console, to display a DN that is longer than eight digits, the attendant presses the display key after pressing the Autoline key.

Individual Attendant Directory Number

The following is an example of Individual Attendant Directory Number (IADN) functionality for an active attendant console with an IADN ICI key configured. Also, the IDBZ prompt set to YES in the Customer Data Block.

- 1 An attendant is involved in an active call.
- 2 An IADN call is placed to the active attendant and waits to be answered in the attendant queue.
- 3 Priority Buzzing is provided to the attendant console. During this time, if another IADN call for the same attendant, is placed in the attendant queue, the Priority Buzzing is not affected.
- 4 The attendant releases the active call.
- 5 The next call in the queue is presented to the attendant.
- 6 The Priority Buzzing stops, and the attendant receives a continuous buzz for the newly presented call. All ICI keys on the attendant console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.
- 7 The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key. If there is another IADN call waiting for the attendant in the queue, Priority Buzzing is applied to the attendant again. If there is not another IADN call waiting, then the Priority Buzzing stops. If the attendant selects another call over the IADN call (using another ICI key or taking a non-IADN call if presented on the Loop key), Priority Buzzing begins again.

Attendant Emergency Codes

The following is an example of Attendant Emergency Codes functionality for attendant consoles with an LDN ICI key configured. Also, the DLDN group is included for LDN Buzzing at the LDBZ prompt. Referring to Figure 8:

- 1 Party 1 (an internal set or external trunk) dials LDN0.
- 2 The LD0 ICI key lamp is lit for all attendant consoles not in the DLDN group.
- 3 The LDBZ prompt in the Customer Data Block is checked for whether or not LDN0 should be buzzed when an emergency code call is waiting in the attendant queue.
- 4 LDN0 is included at the LDBZ prompt. Therefore, Priority Buzzing is provided to all active digital consoles in this group.

Attendant Consoles 1 and 2 are found to be active and Console 3 in Position Busy. Hence, Consoles 1 and 2 (digital consoles) receive Priority Buzzing.

If Console 3 leaves the Position Busy state, it is presented with the next call in the attendant queue. When the attendant answers the call, Priority Buzzing is provided to the attendant console if there is at least one emergency code call still waiting in the attendant queue.

- 5 When a call is waiting in the attendant queue, any one of the attendants in the Customer can pick up the call by pressing the ICI key.
- 6 When one of the attendants belonging to LDN0 become free, the first call is presented on an idle Loop key.
- 7 When the emergency code call is presented, the associated Loop key lamp is lit and the Source (SRC) key lamp winks. Priority Buzzing stops for all of the DLDN attendants of this group and normal continuous buzzing is provided to the console where the call is presented.
- 8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

Meridian 1 Initialization Prevention and Recovery

Contents

This section contains information on the following topics:

Feature description	915
Operating parameters	917
Feature interactions	917
Feature packaging	918
Feature implementation	918
Feature operation	918

Feature description

The Meridian 1 Initialization Prevention and Recovery feature reduces the occurrences of initializations by tracking specific hardware faults and automatically disabling the affected hardware locally. This feature offers the following specific functionalities:

- Network Loop Response Time-out Initialization Prevention (LRIP)
- Serial Data Interface Device Response Time-out Initialization Prevention (SRIP)
- Network Loop Overload Initialization Prevention (LOIP), and
- Localized Faulty Hardware Recovery (FHWR).

Network Loop Response Time-out Initialization, Serial Data Interface Device Response Time-out Initialization Prevention, and Network Loop Overload Initialization Prevention are designed to prevent system initialization. The function of Localized Faulty Hardware Recovery is to automatically disable any faulty loops, Serial Data Interface (SDI) devices or Expanded Serial Data Interface (ESDI) devices identified by this feature.

Network Loop Response Time-out Initialization (LRIP)

When a network loop fails to respond to a processing request, the LRIP function is automatically invoked to avert a system initialization. An FHW000 message is printed on all maintenance TTYs to notify the system administrator of the faulty loop. The loop is marked as faulty in the system database.

Serial Data Interface Device Response Time-out Initialization Prevention (SRIP)

When a Serial Data Interface (SDI) or ESDI device fails to respond to a processing request, the SRIP function is automatically invoked to avert a system initialization. An FHW001 message is printed on all maintenance TTYs to notify the system administrator of the faulty SDI. An FHW002 message is printed on all maintenance TTYs to notify the system administrator of the faulty ESDI. The device is marked as faulty in the system database.

Network Loop Overload Initialization Prevention (LOIP)

When loop overload is detected, the LOIP function is automatically invoked to avert a system initialization. This function disables the signaling capability of the network loop and marks it as faulty in the system database before allowing the existing processing to continue. An FHW003 message is printed on all maintenance TTYs to indicate the faulty network loop and to indicate that an INI000 0006 has been averted. The device is marked as faulty in the system database.

Localized Faulty Hardware Recovery (FHWR)

Once a network loop, SDI or ESDI is identified as being faulty, it is tracked by the FHWR function. When the system is available to load and run a background routine and the faulty network loop, SDI or ESDI device is still in enabled status, an appropriate maintenance overlay is automatically invoked to disable it. A technician can also manually disable it by using existing maintenance overlay commands. The faulty loop, SDI or ESDI device is tracked by the FHWR function until the loop is disabled.

When a maintenance overlay is running and Multi-User Login is not enabled, an OVL111 xx FHWR message is given prior to a user logging into the system to indicate that the system is automatically performing the FHWR maintenance task. If the user does log in, the FHWR maintenance task is interrupted; when the user logs out, the FHWR function will reload the maintenance overlay to resume disabling the faulty hardware. Once it has disabled the loop, an FHW004 message is printed on all maintenance TTYs to indicate that a faulty network loop has been automatically disabled and the maintenance overlay has terminated (the message FHW005 is printed for an SDI device and FHW006 for an ESDI device). The device is marked as faulty in the system database.

Operating parameters

This feature applies to Large Systems.

After the Network Loop Overload Initialization Prevention function has identified a faulty network loop, if there are trunks configured on the hardware, far-end seizure of such trunks are treated in the same manner as a non-responding trunk.

Feature interactions

Meridian 1 Fault Management

FHW000, FHW001, FHW002, FHW003, FHW004, FHW005, and FHW006 can be defined as a trigger string that is monitored by the Meridian 1 Fault Management feature.

Feature packaging

This feature is included in base system software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 911

Contents

This section contains information on the following topics:

Feature description	919
Operating parameters	924
Feature interactions	926
Feature packaging	935
Feature implementation	936
Feature operation	948

Feature description

The number 911 has been adopted for the purpose of reporting emergencies and requesting emergency services. For localities with 911 systems, the number:

- is the same in all communities
- is easily remembered, even under adverse conditions
- provides direct telephone access to emergency services regardless of the time of day, or the caller's familiarity with an area, or the caller's ability to identify the type of emergency

A 911 system is planned, implemented, and operated under the auspices of local governments. In most communities, 911 provides access to police, fire, and emergency medical services. In some locations additional services are accessible (for example, dialing 911 in certain locations provides access to Coast Guard search and rescue services). Approximately 80 percent of all 911 calls are intended for the police, with the balance split between fire and ambulance.

Because the overwhelming majority of 911 calls require police attention, local police departments generally maintain, manage, and staff the center to which emergency calls are first directed. These centers are referred to as primary answering centers. A secondary answering center could be a police, fire, or ambulance station (for example, fire-related 911 calls may be transferred to a secondary answering center that handles incoming calls regarding fires). In many instances, the fire department also determines the degree of urgency for emergency medical services.

If the primary or secondary answering center is busy or out of service, the 911 call is directed to a backup answering center, referred to as an alternate answering center.

The public network routes a 911 call to the appropriate primary answering center based on the caller's telephone number. For this reason, callers dialing 911 give up their right to privacy regarding:

- the telephone number of the station from which they are calling, and
- the billing address associated with that telephone number.

To protect a caller's right to privacy, some communities still allow the use of seven-digit emergency numbers, routed either to an answering center or directly to the responding agency.

Basic 911 service

Basic 911 service routes emergency calls to an answering center based on the location of the Public Exchange/Central Office serving the calling station. The jurisdiction of an answering center is determined by the Central Office boundaries. The most basic 911 system involves only one Central Office and one exchange service area, and can be a single answering center.

Enhanced 911 service

In areas where telephone company Central Office boundaries do not match jurisdictional boundaries, there is a problem in identifying which emergency agency should receive the emergency call. There may be an even more complicated situation if the 911 network includes two or more primary answering centers, and each serves areas that do not match the Central Office serving areas.

Enhanced 911 (E911) service ensures that an emergency call originating in any particular jurisdiction covered by the 911 system is recognized and forwarded to the appropriate responding agency in the same political or geographical jurisdiction as the originating call.

Enhanced 911 service uses more sophisticated equipment and features than basic 911 service. Specialized features include:

- Automatic Number Identification (ANI)
- Automatic Location Identifier (ALI), and
- Selective Routing (SR).

Display of the ANI associated with the originating call sometimes replaces the need for the following basic 911 options: Called Party Hold; Emergency Ringback; and Switchhook Status. Therefore, sometimes these features are not provided with enhanced 911 service.

The Automatic Number Identification (ANI) of a 911 call consists of eight digits (a Numbering Plan or Information digit followed by the seven digits of the calling party number). Whether the first digit of the ANI string is to be interpreted as a Numbering Plan Digit (NPD) or an Information Digit (ID) depends on the trunk interface and Meridian 911 configuration.

Note: The 10/20 digit ANI on 911 calls feature brings the system into compliance with the Federal Communications Commission (FCC) decision that requires a circuit switched network, working as a Public Safety Answering Point (PSAP), to accept a 10 or 20 digit ANI when terminating 911 calls. For more information on the 10/20 Digit ANI on 911 Calls feature, please refer to the “10/20 Digit ANI on 911 Calls” feature description in *Features and Services* (553-3001-306), Book 3.

The Automatic Location Identifier (ALI) host computer uses the ANI to locate the ALI record for the calling party number. This includes the name and address, and whether the line is business or residence. An enhanced 911 system creates ALI information from the ALI record and automatically routes the ALI information to an optional data terminal display at the answering center.

An enhanced 911 system routes all emergency calls from the originating Central Offices through an E911 Tandem, sometimes called a 911 control office, to the primary answering center. There, using Selective Routing features, a call taker can transfer the call through the public network by signaling the E911 Tandem. The Autodial Tandem transfer feature can be used for this. For example, if the primary answering center transfers calls to several fire departments, it uses one fire department button. The option automatically:

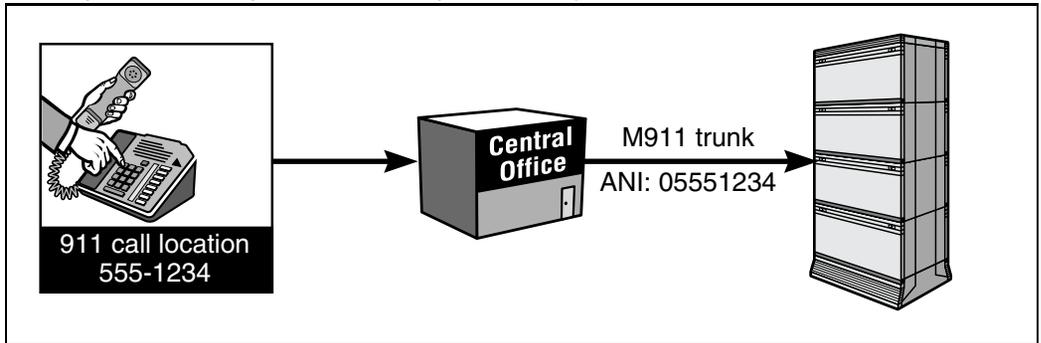
- identifies the fire department associated with the caller's location, and
- transfers the call to that department.

Meridian 911 (M911) system

The Meridian 911 system:

- gives priority to emergency calls
- routes priority calls, without interrupting service, to answering positions that can identify and dispatch the assistance required with minimum delay
- displays the calling party's number
- puts the calling party number into Call Detail Recording (CDR) Q and N records, and
- provides an external notification that an emergency call is queued.

Figure 10
Routing the call, along with the ANI digits, to the system



When a call arrives at the system through an M911 trunk, the trunk software in the system communicates with the serving Central Office (CO) (either the local Central Office or the M911 tandem office) to receive the ANI information through multifrequency (MF) signaling. When all ANI digits are received, the system software starts to process the call.

Meridian 911 Call Abandon

A 911 call is considered abandoned by the system if the call terminates on a 911 trunk route, and the calling party disconnects after trunk seizure, but before the call is answered. This can occur while the call is waiting in an Automatic Call Distribution (ACD) or Controlled DN (CDN) queue, or when the call is presented to the ACD agent but is not yet answered.

The Call Abandon feature allows the system to treat an abandoned call as though the calling party is still connected. The call maintains its place in the ACD queue, and is presented to an agent. When the agent answers, the agent receives a continuous, cadenced six-second tone, as well as an indication on the set's display, to indicate that the call is an abandoned call. Automatic Number Identification (ANI) information is also displayed. The agent can then call back the originator of the call.

Once the call is abandoned, the trunk is released for other 911 calls. Information on abandoned calls can be included in Call Detail Recording (CDR) records if New Format CDR (FCDR) package 234 is equipped.

Operating parameters

Meridian 911

Meridian 911 routes are restricted to incoming traffic only.

Incoming M911 trunks use MF signaling only. Dial Pulse (DP) and Dual-tone Multifrequency (DTMF) are not supported for M911 routes.

911 Calls on Integrated Services Digital Network (ISDN) trunks are not supported.

A call is considered a 911 call by system software if it arrived on a trunk belonging to an M911 route. Calls dialing 911 internally can, through configuration of the Electronic Switched Network (ESN) digit manipulation tables, be terminated locally (for example, to a Controlled DN), but these calls are internal calls to the software, not 911 calls.

ANI is expected for every call. Meridian 911 does not support 911 calls from an E911 Tandem which does not support sending ANI.

The priority of incoming trunk calls internally transferred to an Automatic Call Distribution (ACD) DN queue (a secondary answering center) may be preserved using blind transfer only. All other types of call modification (for example, consultation transfer, or conference) are treated as internal calls and the calls are linked to the low priority queue of the ACD DN.

The No Hold Conference feature, the recommended feature for transferring calls between answering positions, is not available on analog (500/2500 type) telephones.

The Call Prioritization (911 calls presented with higher priority) and Call Waiting Notification features are applicable to ACD answering centers only. These cannot be supported on Multiple Appearance Directory Number (MADN) answering centers.

The first answering center must be an ACD DN.

M911 trunk calls must terminate on a CDN. If an autoterminate DN is specified that is not a CDN, an SCH error message is printed. If a CDN is used as the autoterminate destination of at least one M911 trunk, the CDN cannot be removed using LD 23 (an SCH message will be given). To remove the CDN, all M911 trunks terminating to it must be removed, or they must be changed to terminate to a different CDN.

CDNs as well as ACD DNs are normal dialable numbers. Nothing prevents non-911 calls from arriving at either the CDN, or any of the ACD DNs acting as answering centers using direct dialing. Non-911 calls arriving at CDNs are defaulted to the CDN's default ACD DN; non-911 calls arriving at an ACD DN are treated as normal calls.

The Call Waiting Notification (CWNT) package 225 is a separate package and an M911 system can be installed without it. If the package is not equipped, no external alert can be given for 911 calls arriving at an ACD queue.

The CWNT software is available for 911 calls in ACD queues only. There is no provision for alerting MADN call takers of arriving 911 calls.

911 calls in an ACD queue are treated the same as other ACD calls. Therefore, if Recorded Announcement (RAN) is configured for the ACD queue, 911 calls will be given RAN treatment. The same interactions between RAN and Central Office loopstart trunks exist for M911 as they do for general ACD operation.

Meridian 911 Call Abandon

Calls released by the originator after the call has been answered are not calls abandoned by the definition used for the M911 Call Abandon feature and do not receive abandon treatment.

Abandoned calls waiting in the ACD queue activate the Call Waiting Notification Terminal Number.

If ANI is not received, the abandoned call is not presented to the agent since it is no longer useful; however, a Call Detail Recording (CDR) N record, if configured, can be printed to indicate that the call has abandoned.

Only external 911 calls abandoned before answer are supported.

When the call is abandoned, the speech path is dropped, and the trunk is released.

If Flexible Tones and Cadences (FTC) package 125 is equipped, it is possible to configure a tone other than the one provided by default.

Call Abandon is configured on a per route basis.

Call Abandon is supported on 911 trunks only.

No B record is generated by CDR for an M911 abandoned call, because the B record is package dependent and only applies to an established call with Internal CDR.

Wireless sets are not supported at the Public Safety Answering Point (PSAP) or Secondary Safety Answering Point (SSAP) for Call Abandon.

An MF tone receiver (QPC916 or NTAG20AA) is required.

Feature interactions

10/20 Digit ANI on 911 Calls

The 10 Digit ANI feature changes the ANI format to include the NPA in the ANI field. A single PSAP can handle any number of valid NPAs with the 10 digit format.

The 20 digit ANI feature addresses the problem of accurately determining the location of a wireless calling party dialing 911. The first 10 ANI digits provide the Calling Station Number (CSN). The CSN for a 911 call is the Calling Party Number (CPN), if available, or the billing number if the CPN is not available. The CPN, if available, is used to call the originator back when a 911 call is disconnected.

The second 10 ANI digits, or Pseudo Automatic Number Identification (PANI), provides the cell site and sector information to best define the wireless calling party's location. The PANI allows emergency assistance to be sent to the correct area.

Automatic Call Distribution interactions

ACD-C Reports

The Meridian 911 product does not change the ACD-C reports. M911 will use the ACD-C reports for CDNs as introduced for Customer Controlled Routing (CCR).

Only four of the fields in the report will have any meaning. Because M911 uses the Route-to Application Module Link (AML) message instead of the Queue-to message, only “Route To”, “Default DN”, “Abandoned”, and “Calls Accepted” are meaningful. Those calls that are successfully routed count towards the “Route To” category. Those calls that get default treatment count towards the “Default DN” category. Those calls that abandon while they are in the CDN queue count towards the “Abandoned” category. The “Calls Accepted” category will be the sum of the “Route To”, “Default DN”, and “Abandoned” categories.

The “# of Calls in the Queue” category represents those calls that are sitting in the CDN queue. This should always be zero, since calls waiting for a Route-to request from the Application Module are sitting in a timing queue as opposed to the CDN queue.

M911 calls routed to an ACD answering center will show up in the normal ACD queue and agent reports for that queue. Calls routed to MADN answering centers will show up only in the CDN report.

ACD-D Auxiliary Message

No changes to the ACD-D reports are needed for Meridian 911.

Controlled Directory Number (CDN) Ceiling

The CDN ceiling feature returns busy tone to calls arriving at the CDN while it is in default mode. If a 911 call should arrive while these conditions are true, the 911 call will not hear busy tone, but will be linked into the default destination ACD DN’s queue. Therefore, the setting of the ceiling value is irrelevant if only 911 calls are expected at the CDN. The ceiling value will, however, still be applied to non-911 calls arriving at the CDN.

Controlled Directory Number (CDN) Ringback

911 calls get ringback immediately upon arrival at a CDN, whereas CCR calls do not.

Customer Controlled Routing (CCR) Call Abandoned Message (ICAB)

This message is sent for controlled calls that were abandoned before being answered.

Customer Controlled Routing (CCR) Call Enters Queue Message (ICEQ)

This message is sent to ACD-MAX each time a default call is placed in the default ACD DN (default mode).

Customer Controlled Routing (CCR) Call Modification Message (ICCM)

This message is sent to ACD-MAX when a call modification request (route to, disconnect, busy) is successfully executed upon a CDN controlled call.

Note that since the Route To, Disconnect and Busy treatments remove CDN control from the call, ICCM messages will be sent for the call for each of the queues from where it must be removed. The ICCM message also applies to Enhanced ACD Routing calls or CDN default calls which were busied by the call ceiling value while trying to route to the default ACD-DN.

Customer Controlled Routing (CCR) “Route to” Command

The Route to destination for 911 calls are restricted to ACD DN's only. If the routing destination is not an ACD DN, the call will be routed to the CDN's default destination ACD DN. CCR calls can be routed to any dialable number.

Enhanced ACD Routing/Customer Controlled Routing

The Enhanced ACD Routing/Customer Controlled Routing (EAR/CCR) features introduce CDNs. The Enhanced ACD Routing (EAR) package 214 allows CDNs to be configured and is a prerequisite of the Meridian 911 (M911) package 224.

INIT ACD Queue Call Restore

INIT ACD Queue Call Restore restores M911 Abandoned calls waiting in either ACD or CDN queues. M911 Automatic Number Identification information is restored on the set display.

Interflow

911 calls interflow the same as other ACD calls. If the interflow feature is configured so that when a call gets busy tone from an internal destination, the 911 call will not get busy tone, but will instead be linked back into the source ACD queue.

If the interflow destination is a number outside the system, the software has no control over the treatment the call gets, so this configuration is not recommended for 911 sites.

Load Management Commands

No changes are made to Load Management for Meridian 911.

Night Service Night Call Forward

It is recommended that the primary ACD DN not be put in Night Service. If the primary ACD DN is put in Night Service, calls will be sent to the Night Call Forward (NCFW) destination. Even if a 911 call arrived on a trunk with Called Party Disconnect Control (CPDC) defined, the call will still be allowed to NCFW, unlike non-911 ACD calls. This restriction is lifted for 911 calls only. The CWNT set will not ring for calls entering the queue while in Night Service when the queue has a NCFW destination specified.

Overflow

911 calls will overflow (by count and by time) just like any other ACD calls.

Supervisor Control of Queue Size

This feature causes calls to get busy tone once the overflow threshold (OVTH) of the ACD queue is exceeded. This feature is bypassed for 911 calls.

Call Detail Recording (CDR) Records

ANI available for 911 calls is included as the Calling Line Identification (CLID) in CDR Records pertaining to 911-trunk calls. Call Detail Recording records affected are: Normal Records, Start/End Records, Authorization Code Records, Connection Records (Q, R, and F records), and Charge Account Records.

Call Transfer

Trunk priority associated with an incoming 911 call is only preserved if blind transfer is used.

Called Party Disconnect Control

The Called Party Disconnect Control (CPDC) feature is used to retain a 911 trunk when a 911 call is disconnected by the caller. No modification to the feature is required for Meridian 911, except lifting the CPDC and ACD NCFW limitation. 911 calls, arriving through trunks with CPDC defined, will be allowed to NCFW, unlike non-911 ACD calls.

Calling Party Name Display

The Calling Party Name Display feature can be used to configure and display the incoming 911 route name.

Calling Party Privacy

If an incoming call with a Privacy Indicator terminates on a system switch configured with M911, the ANI information (if it exists) is still sent to the Meridian 911 application.

Conference

When a call is answered, and then conferenced, the trunk priority is lost (the conference consultation call is an internal call and treated as low priority by the software). This operation is the same for normal calls and 911 calls.

Dialed Number Identification Service

Dialed Number Identification Service is not supported on 911 trunks.

Display of Calling Party Denied

An incoming M911 call with Automatic Number Identification (ANI) information always displays ANI digits on the terminating set regardless of the calling party's DPD Class of Service.

Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI)

Answering positions are not supported on BRI sets.

Integrated Services Digital Network (ISDN) Primary Rate Interface

911 trunks are not supported on ISDN PRI Trunks or Integrated Service Link (ISL) trunks.

Japan Direct Inward Dialing (DID) Trunks

Japan DID trunks are not supported.

Malicious Call Trace

The Malicious Call Trace (MCT) feature is modified to be supported on ACD sets. ACD sets are allowed to have the Malicious Call Trace Allowed (MCTA) Class of Service and a Trace (TRC) key defined. The feature is activated by pressing the MCT key or dialing an MCT access code.

Malicious Call Trace - Enhanced

The Trunk Hook Flash functionality is used by Meridian 911, Enhanced Malicious Call Trace, and Autodial Tandem Transfer.

No Hold Conference

No Hold Conference calls are treated as internal calls and are linked to the low priority queue of the ACD DN.

Single and Multiple Call Ringing for MADNs

The DN keys for multiple appearance sets can be defined as an SCR (single call ringing) key or as an MCR (multiple call ringing) key. For those DN keys (keys on MADN sets) that are SCR, only one call may be answered at a time. That is to say that once a call taker has answered a call, future calls to that DN will receive busy tone until the call taker on that DN has disconnected.

For DN keys that are MCR, calls will only be given busy tone once every call taker is busy answering a call. If one call taker is answering a call and there are other call takers available, a new call to that DN will cause the sets of the available call takers to ring. Any available call taker can then answer the new call.

Transfer

Trunk priority associated with an incoming 911 call is only preserved if blind transfer is used.

Meridian 911 Call Abandon

Attendant Break-In

Since an abandoned call does not have a speech path established, the Break-In deny treatment is given to the attendant so that Break-In cannot occur.

Automatic Call Distribution

When a call is abandoned, the call remains in its current state (for instance, Automatic Call Distribution (ACD) queue, CDN queue, or ringing on an ACD agent set).

Automatic Call Distribution Reports

ACD-C and ACD-D packages are not modified for M911 Call Abandon. However, a new interpretation for the report fields are needed for abandoned calls. The incoming call is pegged as an abandoned call when the caller abandons. However, it is not repeatedly pegged as an answered call when the call taker answers the abandoned call.

For ACD-C package, the CALLS ANSWD field only accounts for real calls; the ABANDONED field accounts for abandoned calls that are answered, assuming all abandoned calls are eventually answered by an agent. Consequently, the CALLS ACCPTD field is equal to the CALLS ANSWD field plus the ABANDONED field (number of calls entering queue = number of real calls + number of abandoned ones). This way the Average or Total Call Processing (DCP) Time accurately reflects the amount of time an agent spent on real calls, since answering an abandoned call requires little time. The work an agent does for an abandoned call is more accurately reflected in the DN OUT and OUT TIME fields, which mean total number of outgoing calls and total time of all outgoing calls respectively. Since the agent must hang up the abandoned call and call back to see what the condition is, the outgoing call that is made is more valuable for reporting the agent's work.

For the ACD-D package, the reports also need to be interpreted in this way. When the caller abandons, a CAB message is sent to Meridian MAX; however, later when an abandoned call is answered by an agent no CAA message is sent to Meridian MAX.

Call Force

M911 abandoned calls cannot be call forced.

Call Transfer

M911 abandoned calls cannot be transferred or conferenced.

Called Party Disconnect Control

There is no interaction with M911 Call Abandon and Called Party Disconnect Control.

Conference

M911 abandoned calls cannot be conferenced.

**Display Calls Waiting Key
ACD Calls Waiting Key
Ongoing Status Display
Real-time Display**

In all of these situations, abandoned calls contribute to the queue count.

Hold

M911 abandoned calls cannot be put on hold.

Initialization

Unanswered abandoned calls are lost if the system initializes.

Interflow

Abandoned calls contribute to the queue count. An abandoned call can interflow only to ACD DN's.

Network ACD

Network ACD is not supported.

Night Service

Abandoned calls can be forwarded to the Night Call Forward DN if the Night Forward DN is an ACD DN. If a primary answering center goes into Night Service while there are abandoned calls in the queue, those abandoned calls are dropped. A CDR N record is printed if CDR is configured.

Night Service Key

Abandoned calls are part of the transition mode when agents go to Night Service and the supervisor selects transition mode.

No Hold Conference

M911 abandoned calls cannot be No Hold conferenced.

Not Ready Key

When an abandoned call is presented to an agent and the agent presses the Not Ready Key, the call is put back into the queue. If an agent is established on an abandoned call and presses the Not Ready Key, the call is dropped.

Overflow by Count

Abandoned calls contribute to the queue count. An abandoned call can overflow.

R2MFC Calling Number Identification/Call Detail Recording Enhancements

M911 trunks do not support Calling Number Identification (CNI). If a CNI is available on an M911 trunk, in addition to the ANI, the ANI is used for the CLID.

Supervisor Observe

Since there is no speech path between the ACD agent and the caller, the supervisor observe feature will be blocked. The supervisor can still press the observe key to observe an agent active on an abandoned call, but will hear silence.

Feature packaging

The following packages are required:

- Digit Display (DDSP) package 19
- Basic Automatic Call Distribution (BACD) package 40
- Automatic Call Distribution Package B (ACDB) package 41
- Automatic Call Distribution Package A (ACDA) package 45
- Enhanced Automatic Call Distribution Routing (EAR) package 214
- Meridian 911 (M911) package 224
- Call Waiting Notification (CWNT) package 225

The following additional packages are not required, but are recommended:

- At least one of either Call Detail Recording (CDR) package 4 or Call Detail Recording on Teletype Machine (CTY) package 5
- Automatic Call Distribution Package C (ACDC) package 42 (not needed if packages 51 and 52 are enabled)
- Automatic Call Distribution Load Management Reports (LMAN) package 43
- Automatic Call Distribution Package D (ACDD) package 50
- Automatic Call Distribution Package D, Auxiliary Link Processor (LNK) package 51
- Call Party Name Display (CPND) package 95
- Malicious Call Trace (MCT) package 107
- Calling Line Identification in Call Detail Recording (CCDR) package 118

The M911 Call Abandon feature is included in Meridian 911 (M911) package 224, and requires Call Identification (CALL ID) package 247.

If an application also involves Meridian Link, Meridian Link Module (MLM) package 209 is required.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Configure a Terminal Number for an analog (500/2500 type) telephone with a Class of Service of CWNA (Call Waiting Notification Allowed).
- 2 LD 23 – Configure ACD DN. The CWNC (CWNT control) is recommended to be set as YES for the primary answering centers (rings for priority calls only) and NO for secondary answering centers (rings for all calls).
- 3 LD 23 – Configure CDNs. The ceiling value is irrelevant for 911 calls terminating at the CDN, but will be applied to non-911 type calls. When the ceiling value is exceeded, new non-911 calls will receive busy tone.
- 4 LD 16 – Configure an M911 route.
- 5 LD 16 – Create a Numbering Plan or Information Digit (NPID) Table.
- 6 LD 14 – Configure 911 trunks.
- 7 LD 16 – Configure Call Detail Recording (CDR).
- 8 LD 17 – Configure the insertion of ANI digits into the CDR record.
- 9 LD 10 – Configure non-ACD sets (analog [500/2500-type] telephones).
- 10 LD 11 – Configure non-ACD sets (Meridian 1 proprietary telephones).
- 11 LD 11 – Configure Meridian 1 proprietary telephones to function as ACD sets.
- 12 LD 16 – Enable M911 Call Abandon.
- 13 LD 56 – Configure the new flexible tone for M911 abandoned calls, if desired.

This section provides an example of how to configure Meridian 911. The order in which all items need to be configured to get M911 to run on the system is shown. In addition, the implementation procedures for M911 Call Abandon are shown.

LD 10 – Configure a Terminal Number for an analog (500/2500 type) telephone with a Class of Service of CWNA (Call Waiting Notification Allowed).

Prompt	Response	Description
REQ:	NEW	New.
TYPE:	500	Type of telephone.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
DES	xxx	Office Data Administration System (ODAS) package designator.
CUST	xx	Customer number, as defined in LD 15
...		
DN	nn...n	Internal Directory Number.
...		
CLS	CWNA	Call Waiting Notification Allowed Class of Service (DTN or DIP).

LD 23 – Configure ACD DN. The CWNC (CWNT control) is recommended to be set as YES for the primary answering centers (rings for priority calls only) and NO for secondary answering centers (rings for all calls).

Prompt	Response	Description
REQ	NEW	New.
TYPE	ACD	ACD Data Block.
CUST	xx	Customer number, as defined in LD 15
ACDN	nn...n	ACD Directory Number.
...		
MAXP	nn	Maximum number of agent positions.
...		
ISAP	YES	ACD DN uses Meridian Link messaging.
VSID	n	Server ID used for Meridian Link messaging (defined in LD 17).
...		
OVTH	2047	Recommended overflow threshold.
...		
CWNT	l s c u	Call Waiting Notification TN.
CWNC	YES	Call Waiting Notification control.

LD 23 – Configure CDNs. The ceiling value is irrelevant for 911 calls terminating at the CDN, but will be applied to non-911 type calls. When the ceiling value is exceeded, new non-911 calls will receive busy tone.

Prompt	Response	Description
REQ	NEW	New.
TYPE	CDN	Controlled Directory Number Data Block.
CUST	xx	Customer number, as defined in LD 15
CDN	nn...n	Controlled DN number.
...		
DFDN	nn...n	Default ACD DN.
CEIL	2047	Recommended Ceiling Value.
RPRT		Report control.
CNTL	YES	Controlled mode (controlled = YES).
VSID	n	Server ID used for Meridian Link messaging (defined in LD 17).

LD 16 – Configure an M911 route. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.

LD 16 – Configure an M911 route. (Part 2 of 2)

Prompt	Response	Description
TKTP	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
M911_ANI	DID	Meridian 911 routes use Direct Inward Dialing trunks.
M911_TRK_TYPE	YES	Enter YES for 911 route.
NPID_TBL_NUM	(911T) 911E	911T = E911 tandem connection. 911E = End office connection.
	0-7	Meridian 911 route table index The ID table must be created before this prompt can be answered.

LD 16 – Create a Numbering Plan or Information Digit (NPID) Table.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	NPID	Numbering Plan or Information Digit data block.
IDTB	0-7	ID table index. ID table index to be used by this M911 route.
NPID	0-9	NPID for M911 routes.
TRMT	(NONE) NPA FAIL TEST	Numbering Plan Digit or Information Digit treatment.
- NPA	nnn	Numbering Plan Area. Prompted only if TRMT = NPA.

LD 14 – Configure 911 trunks. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	New.
TYPE	DID	Meridian 911 trunks must be DID.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
XTRK	XUT XEM	Universal, or Enhanced E&M trunk card.
CUST	xx	Customer number, as defined in LD 15
NCOS	xx	Network Class of Service Group Number.
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
MNDN	xxxx	Manual Directory Number.
ATDN	xxxxxxx	Autoterminate DN.
TGAR	xx	Trunk Group Access Restriction.
SIGL	EAM EM4 LDR	Trunk signaling.
...		
STRI	WNK	Incoming start arrangement.

LD 14 – Configure 911 trunks. (Part 2 of 2)

Prompt	Response	Description
SUPN	YES	Answer and disconnect required.
CLS	MFR APY	Meridian 911 trunks must have MFR and APY Classes of Service (this is done automatically).

LD 16 – Configure Call Detail Recording (CDR).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	DID	Meridian 911 routes use DID trunks.
...		
CDR	YES	CDR trunk route.
INC	YES	CDR records generated on incoming calls.
QREC	NO	CDR ACD Q initial records to be generated.

LD 17 – Configure the insertion of ANI digits into the CDR record.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PARM	System Parameters
...		
- CLID	YES	Calling Line ID (ANI for M911) in CDR.

LD 10 – Configure non-ACD sets (analog [500/2500-type] telephones). (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW	Add a set.
TYPE:	500	Type of telephone.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CDEN	(DD) SD 4D	(Double), single and quadruple card density.
CUST	xx	Customer number, as defined in LD 15
DIG	xx yy	Dial Intercom Group number and Member number.
DN	nn...n	Directory Number.
...		
IAPG	2	ISDN/AP status message group.

LD 10 – Configure non-ACD sets (analog [500/2500-type] telephones). (Part 2 of 2)

Prompt	Response	Description
...		
CLS	USMA	Unsolicited Status Allowed Class of Service. M911 position.

LD 11 – Configure non-ACD sets (Meridian 1 proprietary telephones). (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW	Add a set.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CDEN	(DD) SD 4D	(Double), single and quadruple card density.
DES	x...x	ODAS set designator.
CUST	xx	Customer number, as defined in LD 15
KLS	1-7	Number of Key/Lamp strips.
...		
CLS	USMA MCTA	Unsolicited Status Allowed Class of Service. M911 position; Malicious Call Trace allowed.
...		
IAPG	2	ISDN/AP status message group.

LD 11 – Configure non-ACD sets (Meridian 1 proprietary telephones). (Part 2 of 2)

Prompt	Response	Description
...		
KEY	xx SCR yyyy	This defines a Single Call Ringing DN key. The xx is the key number and the yyyy is the DN.

LD 11 – Configure Meridian 1 proprietary telephones to function as ACD sets. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW	Add a set.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CDEN	(DD) SD 4D	(Double), single and quadruple card density.
DES	x...x	ODAS set designator.
CUST	xx	Customer number, as defined in LD 15
KLS	1-7	Number of Key/Lamp strips.
...		
CLS	ADD AGN USMA MCTA	AGN is for agent; SUPN is for supervisor, USMA = M911 position, and MCTA = Malicious Call Trace allowed.
...		
IAPG	2	ISDN/AP status message group.

LD 11 – Configure Meridian 1 proprietary telephones to function as ACD sets. (Part 2 of 2)

Prompt	Response	Description
...		
KEY	0 ACD yyyy	Key 0; ACD; ACD Directory Number.
KEY	xx TRC	Malicious Call Trace key. The xx is the key number.

LD 16 – Enable M911 Call Abandon. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	DID	M911 trunks are DID trunk type.
...		
M911_ANI	(NO) YES	Set to YES to receive ANI for M911 routes.
M911_TRK_TYPE	(911T) 911E	Meridian 911 ANI trunk types, where: T911T = E911 tandem connections, and 911E = End office connection.

LD 16 – Enable M911 Call Abandon. (Part 2 of 2)

Prompt	Response	Description
M911_ABAN	(NO) YES	Optional call abandon treatment, where: YES = abandoned call treatment for this route, and NO = no abandoned call treatment for this route.
M911_TONE	(YES) NO	Optional call abandon tone, where: YES = tone given on answer, and NO = silence given on answer.

LD 56 – Configure the new flexible tone for M911 abandoned calls, if desired.

Prompt	Response	Description
REQ	NEW CHG PRT	New, change, or print.
TYPE	FTC	Flexible Tone and Cadence data block.
TABL	0-31	FTC table number.
DFLT	0-31	Default table number.
RING	<CR>	
...		
CAB	YES	M911 Call Abandon upon Answer Tone.
TDSH	i bb cc tt	TDS external, burst, cadence, and tone.
XTON	0-255	NT8D17 TDS Tone code.
XCAD	0-255	NT8D17 cadence code for FCAD.

Feature operation

Meridian 911 operation

To answer a call at a primary, secondary, or alternate answering center that is configured with ACD positions, the 911 call taker presses the ACD DN key. The DN of the incoming call is displayed on the call taker's set.

Meridian 911 Call Abandon operation

When the call is abandoned it remains in its current state (for instance, in CDN or ACD queue or ringing a call taker). Once the call taker answers, a continuous cadenced tone is heard for six seconds, followed by silence. This tone is programmable with the FTC package; otherwise, a default is given. The call taker must hang up and dial the ANI that is shown on the terminal display if call back is required.

Upon answer, the telephone display is updated with the 911 call taker's ANI and the trunk group name if the Call Party Name Display feature is used. Since the call has been abandoned, the telephone display flags the abandoned call by appending "ABAND" to the ANI.

Figure 11 shows what is displayed on a telephone with a Numbering Plan Digit (NPD) call with an NPD of 2 and with the Call Party Name Display feature enabled. The trunk group name is displayed on the first line of the set display; the ANI appears on the second line.

Figure 11
Display for an NPD call

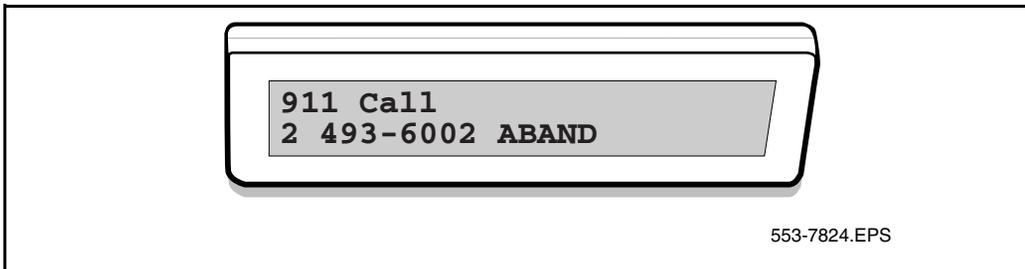
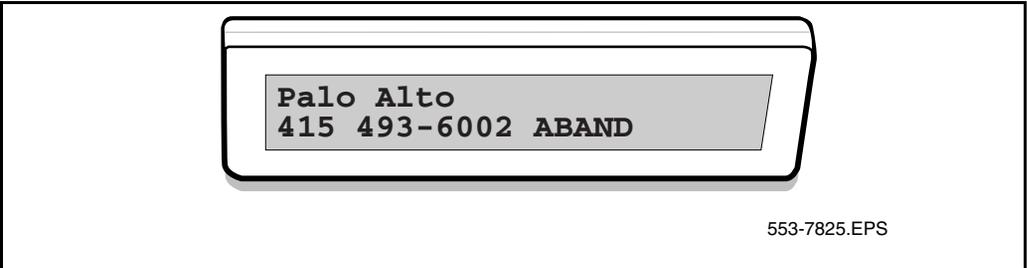


Figure 12 shows a set with an NPA call with an NPD of 1 that was translated to 415 and has the Call Party Name Display feature enabled. The trunk group name (for example, Palo Alto) is displayed on the first line of the set display. The ANI appears on the second line.

Figure 12
Display for an NPA call



Meridian Hospitality Voice Services

Contents

This section contains information on the following topics:

Feature description	951
Operating parameters	952
Feature interactions	953
Feature packaging	954
Feature implementation	956
Feature operation	956

Feature description

Meridian Hospitality Voice Services (MHVS) links Meridian Mail Guest Voice Messaging with the Property Management System (PMS) and the system. Meridian Mail uses information from the Property Management System Interface (PMSI) to manage guest voice messaging and to coordinate the Message Waiting indications for both voice and text messaging.

Meridian Hospitality Voice Services (MHVS) allows Meridian Mail to intercept messages sent over the Property Management System Interface (PMSI) and pass to the system only those messages required to manage and coordinate message indications for both voice and text messages. Should Meridian Mail ever fail, a Meridian Mail bypass switch allows the system to be directly connected to the Property Management System Interface.

Meridian Hospitality Voice Services provides enhancements to the following features:

- **Pretranslation**
MHVS will suppress all pretranslation on calls originated by Meridian Mail virtual agents.
- **Do Not Disturb**
MHVS allows calls to telephones in a Do Not Disturb (DND) mode to be rerouted to Meridian Mail for special handling.
- **Controlled Class of Service (CCOS)**
When CCOS is allowed on M2327 telephones, they do not display the softkey choices for standard Meridian Mail features that do not apply when these telephones are used in guest rooms. Dial Access is required to activate these features.

Property Management System (PMS) messages are used to integrate the link.

Operating parameters

The Night Number (NCWF) specified for the AP Recovery enhancement must be local to the system. It cannot be defined using Network Automatic Call Distribution (Network ACD) routing tables.

Attendant Consoles cannot be associated with mailboxes on Meridian Mail.

Softkey menus are suppressed for MHVS commands on M2317 telephones when Controlled Class of Service (CCOS) has been activated. Dial Access must be used to operate MHVS features, except guest messaging mailboxes.

When programming the Night Directory Number (Night DN) associated with the customer and Automatic Call Distribution (ACD) queues, be sure to avoid configuring a loopback of Directory Numbers (DNs) for the Night Call Forward DN. For example, if the Night Call Forward DN terminates on a console (directly or indirectly), the attendant Night DN should not terminate on the Meridian Mail virtual ACD DN. With this configuration, calls will remain ringing in the ACD queue under the following conditions:

- The system is in Night Service Mode or
- Meridian Mail fails

The caller remains in the queue until the attendant disengages Night Service, or until the Applications Module Link (AML) recovers from failure.

The use of Integrated Messaging System (IMS) or Integrated Voice Messaging System (IVMS) is not supported with MHVS.

Feature interactions

Attendant End-to-End Signaling

Attendant End-to-End Signaling (AEES), which uses Dual-tone Multifrequency signaling, requires an additional AEES key.

Attendant Overflow Position

Attendant Overflow Position (AOP) allows unanswered calls to the attendant to be forwarded to a customer-defined Directory Number (DN) after a defined time. A call can also be overflowed if all the attendants are in Position Busy State. Overflowed calls can be directed to Meridian Mail. The AOP DN must be defined as an Automatic Call Distribution (ACD) Directory Number (DN), and the ACD DN must have an ACD agent assigned as a virtual VMS agent.

Call Party Name Display

The maximum length of a Call Party Name Display (CPND) name sent from the PMSI/Background Terminal (BGD) is 27 characters. When the full 27-character length is used, part of the CPND name may scroll off the screen. To avoid this problem, the PMSI/Background Terminal (BGD) software has been updated to strip from the screen all trailing blanks from the CPND name.

Centralized Attendant Service

The attendant must be located on the same switch as Meridian Mail for the attendant to use Meridian Mail features.

Digit Key Signaling

Digit Key Signaling (DKS) is supported only from attendant consoles at the Meridian Mail site. With DKS equipped, attendants can assist callers in Meridian Mail activities. The attendant can extend source calls to Meridian Mail or direct calls to Meridian Mail.

Do Not Disturb

Individual Do Not Disturb (DND) allows the attendant to place a Directory Number into DND mode. A DN in this mode is free to originate calls, but appears busy to incoming calls. With MHVS equipped, a new prompt (DNDH) allows callers to be redirected to Meridian Mail for voice mail services. A called telephone must have Hunting Allowed (HTA) class of service, and Hunt to Meridian Mail and DNDH in LD 15 must both be set to YES.

M2317 and Meridian Modular softkey menus

M2317 softkey menus are not supported by MHVS. These telephones with Controlled Class of Service Allowed (CCSA) Class of Service are not presented with the Meridian Mail softkey menus when connected to Meridian Mail.

Network ACD

The Night Number (NCFW) specified for the ACD must be local to the node.

Pretranslation

Prior to MHVS, the setup of calls using the Applications Module Link (AML) was not supported from telephones using the Pretranslation feature. With MHVS equipped, call setup using the AML is supported.

Digit Key Signaling

Do Not Disturb Hunt

Message Waiting Indication Interworking

Property Management System Interface

These operations are supported only when Property Management System Interface, Meridian Mail, and attendant and room telephones are located on the same system switch.

Feature packaging

MHVS requires the following packages:

- Meridian Hospitality Voice Services (MHVS) package 179, which requires:

- Recorded Announcement (RAN) package 7
- End-to-End Signaling (EES) package 10
- Make Set Busy (MSB) package 17
- Integrated Messaging System (IMS) package 35
- Basic Automatic Call Distribution (BACD) package 40
- Automatic Call Distribution Package A (ACDA) package 45
- Message Center (MWC) package 46
- Command and Status Link (CSL) package 77
- CSL with Alpha Signaling (CSLA) package 85
- Auxiliary Processor Link (APL) package 109
- Property Management System Interface (PMSI) package 103, which requires:
 - Controlled Class of Service (CCOS) package 81
 - Background Terminal Facility (BGD) package 99
 - Room Status (RMS) package 100

Attendant Overflow Position (AOP) package 56 is required for AOP Directory Number (DN) enhancement.

- Digit Key Signaling (DKS) package (180), which requires:
 - Meridian Hospitality Voice Services (HVS) package 179
 - The site may also require other packages, such as:
 - Message Registration (MR) package 101
 - Automatic Wake Up (AWU) package 102

Feature implementation

Refer to *Meridian Mail Modular Option Guest Voice Messaging* (553-7041-210) and *Hospitality Features: Description and Operation* (553-3001-353).

Feature operation

Refer to *Meridian Mail Modular Option Guest Voice Messaging* (553-7041-210) and *Hospitality Features: Description and Operation* (553-3001-353).

Meridian Mail Trunk Access Restriction

Contents

This section contains information on the following topics:

Feature description	957
Operating parameters	960
Feature interactions	960
Feature packaging	961
Feature implementation	961
Feature operation	962

Feature description

The Meridian Mail Trunk Access Restriction (MTAR) feature prevents direct or indirect call transfer or conference of external calls to Meridian Mail. In this feature, external calls are defined as incoming/outgoing trunk calls that originate or terminate outside a private network.

This definition is applicable to all types of trunks, with the exception of TIE trunk calls. External calls are separated from a transferring/conferencing set on a network using TIE trunks. MTAR operation is dependant on the information sent to the remote node from the node that is attempting to transfer/conference. MTAR is triggered if the network information (such as Network Attendant Service or Calling Line Identification) indicates that an external call and a transfer/conference attempt to Meridian Mail is occurring. MTAR is also triggered if local information, such as Route Class, indicates an external call and a transfer/conference attempt to Meridian Mail is occurring.

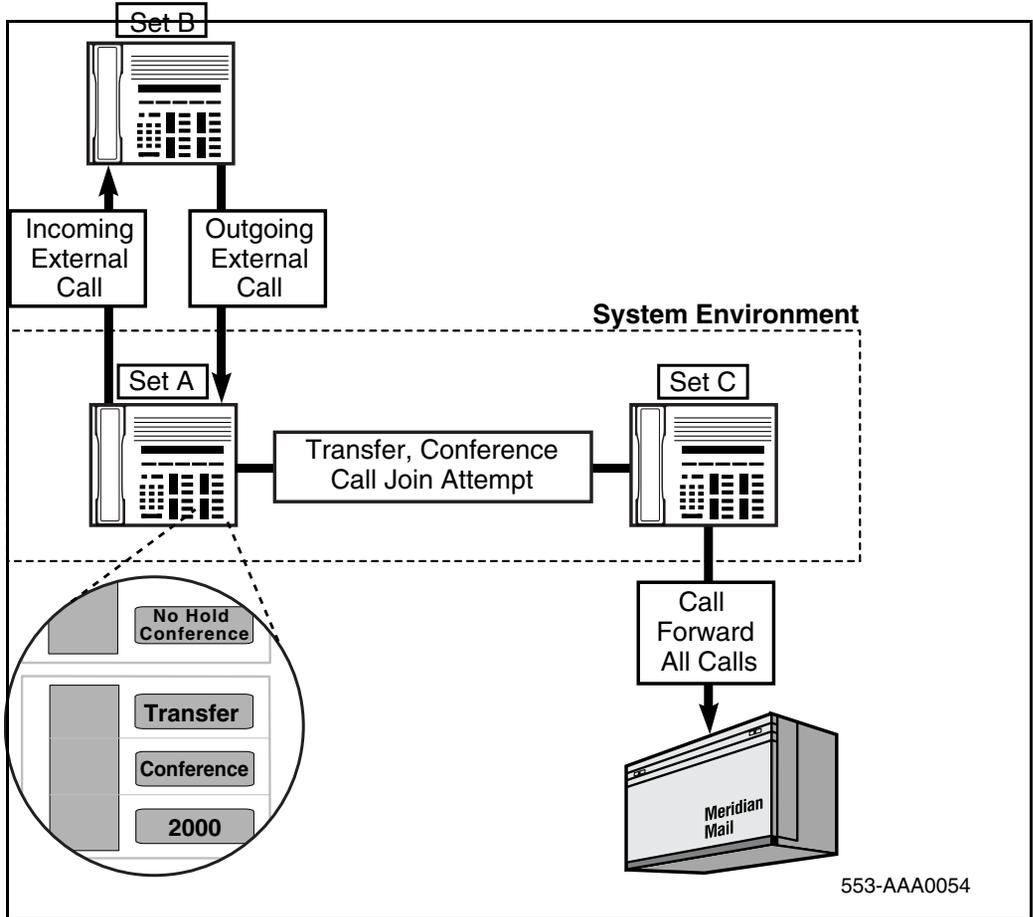
Meridian Mail Trunk Access Restriction averts potential Meridian Mail system abuse by distinguishing between internal and external calls that are directed to Meridian Mail. When activated, Meridian Mail Trunk Access Restriction impacts the operation of the following features:

- Call Transfer
- Conference
- No Hold Conference
- Call Join capabilities of the Multi-Party Operation feature

Meridian Mail Trunk Access Restriction prevents the completion of any Call Transfer, Conference, No Hold Conference or Call Join attempts on incoming/outgoing external calls to Meridian Mail.

As illustrated in Figure 65, MTAR's capabilities prevent an established call between Set A, an internal call, and Set B, an external call, from being forwarded to Meridian Mail. When Set A attempts to either Transfer, Conference, No Hold Conference or Call Join Set B to Set C, which is either a direct Meridian Mail DN or has activated Call Forward All Calls (CFAC) to Meridian Mail, the transfer and conference keys are ignored when pressed to complete operation.

Figure 65
Meridian Mail Trunk Access Restriction Call Transfer



Operating parameters

MTAR does not treat Centralized Attendant Position and Night Attendant sets as attendant consoles. These sets receive treatment based on their actual set type. For example, if the night attendant is a proprietary set, then it is treated as a proprietary set.

The operation of an attendant console is not affected when this feature is enabled. An attendant can transfer or conference an external line to Meridian Mail directly or indirectly.

MTAR does not affect Automatic Attendant, Customer Controller Routing, Integrated Voice Response or Meridian Link features. However, if a user disallows any of these features from accessing Meridian Mail, the application must be written to take this into account.

Call transfer from ISDN Basic Rate Interface (BRI) set is not supported.

In a networking environment, Meridian Mail must reside on the same node as the transferring/conferencing set.

Feature interactions

Traffic Reporting

Traffic Reporting and Optivity Telephony Manager's (OTM) traffic report, TFC005, are modified to report the number of times this feature is requested. A new line is added for the Meridian Mail Trunk Access Restriction which is identified by the feature number "27" and its peg count.

Network Call Transfer

Network Call Conference

Meridian Mail Trunk Access Restriction (MTAR) requires the transferring or conferencing set and Meridian Mail to be located on the same node. If the transferring or conferencing set are located not on the same node as Meridian Mail, the MTAR feature is not provoked because the call transfer/ conference attempt is terminated by a network on Meridian Mail.

However, an external call can be transferred or conferenced over the network, using TIE trunks. This operation is dependant on the type of network information the remote node forwards to the node where the transfer/conference attempt is made. Meridian Mail must be on the transferring/conferencing node. If network information is provided, indicating that an external call is attempting to transfer/conference to Meridian Mail, the MTAR feature is invoked. When no network information is provided, MTAR is provoked if the local information (Route Class) indicates that an external call to Meridian Mail is being attempted.

Feature packaging

Meridian Mail Trunk Access Restriction requires Message Waiting Center (MWC) package 46.

Feature implementation

Meridian Mail Trunk Access Restriction feature requires prior installation of Meridian Mail. The implementation of this feature, therefore, assumes that Meridian Mail has been properly configured.

LD 15 – Enable Meridian Mail Trunk Access Restriction.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Customer Features and Options.
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- OPT	MCI	Message Centre Included.

<p>...</p> <p>- MTAR</p>	<p>YES</p>	<p>Meridian Mail Trunk Access restricted. NO = Meridian Mail Trunk Access allowed.</p>
--------------------------	------------	--

Feature operation

Call Transfer/Conference

Proprietary Set

Set A is a proprietary set with Transfer Key and Conference Key.

- 1 An incoming/outgoing external call is established between Set A and Set B, an external party. The call between Set A and Set B is active on Key X.
- 2 Set A presses the Transfer/Conference Key that automatically puts Set B on Hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail or is a Meridian Mail DN.
- 4 When Set A attempts to transfer/conference Set B by pressing more than once the Transfer/Conference Key it is ignored.
- 5 Set A recovers Set B by pressing Key X.

No Hold Conference

Proprietary Set/ISDN BRI Set

When Meridian Mail Trunk Access Restriction is enabled, direct or indirect no hold conference to an external call is permitted. During direct or indirect no hold conference, the calling party is never put on hold.

Set A is a proprietary set or an ISDN BRI set with a No Hold Conference Key configured as either No Hold Conference, Conference Autodial, Conference Speed or Conference Hotline.

- 1 An incoming/outgoing external call is established between Set A and Set B, an external party. The call between Set A and Set B is active on Key X.
- 2 Set A presses the No Hold Conference Key.

- 3 Set A dials Set C. Set C is has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
- 4 The conference is set up as normal. However a two party connection between Set B, an external party, and Meridian Mail is not allowed if the call controller releases. If this occurs, the connection between the trunk and Meridian Mail party is dropped.

***Transfer
Analog (500/2500 type) Set***

Set A is an Analog (500/2500 type) set with a XFA Class of Service (transfer and three/six party conference allowed).

- 1 An incoming or outgoing external call is established between Set A and Set B, an external party.
- 2 Set A performs a switchhook flash that puts Set B on hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
- 4 Before or after the Meridian Mail has answered, Set A attempts to transfer Set B to Meridian Mail by going on-hook.
- 5 This attempt is treated as an illegal transfer. Set A is re-rung and reconnected with Set B when going off-hook.

***Conference
Analog (500/2500 type) Set***

Set A is an Analog (500/2500 type) set with a XFA Class of Service (transfer and three/six party conference allowed).

- 1 An incoming or outgoing external call is established between Set A and Set B, an external party.
- 2 Set A performs a switch hook flash that puts Set B on hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.

- 4 Before or after the Meridian Mail has answered, Set A attempts to conference Set B to Meridian Mail by performing another switchhook flash.
- 5 The conference is not permitted. Set A is reconnected to Set B. The call to Meridian Mail is disconnected.

Set A is an Analog (500/2500 type) set with a TSA Class of Service (three party service allowed).

- 1 An incoming or outgoing external call is established between Set A and Set B, an external party.
- 2 Set A perform a switch hook flash that puts Set B on hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
- 4 Before or after Meridian Mail has answered, Set A attempts to conference Set B to Meridian Mail by dialing the conference control digits.
- 5 The conference is not permitted and Set A is reconnected to Set B. The call to Meridian Mail is disconnected.

Table 80 summarizes how different external calls are handled when Meridian Mail Trunk Access Restriction is enabled.

Table 80
Summary of Meridian Mail Trunk Access Restrictions

Telephone	External Call Type	Operation	Failure Treatment	Result
500/2500	Incoming	Transfer to Meridian Mail (MMail)	Re-ring to transferring set	Not allowed
500/2500	Incoming	Transfer to set with Call Forward All Calls (CFAC) to MMail	Re-ring to transferring set	Not allowed
500/2500	Outgoing	Transfer to MMail	Disconnect external call and Meridian Mail	Not allowed

500/2500	Outgoing	Conference to set with CFAC to MMail	Disconnect external call and Meridian Mail	Not allowed
500/2500	Outgoing/ Incoming	Conference to MMail	Reconnect to external call. Disconnect call to MMail	Not allowed
500/2500	Outgoing/ Incoming	Conference to set with CFAC to MMail	Reconnect to external call. Disconnect call to MMail	Not allowed
Proprietary	Outgoing/ Incoming	Transfer/ Conference to MMail	Operation ignored	Not allowed
Proprietary	Outgoing/ Incoming	Transfer/ Conference to set with CFAC to MMail	Operation ignored	Not allowed
Proprietary	Outgoing/ Incoming	No Hold Conference to Meridian Mail or to set CFAC to MMail	Not applicable	Allow
Proprietary	Outgoing/ Incoming	No Hold Conference release to make MMail to trunk two-party connection	Disconnect MMail and external trunk	Not allowed
Proprietary	Outgoing/ Incoming	Call Join of external call to MMail	Operation ignored	Not allowed
Basic Rate Interface	Outgoing/ Incoming	Conference to MMail	Operation ignored	Not allowed
Basic Rate Interface	Outgoing/ Incoming	Conference to set with CFAC to MMail	Operation ignored	Not allowed

Attendant	Outgoing/ Incoming	Transfer/ Conference to Meridian Mail	Not Applicable	Allowed
Attendant	Outgoing/ Incoming	Transfer/ Conference to set with Call Forward All Calls to Meridian Mail	Not Applicable	Allowed

Meridian Mail Voice Mailbox Administration

Contents

This section contains information on the following topics:

Feature description	967
Operating parameters	968
Feature interactions	969
Feature packaging	974
Feature implementation	975
Feature operation	981

Feature description

The Meridian Mail Voice Mailbox Administration (VMBA) feature enables the system administrator to use system administration overlays to administer and maintain the Meridian Mail Voice Mailbox Application. This feature streamlines the process of implementing and maintaining voice mailboxes (VMBs).

VMBA provides the following capabilities:

- Accessing the Voice Mailbox Application using LDs 10 and 11 rather than through a separate terminal

- Viewing application and mailbox statistics to help ensure the integrity of the application
- Synchronizing the system and Meridian Mail databases using special audit and upload functions:
 - The audit function helps ensure that name data stored on the system is synchronized with name data stored on Meridian Mail. The system administrator can run the audit manually or request that the system run it periodically.
 - For sites that want to implement VMBA and already have VMBs configured on Meridian Mail, the VMBA upload function lets the system administrator create or update the system VMB database from the existing Meridian Mail VMB database. Upload can significantly reduce the time required to implement VMBA.

Access to Meridian Mail VMB administration functions is still available with the Meridian Mail administration console. However, to prevent database inconsistencies, use the system for VMB administration when VMBA is equipped.

CAUTION

There is a potential impact on the CPND database when using the VMBA application. Therefore, users should read with care the sections entitled “Name processing considerations” on page 971 and “Site with a preconfigured Meridian Mail database” on page 980.

Operating parameters

The appropriate VMB Class of Service must be defined on Meridian Mail before the system can add VMBs. Otherwise, Meridian Mail transaction errors will occur. A Meridian Mail Class of Service specifies a particular set of Meridian Mail options.

A system supports only one Meridian Mail system for VMBs.

The system allows for only one VAS and one customer to be configured for this application.

If a VMB is deleted on the system but not on Meridian Mail, the result could be an orphan VMB. If the DN for the deleted VMB is reused on the system, Meridian Mail deletes the old DN and adds the new one, thereby recovering the associated VMB. If the DN is not reused, the orphan VMB is not recovered.

VMB changes made directly on a Meridian Mail administration terminal may not be detected for up to five days, because system automatic database audits (if equipped) can only run every five days.

The VMB status printed in LD 20 indicates the status of transactions on the system, not on Meridian Mail. For example, if a VMB is disabled on Meridian Mail, its state is not updated on the system.

VMBs cannot be configured for telephones served by a remote Meridian Mail subsystem.

A VMB is not affected when a user's telephone is disabled or being relocated. The VMB remains logged in and continues to receive incoming messages.

Feature interactions

Automatic Set Relocation

Relocating a user with an associated VMB to a new TN will not affect the VMB. The VMB remains logged in and continues to receive incoming voice messages while the telephone is being relocated.

A telephone that is relocated out but not relocated back in can still have an active VMB. A relocated telephone must be deleted manually on the system before its associated VMB is removed.

Call Waiting Redirection

Unanswered calls given Call Waiting treatment may now be allowed to forward to Voice Mail through the activation of the Call Waiting Redirection feature. The greeting given to the caller is for a "no answer" condition.

Call Party Name Display

There is significant interaction between the Call Party Name Display (CPND) database and the Meridian Mail VMB database. The sections entitled “Common data elements” on page 970 and “Name processing considerations” on page 971 describe these interactions.

Meridian Mail

Although there is no user impact, unsolicited link messages will appear when VMBA is equipped.

Common data elements

Table 81 shows the data that is stored and synchronized between the system and Meridian Mail.

Table 81
Data stored by both the system and Meridian Mail

System	Meridian Mail	Description
DN	Mailbox number	System DN to which a VMB is assigned
VMB Class of Service	Class of Service	Specific set of Meridian Mail options
CPND name	First name/Last name/Initial	Name associated with a VMB (optional)
Second DN	Second DN	Second DN sharing a mailbox (optional)
Third DN	Third DN	Third DN sharing a mailbox (optional)

VMB data configured on the system and downloaded to Meridian Mail is subject to the same validation routines as data entered directly at the Meridian Mail administration terminal. When downloaded VMB data fails Meridian Mail validation, a message prints on the system TTY.

Name processing considerations

There are basic differences in how the CPND and Meridian Mail process name data. This section describes those differences and makes specific recommendations for minimizing their impact on your system.

Because this feature may affect your name data, print the system and Meridian Mail name databases before beginning to implement VMBA on a system with VMBs already implemented. (Use the appropriate administrative overlays to print the databases.)

Name lengths

System versus Meridian Mail

Because the allowable name lengths differ between Meridian Mail and the system, it is recommended that you use the most restrictive case for name lengths on both systems.

Meridian Mail accepts the following name lengths:

- Up to 21 characters for first name
- Up to 40 characters for last name, and
- Up to 61 characters for combined first and last names.

CPND accepts the following name lengths:

- Up to 27 characters for first name
- Up to 27 characters for last name, and
- Up to 27 characters for combined first and last names.

When the VMBA application is installed, the recommended name lengths on both the system and Meridian Mail are as follows:

- Up to 21 characters for first name. Meridian Mail truncates a system first name that is longer than 21 characters.

- Up to 27 characters for combined first and last names. If names on Meridian Mail exceed a combined length of 27 characters, they are truncated on the system during an upload.
- Up to 27 characters for last name. Last names are truncated to 27 characters when uploaded.

Name handling during an upload

If the CPND package is equipped and CPND is configured for the customer, the following name processing occurs during an upload:

- 1** If a name already exists on the system, it is replaced with the uploaded name using the expected length (XPLN) and display formats configured for that name.
- 2** If a name does not exist on the system, the uploaded name is added using the default length (DFLN) specified for the customer and the default display format of FIRST, LAST.
- 3** If the names received from Meridian Mail are longer than the expected or default length, the first name is truncated until both names fit into the configured length. If necessary, the last name is also truncated.

For example, if Meridian Mail sends the name JACK FROST and XPLN is 8, the name is truncated to JA FROST. If XPLN is 4, the name is truncated to FROS.

A subsequent audit with DATA_CORRECT set to ON causes the name on Meridian Mail to be updated with the system name (either JA FROST or FROS).

Character sets

Meridian Mail supports a subset of the characters that the system supports. When Meridian Mail encounters a name from the system that contains characters outside its supported character set, it rejects the name. Therefore, it is recommended that you use the most restrictive character set.

The character sets supported by the system and Meridian Mail are as follows:

- System: ASCII H.20 through H.7E, excluding asterisk (*) and exclamation point (!)

- Meridian Mail: ASCII H.20 through H.7E excluding the plus sign (+), underscore (_), and question mark (?)

Therefore, on a system with VMBs, the system user should avoid using the asterisk (*), exclamation point (!), plus sign (+), underscore (_), and question mark (?) in CPND names.

Database synchronization considerations

As you configure and implement VMBA, keep the following points in mind:

- System and Meridian Mail each has its own name database. Therefore, to ensure synchronization, enter and change name information from the system only. VMBA facilities ensure that corresponding changes are made to the Meridian Mail database. However, remember that changes made directly to the Meridian Mail are not made to the system database.
- The VMBA Audit facility not only detects VMB database mismatches; with Data Correction enabled, the Audit facility invokes processing to make the Meridian Mail VMB database match the system VMB database. See Table 82.

Table 82
Effect of running Audit with Data Correction enabled

Status of VMB		Effect on VMB databases	
System	Meridian Mail	System	Meridian Mail
VMB not configured	VMB not configured	No change	No change
VMB not configured	VMB configured	No change	No change
VMB configured	VMB not configured	No change	VMB added
VMB configured	VMB configured; database matches system	No change	No change
VMB configured	VMB configured; database does not match system	No change	VMB database changed to match system database

- The VMBA Upload facility forces the system VMB database to match the Meridian Mail VMB database. In the case where VMB is not configured on Meridian Mail, an upload will delete the system VMB database. See Table 83.

Table 83
Effect of running Upload

Status of VMB		Effect on VMB databases	
System	Meridian Mail	System	Meridian Mail
VMB not configured	VMB not configured	No change	No change
VMB not configured	VMB configured	VMB added	No change
VMB configured	VMB not configured	VMB deleted	No change
VMB configured	VMB configured; database matches system	No change	No change
VMB configured	VMB configured; database does not match system	VMB database changed to match Meridian Mail database	No change

Feature packaging

Meridian Mail Voice Mailbox Administration (VMBA) is available as package 246.

Although not required, Calling Party Name Display (CPND) package 95 for the system is recommended. Certain Meridian Mail features, such as name dialing, require that CPND be equipped.

Alarm Filtering package 243 is recommended because of the additional information that appears in the formatted output.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Configuring the VMBA application.
- 2 LD 10 – Add a VMB on an analog (500/2500 type) telephone.
- 3 LD 11 – Add a VMB on a Meridian 1 proprietary telephone.
- 4 LD 20 – Print the DN block.
- 5 LD 20 – Print the TN block.
- 6 LD 20 – Print VMB data.
- 7 LD 83 – Print ODAS data.

Be sure to print the name databases for both the system and Meridian Mail before beginning to implement the VMBA application.

Implementing VMBA requires that it be installed and equipped on the system. (In addition, Meridian Mail must be MM9 or later.) This section includes instructions for three implementation scenarios:

- 1 A site with no preconfigured database on either the system or Meridian Mail.
- 2 A site with a preconfigured database on the system, but not on Meridian Mail.
- 3 A site with VMBs configured on Meridian Mail, but not on the system.

Site with no preconfigured database

- 1 If necessary, configure and enable the AML link to Meridian Mail.
- 2 Configure the VMBA application in LD 17 on the VAS link associated with Meridian Mail. Set the DATA_CORRECT and AUTO_AUDIT options to ON to simplify database maintenance and ensure data integrity.

LD 17 – Configuring the VMBA application.

Prompt	Response	Description
REQ	NEW	Add.
TYPE	VAS	Value Added Server
VAS	NEW CHG	Add or change a value added server link.
- VSID	0-15	VAS identifier.
- AML	0-15	Application Module Link identifier.
- APPL	NEW VMBA	Configure the VMBA application associated with a VSID.
- CUST	xx	Customer number, as defined in LD 15
-- DATA_CORRECT	ON	Enable automatic database correction during audit; the Meridian Mail database is updated to match the system database.
-- AUTO_AUDIT	ON	Enable automatic database audit; the Meridian Mail database is audited every 5 days as part of daily routines.

If the AML link is active, the VMBA application is automatically enabled after it is configured in LD 17. If the AML link is not active, the VMBA application is placed in the LINKOOS (link out of service) status.

- 3 Configure the VMB Classes of Service on Meridian Mail. Transaction errors occur if a Class of Service specified on the system has not been configured on Meridian Mail.
- 4 Use LDs 10 and 11 to administer VMBs on the system. The database changes are automatically downloaded to Meridian Mail if both the AML and the VMBA application are enabled. If either is disabled, the VMBs that are added or changed are left in the UPDATE PENDING state. They are downloaded when both the AML link and the application are enabled.

LD 10 – Add a VMB on an analog (500/2500 type) telephone.

Prompt	Response	Description
REQ:	NEW CHG	Add or change.
TYPE:	500 2500	DN related data.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CUST	xx	Customer number, as defined in LD 15
DN	xxxx	Directory number.
- MARP	YES	Multiple Appearance Redirection Prime.
- CPND	NEW CHG	Gateway to change Calling Party Name Display data.
-- VMB	NEW CHG	Gateway to change VMB data associated with the above DN.
-- VMB _COS	0-127	VMB class of service; must already be defined on Meridian Mail to avoid transaction errors.
-- SECOND _DN	xxx...x	Second DN sharing this VMB. To delete a DN, enter X <CR>.
-- THIRD _DN	xxx...x	Third DN sharing this VMB. To delete a DN, enter X <CR>.
-- KEEP _MSGS	(NO) YES	For a new VMB only, indicates whether messages and current password on Meridian Mail should be preserved if a VMB with the same DN already exists.

LD 11 – Add a VMB on a Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ:	NEW	Add.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CUST	xx	Customer number, as defined in LD 15
KEY	xx yyy zzzz	Telephone function key assignments.
- MARP	YES	Multiple Appearance Redirection Prime.
- CPND	NEW CHG	Gateway to Calling Party Name Display data.
- - VMB	NEW CHG	Gateway to change VMB data associated with the above DN.
- - SECOND _DN	xxx...x	Second DN sharing this VMB. To delete a DN, enter X <CR>.
- - THIRD _DN	xxx...x	Second DN sharing this VMB. To delete a DN, enter X <CR>.
- - KEEP _MSGS	YES (NO)	For a new VMB only, indicates whether messages and current password on Meridian Mail should be preserved if a VMB with the same DN already exists.

Site with a preconfigured system database

Typically, this scenario involves a new system installation. The database is created on the system and subsequently downloaded when the AML link and Meridian Mail are operational.

Configuring the database

- 1 Configure the VMBA application in LD 17 on the VAS associated with Meridian Mail. Set the DATA_CORRECT and AUTO_AUDIT options to OFF until the installation is complete.

The AML link does not have to be configured at this point because there is no actual hardware to enable.

- 2 Configure the telephones and associated VMBs. The VMBs will be left in UPDATE PENDING state.

Installing the database at the customer site

- 1 Ensure that the Meridian Mail database is configured with the VMB Classes of Service that were used when configuring the system database. *Do not proceed with step 2 until this step is completed.*
- 2 If necessary, configure and enable the AML link to Meridian Mail.
- 3 Unless the VMBA application is in a manually disabled state, it will be automatically enabled. If it is manually disabled, use LD 48 to enable it. See “Enabling the VMBA application” on page 981.
- 4 When the VMBA application is enabled, the system will begin downloading the preconfigured database to Meridian Mail. Use the PRT VMB option in LD 20 to monitor the progress of the download.
- 5 After the download is complete, check the system TTY for errors and make corrections manually.
- 6 Use LD 48 to initiate a manual audit of the entire database. This is to verify that the VMB and CPND data on the system matches the downloaded data on Meridian Mail. See “Starting a manual audit” on page 990.

To determine the status of the audit, use the STAT VMBA <vsid> AUDT command in LD 48. When the audit is complete, check the audit report for errors; make corrections manually.

- 7 Configure the `DATA_CORRECT` and `AUTO_AUDIT` options as desired. It is recommended you set them to `ON` to help ensure database integrity.

Installation is now complete. Use the system to perform ongoing administration of VMBs.

Site with a preconfigured Meridian Mail database

Existing sites installing the VMBA application may have VMBs already configured on Meridian Mail. LD 48 includes an upload option that simplifies VMB data configuration on the system.

CAUTION

The upload option also causes name data configured on Meridian Mail to be uploaded to the system. Any existing names on the system are replaced with names currently configured on Meridian Mail. See “Name processing considerations” on page 971 for an explanation of the changes that may result.

- 1 If necessary, configure and enable the AML link to Meridian Mail.
- 2 Configure the VMBA application in LD 17 on the VAS associated with Meridian Mail. Set the `DATA_CORRECT` and `AUTO_AUDIT` options to `OFF` until the installation is complete.

If the AML link is active, the VMBA application is automatically enabled after it is configured in LD 17. If the AML link is not active, the VMBA application is placed in the LINKOOS (link out of service) state.

- 3 Initiate the database upload by entering the following command in LD 48:

```
ENL VMBA <vsid> UPLD ALL
```

To check the status of the upload, enter the following command in LD 48:

```
STAT VMBA <vsid> UPLD
```

- 4 When the `VMB UPLOAD COMPLETE` message appears, investigate and resolve any errors that occurred during the upload.

- 5 Initiate a manual database audit using the following command in LD 48:

```
ENL VMBA <vsid> AUDT ALL
```

This will verify that the VMB and CPND data on the system matches the data on Meridian Mail.

- 6 Manually resolve any errors detected by the audit. Perform any necessary name cleanup.
- 7 Configure the `DATA_CORRECT` and `AUTO_AUDIT` options as desired. It is recommended you set them to `ON` to help ensure database integrity.

Installation is now complete. Use the system to perform ongoing administration of VMBs.

Feature operation

Enabling the VMBA application

Use the VAS gateway in LD 17 to configure the VMBA application. After configuring the VMBA application, the system sets the VMBA application state to `INACTIVE` and immediately attempts to establish a VMBA session with Meridian Mail. If successful, the system changes the VMBA application state to `ACTIVE` and prints an `APPLICATION ENABLED` message on the TTY. If unsuccessful, the following actions occur:

- If the AML link is down:
 - The system issues a “`FAILED TO ENABLE APPLICATION`” message to the TTY.
 - The application’s state is changed to `LINKOOS` (link out of service).
 - The application is automatically enabled when the link becomes available.
- If the AML link is up but the application is not responding on Meridian Mail:

- The system attempts to establish a session every two minutes until successful or until the user disables the application using LD 48.
- If the AML link is up but the application is not equipped on Meridian Mail:
 - For MM8 and earlier Releases, the system attempts to establish a session as described above. Such attempts fail. Disable VMBA until the upgrade to MM9 occurs.
 - For MM9 and later Releases, Meridian Mail indicates to the system that the feature is not configured. The message “FAILED TO ENABLE APPLICATION” appears on the TTY, indicating that the request is rejected. The application remains in INACTIVE status. Retries continue until the user disables the application in LD 48 or until the application is equipped on MM9.

If the VMBA application is not automatically enabled, use the following command in LD 48 to enable it:

```
ENL VMBA <vsid>
```

where <vsid> is the VAS identifier, in the range of 0-15.

Disabling the VMBA application

LD 48 accepts the following command to disable the VMBA application:

```
DIS VMBA <vsid>
```

where <vsid> is the VAS identifier, in the range of 0-15.

The following actions occur when the application is disabled:

- 1 The VMBA application state is changed from ACTIVE to MANDIS.
- 2 All VMB transactions in progress with Meridian Mail are aborted. VMBs defined on the system but not successfully updated on Meridian Mail remain in the UPDATE PENDING state. They will be processed when the application is reenabled.
- 3 Database audit or upload activities are aborted.
- 4 The VMBA session established with Meridian Mail is released.

Determining the status of the VMBA application

LD 48 accepts the following command to print the status of the VMBA application:

```
STAT VMBA <vsid>
```

where <vsid> is the VAS identifier, in the range of 0-15.

Output from this command, shown in the following example, indicates the status of the application, the audit function, and the upload function:

```
VMBA ACTIVE
  AUDIT INACTIVE
  UPLOAD INACTIVE
```

Valid application states for VMBA appear in Table 84.

Table 84
VMBA application states

State	Explanation
INACTIVE	The application has been configured in LD 17 but is inactive for one of the following reasons: <ul style="list-style-type: none"> — An application session request was sent to Meridian Mail but confirmation has not yet been received. — Meridian Mail is not configured to support the VMBA application (it does not have the application equipped, or it is running on MM8 or earlier). — A “FAILED TO ENABLE APPLICATION” message on the TTY indicates a reason why the application is inactive.
MANDIS	The application was manually disabled using LD 48.
LINKOOS	The application is inactive because the link to Meridian Mail is out of service.
ACTIVE	The application is enabled and operational.

Managing voice mailbox data

Adding or changing a VMB

Use LDs 10 and 11 to add or change a VMB. Use LD 10, 11, or 95 to add or change a name.

When a VMB is added or changed, the system places the VMB in the UPDPEND (update pending) state and informs a background process that an update is pending. The background process initiates an update transaction with Meridian Mail, with one of these outcomes:

- The operation is successful; the VMB state becomes CONFIGURED.
- The operation fails (perhaps because of bad data); the VMB state becomes UPDFAIL (update failed) and a technician must manually intervene to correct the error condition.
- If the VMB already exists on Meridian Mail when the system requests a VMB add, one of the following outcomes results:
 - If the response to the KEEP_MSGS prompt in LDs 10 and 11 was NO, Meridian Mail deletes the existing VMB and creates a new one using the configuration information specified by the system. All existing messages and passwords are deleted.
 - If the response to the KEEP_MSGS prompt in LDs 10 and 11 was YES, Meridian Mail keeps all existing messages and passwords associated with the VMB, but replaces the existing configuration information with the new configuration specified by the system. This information includes user name, Class of Service, and so forth. Meridian Mail automatically enables newly created VMBs.

Deleting a VMB

There are three ways to delete a VMB:

- When using LDs 10 and 11, enter OUT at the VMB prompt.
When doing a normal CHG or ECHG on a telephone in LDs 10 and 11, enter OUT at the VMB prompt to delete the telephone's VMB.
- When using LDs 10 and 11 to delete a telephone, enter OUT at the REQ prompt.

If a telephone is configured with a Single Appearance DN, the DELETE_VMB prompt appears after the technician enters OUT at the REQ prompt. A YES response causes the VMB to be deleted on both the system and Meridian Mail. A NO response causes the VMB to be deleted on system but not on Meridian Mail.

The DELETE_VMB and the KEEP_MSGS prompts allow a technician to move a user from one telephone type to another without having to delete and re-create the VMB.

- DELETE_VMB = NO when deleting a DN keeps the old mailbox.
KEEP_MSGS = YES when adding a new telephone (with the old, previously deleted DN) keeps the VMB messages and password from the old DN intact.
- DELETE_VMB = NO when deleting a DN keeps the old mailbox.
KEEP_MSGS = NO when adding a new telephone (with the old, previously deleted DN) deletes the VMB messages and password associated with the mailbox.
- When changing a Single Appearance DN on a telephone, the system automatically deletes the old DN and associated VMB.

When the changed DN is entered, if it is currently assigned to another telephone that has a VMB associated with it, the telephone with the changed DN becomes a user of that VMB. If the changed DN does not currently have a VMB, one can be added.

Note: When changing the DN for a member of a Multiple Appearance DN group, the VMB for the Multiple Appearance DN is unaffected.

Printing VMB data

LDs 20 and 83 support printing VMB data associated with a telephone. LDs 10 and 11 can access LD 20 to facilitate printing VMB data after it is entered.

LD 20 provides three ways to print VMB data:

- Use the PRT DNB command to print the DN block.

LD 20 – Print the DN block

Prompt	Response	Description
REQ	PRT	Print.
TYPE	DNB	DN related information.
CUST	xx	Customer number, as defined in LD 15
DN	xxxx	Directory Number.

- Use the PRT TNB command to print the TN block.

LD 20 – Print the TN block

Prompt	Response	Description
REQ	PRT	Print.
TYPE	TNB aaaa	TN block, or any telephone configured in LD 11.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

- Use the PRT VMB command to print the VMB DN and VMB state. For a definition of each state, see Table 85.

LD 20 – Print VMB data.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	VMB	VMB related information.
CUST	xx	Customer number, as defined in LD 15
DN	xxxx xxxx-yyyy (ALL)	Print data for a single DN. Print data for a range of DNs. Print data for all DNs with VMBs.
VMB_STATE	(ALL) UPDPEND CONFIGURED UPDFAIL MISMATCH UPDINPROG INVALID	Print all VMBs regardless of state. Print VMBs in update pending state. Print configured VMBs. Print VMBs whose updates failed. Print VMBs with database mismatches. Print VMBs with updates in progress. Print VMBs in an invalid state.

Table 85
VMB states

State	Explanation
CONFIGURED	The VMB is configured on the system and Meridian Mail.
UPDPEND	A VMB update is pending. The VMB has been added or changed on the system but Meridian Mail has not yet been updated. When the AML link comes up (if it is down), or when the backlog of updates (if any) is processed, the VMB will be updated automatically.
UPDINPROG	A VMB update is in progress. The request was sent to Meridian Mail but a confirmation has not yet been received by the system.
UPDFAIL	A transaction with Meridian Mail failed. A VMB UPDATE FAIL error message appears on the system TTY indicating the cause of the failure. A technician must intervene to correct the problem.
MISMATCH	There is a database mismatch between the system and Meridian Mail. The mismatch was detected by VMBA Audit but not corrected (because database correction is not enabled in LD 17). A "VMB MISMATCH FOUND" error appears on the system TTY indicating the mismatch. A technician must intervene to correct the problem.
INVALID	The VMB is in an invalid state. Verify that the VMB data for the DN is correct on the system. Then use LD 48 to run VMB Audit on the DN.

To print VMB data in LD 83, respond with TNB at the REQ prompt. This response causes the TN block to print, including VMB data.

LD 83 – Print ODAS data

Prompt	Response	Description
REQ	TNB	Print TN data.
CUST	xx	Customer number, as defined in LD 15

Determining VMB state

Review the printed VMB data to determine the status of a particular VMB. Valid VMB states appear in Table 85.

Auditing the VMB database

The VMBA application provides both automatic and manual synchronization procedures to help ensure the consistency of the system and Meridian Mail databases. The databases may lose synchronization during one of the following events:

- A technician changes VMBs directly on Meridian Mail, rather than through the system.
- A transaction error occurs during transmission between the system and Meridian Mail.

CAUTION

LD 17 includes a data correction setting (`DATA_CORRECT = ON`). With this option activated when an audit is run, the system resolves any discrepancy by changing the Meridian Mail database to match the system database. If the databases are out of synchronization because VMB data was changed directly on Meridian Mail, the audit replaces the changed Meridian Mail data with the original system data. Therefore, it is advisable to run an audit initially with `DATA_CORRECT = OFF` to determine what discrepancies (if any) exist.

Using automatic audit

Responding with ON to the `AUTO_AUDIT` prompt in LD 17 causes a detailed database consistency check to run every five days. During this audit, Meridian Mail compares its VMB data with each system DN's data. The following are possible results:

- The data for that DN matches.
- Meridian Mail indicates a match to the system.
- The data for that DN does not match, and `DATA_CORRECT = ON`.
- Meridian Mail changes its data to match the data on the system. A message appears on the system TTY indicating that a discrepancy was detected and corrected.

- The data for that DN does not match, and DATA_CORRECT = OFF.
- A message appears on the system TTY indicating that a discrepancy was detected. Manual intervention is required to correct the discrepancy.

Starting a manual audit

To start the audit function manually, use the ENL VMBA command with the AUDT option in LD 48. The format of the command is as follows:

```
ENL VMBA <vsid> AUDT <ALL, xxxx>
```

where

<vsid> is the VAS ID on which the application is configured
ALL specifies that all configured VMBs be audited
xxxx specifies the DN whose VMB is to be audited

Disabling audit

Use the DIS VMBA with the AUDT option to disable the audit function. The format of the command is as follows:

```
DIS VMBA <vsid> AUDT
```

where <vsid> is the VAS ID.

This command disables both automatic and manual audits.

Determining audit status

Use the STAT VMBA with the AUDT option to determine the status of an audit. The format of the command is as follows:

```
STAT VMBA <vsid> AUDT
```

where <vsid> is the VAS ID.

Output from this command takes the following format:

```
AUDIT ACTIVE
  x AUDITED
  y MISMATCHES FOUND/CORRECTED
  z ERRORS
```

where

x is the number of VMBs audited

y is the number of mismatches found (and corrected, if
DATA_CORRECT = ON)

z is the number of failed audit operations

Uploading the Meridian Mail VMB database

Existing sites installing the VMBA application may already have VMBs configured on Meridian Mail. To eliminate the need for a technician to add each VMB manually on the system, the VMBA application includes the ability to upload the Meridian Mail VMB database to the system.

The VMB upload command in LD 48 causes the following processing, if the ALL option is specified. The processing is applied to all SCR, SCN, MCR, and MCN DN's configured on the system.

- 1 For each DN on the system, Meridian Mail checks to see if a VMB is currently defined.
- 2 If a Meridian Mail VMB exists for the DN, the VMB data associated with the DN, including the VMB name, is uploaded to the system. The system uses the uploaded data to create the VMB data and name (or to replace the existing VMB data and name) for that DN.

CAUTION

If the second or third DN's received from Meridian Mail are greater than four digits (or seven digits, if the DN expansion feature is equipped), they are discarded. A subsequent audit with data correction enabled deletes them from Meridian Mail.

- 3 If a Meridian Mail VMB does not exist for the DN, and if a VMB is currently configured for the DN on the system, the VMB is deleted.

Note: A name currently configured for the DN on the system is not deleted.

Starting a database upload

To start a database upload, use the ENL VMBA command with the UPLD option in LD 48. The format of the command is as follows:

```
ENL VMBA <vsid> UPLD <ALL,xxxx>
```

where

<vsid> is the VAS ID on which the application is configured
ALL specifies that data for all configured VMBs is to be uploaded
xxxx specifies the DN whose VMB data is to be uploaded

Disabling a database upload

Use the DIS VMBA with the UPLD option to disable the upload. The format of the command is as follows:

```
DIS VMBA <vsid> UPLD
```

where <vsid> is the VAS ID.

Determining upload status

Use the STAT VMBA with the UPLD option to determine the status of an upload. The format of the command is as follows:

```
STAT VMBA <vsid> UPLD
```

where <vsid> is the VAS ID.

Output from this command takes the following format:

```
UPLOAD ACTIVE
  x UPLOADED
  y DELETED
  z ERRORS
```

where

x is the number of VMBs uploaded
y is the number of VMBs deleted
z is the number of failed upload operations

Message Intercept

Contents

This section contains information on the following topics:

Feature description	993
Operating parameters	995
Feature interactions	995
Feature packaging	996
Feature implementation	996
Feature operation	998

Feature description

The Message Intercept feature provides an optional recorded announcement when the following features are used:

- **Call Forward Status Notification:** when an analog (500/2500 type) telephone or Meridian 1 proprietary telephone goes off-hook, the user receives a recorded message indicating that the feature (Call Forward All Calls) is activated on the set.
- **Call Park/Off-hook Queuing:** on analog (500/2500 type) or Meridian 1 proprietary telephones, users placed on hold during a call park or in an off-hook queue receive a recorded message indicating the condition of their call.
- **Ring Again:** when an analog (500/2500 type) or Meridian 1 proprietary telephone goes off-hook, the user receives a recorded message indicating that the feature (Ring Again) is activated.

- Replacement of Confirmation Tone: an analog (500/2500 type) telephone user receives a recorded message, instead of a confirmation tone, indicating the successful activation, by a Flexible Feature Code (FFC), of Permanent Hold.
- Ring Again Activate. A 2500 telephone user receives a recorded message, instead of a confirmation tone, indicating the successful activation, by an FFC, of:
 - Call Forward Activate
 - Call Forward Verify
 - Ring Again Verify
 - Automatic Wake-up Activate
 - Automatic Wake-up Verify
 - Speed Call Store
 - Speed Call Erase
 - Store Number
- Apply Ring Again: an analog (500/2500 type) telephone user, after activating Ring Again, receives a recorded announcement indicating that the feature has been activated.
- Message Waiting: an analog (500/2500 type) telephone, or Meridian 1 proprietary telephone user that has a message waiting receives a recorded announcement when going off-hook indicating that a message is waiting.
- Do Not Disturb: the user of an analog (500/2500 type) telephone, or Meridian 1 proprietary telephone receives a recorded announcement, if the set is under individual or group Do Not Disturb, indicating the condition.
- Set Status Lockout: when an analog (500/2500 type) or Meridian 1 proprietary telephone goes off-hook, users receive a recorded announcement if any one of the following conditions are met:
 - The Scheduled Access Restriction feature temporarily overrides the telephone's Class of Service, Trunk Group Access Restriction, or Network Class of Service restriction level.

- The Electronic Lockout Feature temporarily overrides the telephone's Class of Service or Network Class of Service restriction level.
- Either the Controlled Class of Service or the Enhanced Controlled Class of Service feature temporarily overrides the telephone's Class of Service restriction level.

These messages are provided either by a KAPSCH digital announcer, which interfaces externally to the system by way of the QPC605 TDS card, or by other announcers interfaced through the Music Interface. The announcement continues until it either times out or the telephone goes on-hook.

Operating parameters

Message Intercept must be specified on a telephone basis.

Feature interactions

Announcements

Announcements are not available to attendants or trunks.

The actual announcement received by the telephone will be the one defined by the SRC number on the announcer.

It is possible for a connection to the announcer to occur at some point other than the beginning of the message. The message will continue indefinitely, until the call status changes.

A maximum of 30 telephones can be fed announcement at any given time by a single TDS.

Network Drop Back Busy and Off-hook Queuing

If the Message Intercept feature is equipped, a caller in an off-hook queue may receive the message intercept voice response rather than the off-hook queuing tone.

Feature packaging

Message Intercept (MINT) is package 163, which requires:

- Flexible Tone and Cadences (FTC) package 125.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 56 – Configure Message Intercept tones.
- 2 LD 10 – Allow Message Interception on an analog (500/2500 type) telephone.
- 3 LD 11 – Allow message intercept on a Meridian 1 proprietary telephone.

LD 56 – Configure Message Intercept tones.

Prompt	Response	Description
...		
MINT	(NO) YES	(Do not) allow tones or announcements.
- CFSN	0-255 0-255	Call Forward All Calls active. The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.

<p>-- TDSH</p>	<p>i bb c tt</p>	<p>Tone definition for systems equipped with Tone and Digit cards, where: i = internal (0), or external (1) source bb = burst cc = cadence, and tt = frequency.</p> <p>Prompts with the response i bb c tt define the internal/external source, burst, cadence and frequency/level respectively. Enter the decimal equivalent (0-15) of the TDS Hex code.</p> <p>The first field is usually 0. If an external source is used, the entry is 1 and the fourth field is 0-7 for the specified channel.</p>
<p>- CPOQ</p>	<p>0-255 0-255</p>	<p>Call is being parked or set is in the off-hook queuing state.</p> <p>The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.</p>
<p>-- TDSH</p>	<p>i bb c tt</p>	<p>See above.</p>
<p>- RGAR</p>	<p>0-255 0-255</p>	<p>Ring Again is applied by another set.</p> <p>The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.</p>
<p>-- TDSH</p>	<p>i bb c tt</p>	<p>See above.</p>
<p>- RPCT</p>	<p>0-255 0-255</p>	<p>Confirmation Tone replaced by an announcement.</p> <p>The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.</p>
<p>-- TDSH</p>	<p>i bb c tt</p>	<p>See above.</p>
<p>- RGAB</p>	<p>0-255 0-255</p>	<p>Station Dialed Busy (calling party allowed to apply Ring Again).</p> <p>The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.</p>
<p>-- TDSH</p>	<p>i bb c tt</p>	<p>See above.</p>
<p>- MWAN</p>	<p>0-255 0-255</p>	<p>Message Waiting.</p> <p>The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.</p>

- - TDSH	i bb c tt	See above.
- DNDA	0-255 0-255	Do Not Disturb. The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.
- - TDSH	i bb c tt	See above.
- SSLK	0-255 0-255	Set Status Lockout. The first parameter is the MCAD table cadence entry number. The second parameter is the XCT tone code.
- - TDSH	i bb c tt	See above.

LD 10 – Allow Message Interception on an analog (500/2500 type) telephone.

Prompt	Response	Description
...		
CLS	(MIND) MINA	(Deny) allow Message Intercept. You must respond with one of these prompts for each analog (500/2500 type) telephone.

LD 11 – Allow message intercept on a Meridian 1 proprietary telephone.

Prompt	Response	Description
...		
CLS	(MIND) MINA	(Deny) allow Message Intercept. You must respond with one of these prompts for each Meridian 1 proprietary telephone.

Feature operation

The message continues until either it times out, or the telephone is placed on-hook.

Message Registration

Contents

This section contains information on the following topics:

Feature description	999
Operating parameters	999
Feature interactions	1001
Feature packaging	1003
Feature implementation	1003
Feature operation	1006

Feature description

Message Registration (MR) allows customers to meter local calls so that Hospitality administration can read, change, and reset message units stored on the meters.

Software meters accumulate call charges for room phones, administration phones, customer phones, attendant consoles, incoming TIE trunks, and Central Office (CO) trunks.

Operating parameters

Meters are incremented when Reverse Battery (RVB) signals are received from loop start or ground start Central Office (CO) trunks. The meter is incremented once for each completed local call, regardless of duration, against the originating Directory Number (DN). No charge is made to any meter if a call over a metered route is not established.

Metering is applied on a route basis. When provisioning a customer for the MR feature, calls that are to be metered can have access only to routes that are metered. Metered calls cannot be overflowed to a nonmetered route.

One software meter is assigned to every telephone Directory Number, attendant DN, and Trunk Access Code (TRC) that requires metering. Each software meter can count up to 32,766 calls before being automatically reset to zero. Prior to reset, the meter contents are displayed on the system background terminal.

The ATTN meter accumulates charges for all metered calls made by attendant consoles within a customer group. The TRK meter is provided for each incoming tie trunk route and Central Office (CO) route. Charges are registered for tandem call connections made by incoming TIE trunks over a meter-assigned route. One overflow meter, the CUST meter, allows each customer to accumulate any charges that cannot be registered to another meter.

With call modification, the party originating the metered call has its meter charged. Once the meter is charged, the charge cannot be transferred to another party's meter through Call Modification.

Attendant-originated calls to metered routes are charged to the party connected to the call source. If no party is connected to the source, the attendant's meter is charged.

If the attendant originates a call to a CO trunk, and the call is not extended to an internal Directory Number, the attendant's meter is incremented.

Incoming TIE trunks involved in metered tandem calls are charged to a meter associated with the route, to allow for billing to a party other than the customer.

Metered calls made within the customer that cannot be charged to any other meter are charged to the overflow meter associated with the CUST meter.

Message Registration (MR) uses only the Reverse Battery (RVB) type of answer supervision. Periodic Pulse Metering is not supported.

A QPC219, QPC330, or QPC450 trunk card must be used for the CO trunk routes receiving Reverse Battery Signals (RVB). Also, a QPC330 card must have its signaling set up as for a QPC219 trunk card.

The NT8D14 Universal trunk does not provide MR.

A Background Terminal (BGD) assigned meter access Controlled Class of Service (CCOS) can automatically read, change, or print meter values. The reading, changing, and printing can also be done manually. From a BGD, any meter can be turned on or off (for instance, set to accumulate or not accumulate charges), except for the customer meter, which is always on. When the BGD accesses a meter, a classification indicating the meter type is shown. The five possible meter classifications are:

- ROOM (room number)
- ADMN (administration)
- ATTN (attendant console)
- TRK (trunk)
- CUST (customer/miscellaneous)

For detailed information regarding Background Terminal (BGD) commands for MR, refer to *Background Terminal User Guide*.

Meter contents can also be read or changed by a Meridian 1 proprietary telephone equipped with a Message Registration key/lamp pair (MRK) and a display. The M2317 telephone can also be used. Three values are shown on the display for MR:

- the Directory Number (DN) of the telephone whose meter value is being changed
- the existing value of the meter
- the new value being entered

An MRK cannot be assigned to Automatic Call Distribution (ACD) agents.

The Call Detail Recording (CDR) feature does not display message registration meter information.

Feature interactions

Attendant Administration

MR service change is not supported by Attendant Administration.

Call Forward All Calls
Call Transfer
Conference

The party that originates a call is charged. The charge cannot be moved to another party using Transfer, Conference, or Call Forward All Calls.

Coordinated Dialing Plan
Centralized Attendant Service

MR is mutually exclusive of Coordinated Dialing Plan and Centralized Attendant Service.

Maintenance

Any maintenance testing done on metered trunks does not affect the meter values.

Multiple Appearance Directory Number

For Multiple Appearance Directory Number (MADN), the system selects the appropriate meter for the DN based on following this procedure:

- 1 It accesses the meter of the most recently configured telephone having a Prime DN (PDN) appearance and Message Registration Allowed (MRA) Class of Service.
- 2 If no Terminal Number (TN) in the DN block has MRA Class of Service, the customer meter is charged. For the Message Registration Key (MRK), the system provides overflow and sets the MRK lamp to flash. For the Background Terminal (BGD), it prints a NO DATA FOUND message.

Multi-Tenant Service

The ability to retrieve or update hotel or motel Room Status (RMS) and meter counts exists at the customer level, not at the tenant level.

Trunk to Trunk Connection

The last party releasing the call collects the total value of outstanding Periodic Pulse Metering (PPM) generated on outgoing trunks. If the last party is an internal set, the outstanding PPM is stored against the meter of the set. If the last party is an internal TIE trunk, the outstanding PPM is stored against the meter associated with the internal TIE trunk access code. If the last party is an outgoing external trunk, the outstanding PPM is stored against the meter associated with the external trunk access code.

Feature packaging

Message Registration (MR) package 101 requires:

- Controlled Class of Service (CCOS) package 81, and
- Background Terminal Facility (BGD) package 99.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Activate Message Registration on routes.
- 2 LD 14 – Configure the polarity trunk.
- 3 LD 10 – Allow or deny analog (500/2500 type) telephones access to meters.
- 4 LD 11 – Allow or deny Meridian 1 proprietary telephones access to meters.

LD 16 – Activate Message Registration on routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.

CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	aaa	Trunk route type, where: aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, FGOT, ISA, MCU, MDM, MUS, PAG, R232, R422, RAN, RCD, RLM, RLR, or TIE.
- MR	(NO) YES RVB	Only prompted if TKTP = COT or FGOT; MR provided on (no routes), all routes, or Reverse Battery (RVB) routes.

LD 14 – Configure the polarity trunk.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	COT	CO trunks.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(PIP) PSP	Polarity (insensitive) or sensitive. Use PSP for QPC218, QPC219, QPC295. Use PIP for QPC330, QPC331.

LD 10 – Allow or deny analog (500/2500 type) telephones access to meters.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(MRD) MRA	MR (denied) or allowed.

LD 11 – Allow or deny Meridian 1 proprietary telephones access to meters.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

CLS	aaa	Digit Display options, where: aaa = ADD, DDS, NDD.
	(MRD) MRA	MR (denied) allowed.
KEY	xx MRK	MR key, where: xx = key number.

Feature operation

No specific operating procedures are required to use this feature.

Message Waiting Indicator by Directory Number

Contents

This section contains information on the following topics:

Feature description	1007
Operating parameters	1014
Feature interactions	1014
Feature packaging	1015
Feature implementation	1016
Feature operation	1023

Feature description

The Message Waiting Indicator by Directory Number (MWDN) feature increases the flexibility in presenting a message waiting indication on the M2006, M2008, M2016, M2216, and M2616 proprietary sets. The MWDN feature provides the following functionalities:

- presentation of multiple message waiting indications on one set
- presentation of multiple message waiting indications for one mailbox on more than one set
- presentation of remote message waiting indications for message monitoring
- support for one mailbox for multiple Directory Numbers (DNs)

Multiple message waiting indications on one set

Prior to the MWDN feature, where more than one DN was configured on one set, only the Primary Directory Number (PDN) -- or the single appearance non-PDN -- had a Message Waiting Key (MWK) and the LED for the message waiting indication. There was no message waiting indication for DNs other than the PDN.

The MWDN feature allows a user to have a separate MWK, called the Extended Message Waiting Key (XMWK), for each of the mailbox DNs configured on that set. The DN associated with the XMWK must be configured as a non-PDN on that set.

The XMWK starts flashing when a new voice message is received for the DN associated with this key. Once all the new voice messages have been retrieved, the indication on the XMWK associated with that DN is canceled.

Multiple message waiting indications on one set has application for environments where one set has the DNs for several individuals. Figure 66 shows a scenario where an administrative assistant monitors the DNs for several individuals from the set.

Multiple message waiting indications for one mailbox on more than one set

Prior to the MWDN feature, if there was more than one appearance of a DN, the MWK could be turned on or off only for the primary appearance of that DN. With the MWDN feature, when a mailbox DN appears on more than one set, the XMWK can be configured for the non-primary appearance of the mailbox DN on each set. The DN associated with the common mailbox must be configured as a non-PDN on all the sets where it appears (except for the one PDN set).

When a new voice message is received for the DN associated with the common mailbox, all the XMWKs configured on all the sets and associated with this DN start flashing. Once all the new messages from the common mailbox have been retrieved by any of the users, the message waiting indication on all the XMWKs associated with the general mailbox DN is canceled.

Figure 66
Multiple message waiting indications on one set

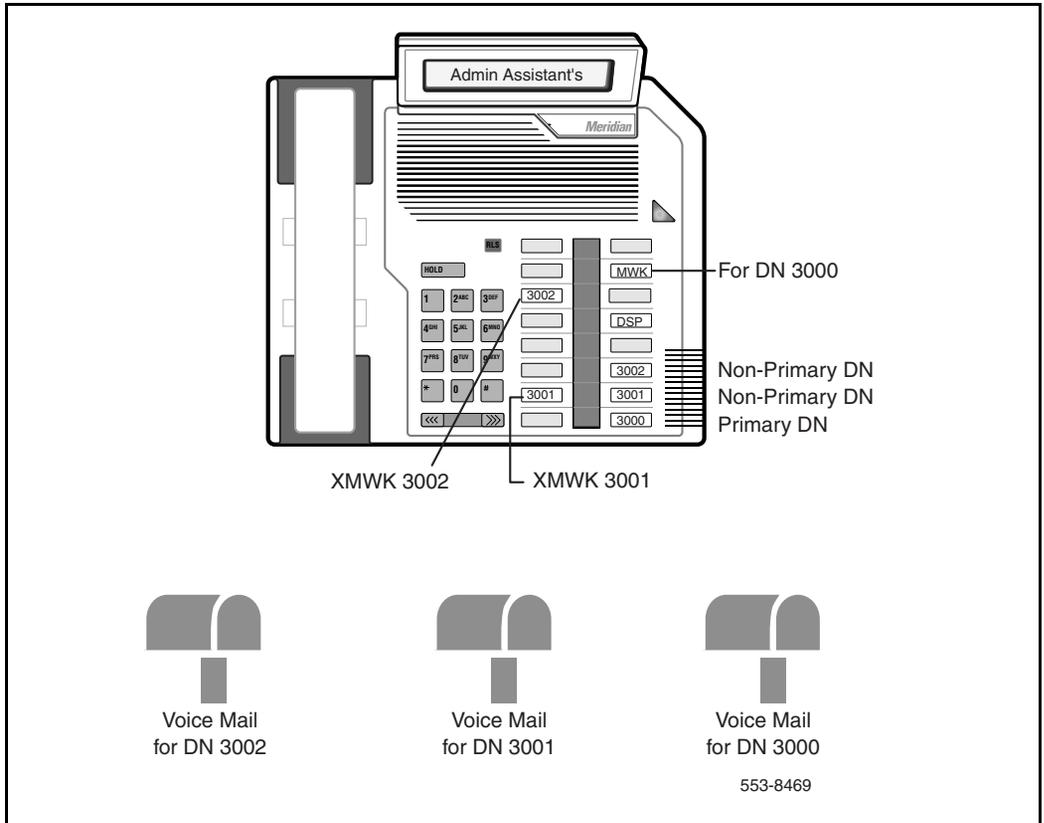
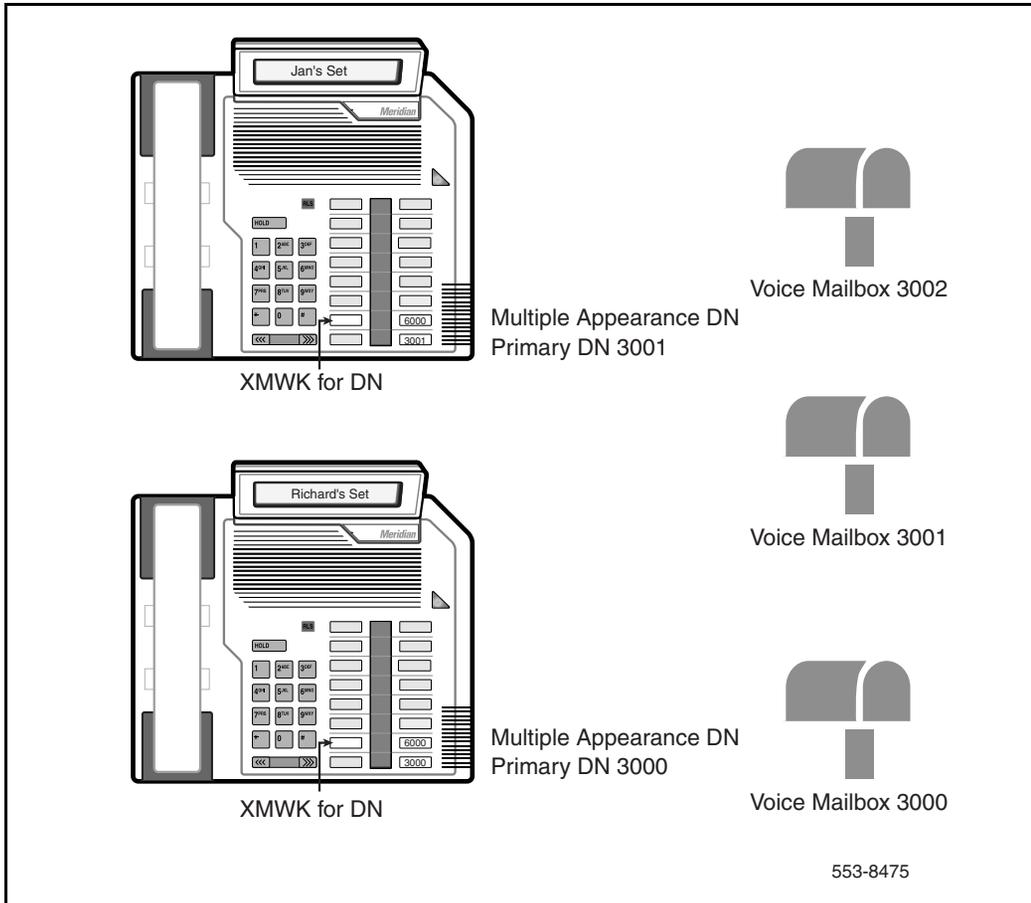


Figure 67 shows multiple message waiting indications for one mailbox on many sets. An application of this component of the MWDN feature is a person with more than one set with a shared DN, such as a mobility user in a macrocellular environment (that is, within a building). With the MWDN feature, messages coming into this DN will light up the message waiting indicators both their desk set and their mobility telephone. In this scenario, both the desk set and mobility telephone must be on the same switch.

Figure 67
Multiple message waiting indications for one mailbox on more than one set



Remote message waiting indication for message monitoring

Prior to the MWDN feature, if a new voice message was received, users had to see the message waiting indication or log in to their mailbox from a remote set to query if they had voicemail. With the MWDN feature, users can monitor the status of their mailboxes from a remote set without logging into their sets. When a new message arrives to the monitored mailbox DN, the message waiting indication is propagated to the Remote Message Waiting Key (RMWK) on a remote set that is programmed for that mailbox DN. The RMWK monitors those DNs which have at least one primary appearance.

The Message Center DN must be configured; configuring the monitored mailbox DN is optional. The RMWK for the mailbox DN is user programmable from the set.

When programmed, the RMWK starts flashing if any new voice message arrives for the associated mailbox DN; if not, the RMWK remains steadily lit. To cancel the RMWK function, press the RMWK when it is lit or flashing.

The temporary redirection and message waiting indicator propagation of a phantom TN uses this component of the MWDN feature. Figure 68 illustrates a phantom TN, DN 3001, with a RMMA/RMMO class of service. A RMWK key is configured on a set to monitor the messages for the DN 3001. Any new voice message to the phantom DN 3001 is shown on the RMWK. When a new voice message is received for DN 3001, the RMWK starts flashing; once all the new voice messages are retrieved for DN 3001, the RMWK becomes steady lit.

One mailbox for multiple DNs

Prior to the MWDN feature, three DNs could be associated with one mailbox; however, only the PDN which shares the mailbox displayed the message waiting indication. The MWDN feature extends the message waiting indication to all proprietary set appearances on which the three DNs sharing the mailbox are configured.

This feature is used in an environment such as a technical support area with up to three technicians having their own DN but sharing a common mailbox. Figure 69 shows DNs 5000, 5001 and 5002 with a shared mailbox.

Figure 68
RMWK operation when a phantom TN is call forwarded to a telephone

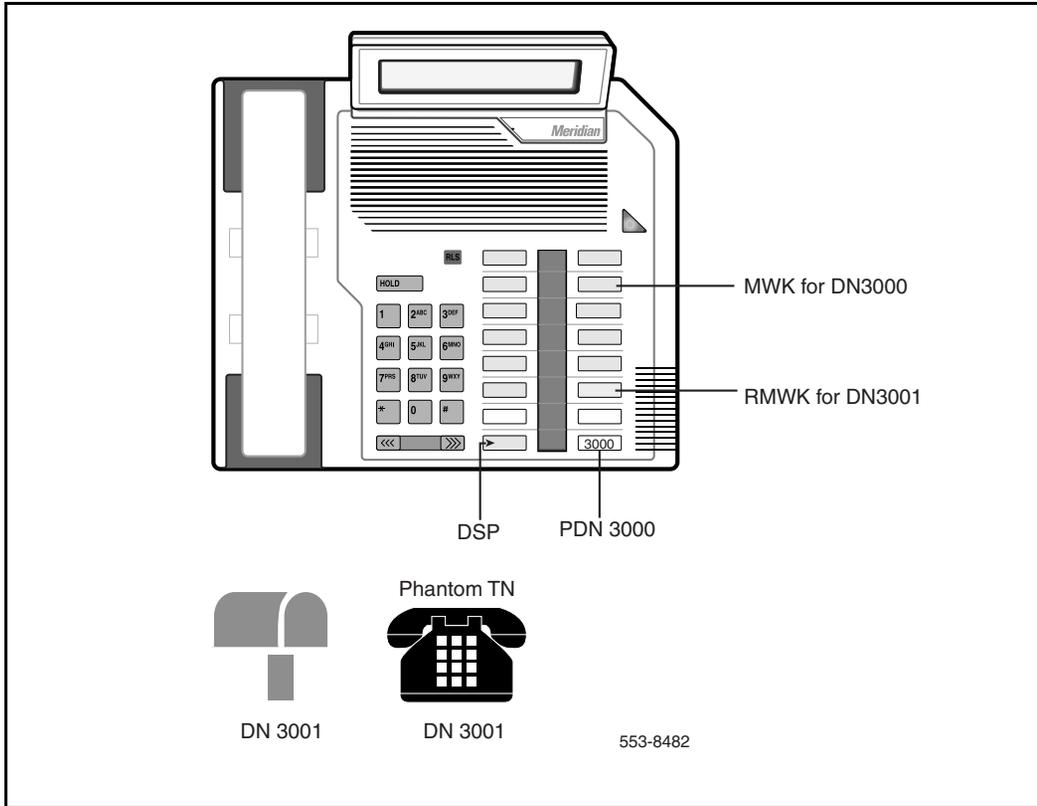
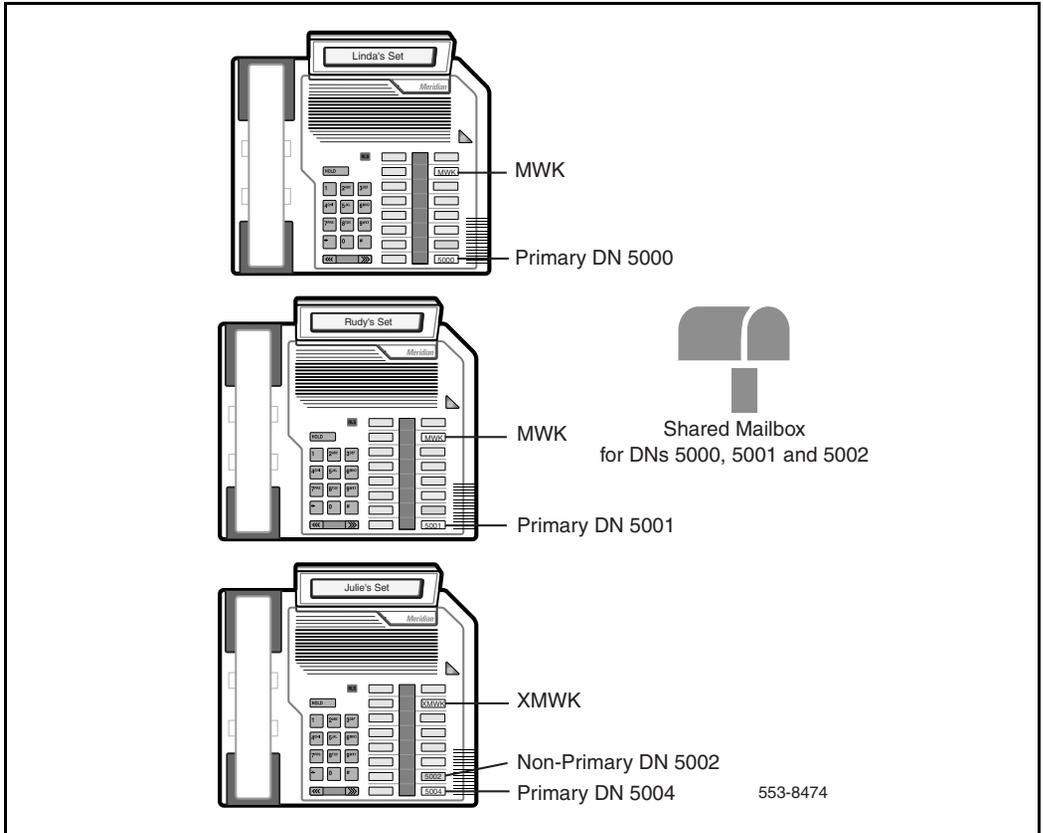


Figure 69
One mailbox for multiple DNs



Operating parameters

MWDN supports features within the same node; it does not support features on different nodes across a network. For example, MWDN supports Meridian Mail if it is on the same node; the MWDN feature does not support Meridian Customer Defined Network (MCDN) messaging services across a network.

Meridian Mail 9 is required to support one mailbox for multiple DN functionality. The Voice Mailbox Administration (VMBA) package 246 must be equipped to enable the functionality of one mailbox for multiple DNs.

The MWDN feature does not support message waiting indication in the macrocellular environment.

The Remote Message Waiting Key (RMWK) monitors PDNs only.

A DN can be monitored by only one RMWK at a time.

Each Extended Message Waiting Key (XMWK) can be associated with one non-PDN only on each set.

Feature interactions

Display key

With the MWDN feature, the Display key (DSP) shows the Message Center DN and the mailbox DN associated with the XMWK and the RMWK. This display occurs when a user presses the DSP and then either the XMWK or the RMWK. If there is no mailbox DN associated with the RMWK, only the Message Center DN is displayed.

Multiple Appearance DN

For the Multiple Appearance DN feature:

- On sets where the DN is configured as a PDN, the message waiting indication occurs on the MWK and red LED.
- On sets where the DN is configured as a non-PDN, the message waiting indication occurs on the XMWK and the red LED depending upon the LMPN or LMPX class of service. The LMPN class of service is defined as the red LED reflects the status of the mailbox associated with the PDN. The LMPX class of service is defined as the red LED reflects the status of the mailboxes associated with both PDN and non-PDNs.

The RMWK can be used to monitor a Multiple Appearance DN if the DN has at least one primary appearance.

Phantom Terminal Number

The Phantom Terminal Number feature permits users to define and configure Terminal Numbers (TNs) with no associated physical hardware. The phantom TN can be associated temporarily with a physical telephone. With the MWDN feature, a user can monitor the mailbox associated with the phantom DN through the RWMK on a proprietary telephone.

Feature packaging

The MWDN feature requires these packages:

- Digit Display (DDSP) package 19
- Message Waiting Lamp Maintenance (MWC) package 46
- Voice Mailbox Administration (VMBA) package 246

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Enable the Message Center in the Customer Data Block.
- 2 LD 11 – Configure the class of service option for the Extended Message Waiting Key (XMWK) and its LEDs on the proprietary sets.
- 3 LD 11 – Configure the Remote Message Waiting Key (RMWK) to monitor remote sets with a mailbox.
- 4 LD 10 – Configure new class of service options to enable analog (500/2500) sets to be monitored remotely.
- 5 LD 11 – Configure the class of service to enable Meridian 1 proprietary sets to be monitored remotely.
- 6 LD 10 – Extend the message waiting indication function to all the analog (500/2500) sets on which the DNs sharing the mailbox are configured.
- 7 LD 11 – Extend the message waiting indication function to all the Meridian 1 proprietary sets on which the DNs sharing the mailbox are configured (whether the DNs are PDN or non-PDN).

For all the following tasks, first enable the Message Center in the Customer Data Block in LD 15. See page 1017.

To configure multiple message waiting indications on one set or on many sets:

- Configure the class of service options for the Extended Message Waiting Key (XMWK) and its LCDs on proprietary sets in LD 11. See page 1018.

To configure remote message waiting indications on one set:

- Configure the Remote Message Waiting Key (RMWK) to monitor remote sets with a mailbox in LD 11. See page 1019.
- Configure new class of service options to enable analog (500/2500) sets to be monitored remotely in LD 10. See page 1020.

Note: All sets with primary DNs to be monitored **must** be configured as RMMA/RMMO.

- Configure new class of service options to enable proprietary sets to be monitored remotely in LD 11. See page 1021.

Note: All sets with primary DNs to be monitored **must** be configured as RMMA/RMMO.

To configure message waiting indications on sets where DNs sharing a mailbox appear:

- Configure the class of service option to enable the message waiting indication for all the analog (500/2500) sets on which the DNs sharing the mailbox are configured in LD 10. See page 1022.
- Extend the message waiting indication function to all the Meridian 1 proprietary sets on which the DNs sharing the mailbox are configured in LD 11. See page 1023.

LD 15 – Enable the Message Center in the Customer Data Block.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	RDR	Call Redirection.
CUST	xx	Customer number, as defined in LD 15
OPT	MCI	Options. Message Center Included.

To configure the XMWK key, the DN to be associated with the XMWK must be configured as a non-Primary Directory Number (non-PDN) on this set.

Note: The DN associated with the XMWK must not have an XMWK already associated with it on this set.

LD 11 – Configure the class of service option for the Extended Message Waiting Key (XMWK) and its LEDs on the proprietary sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
...		
CLS	MWA LMPX	Class of service option. Message Waiting Allowed. (MWD) = Message Waiting Denied. The red LED on the proprietary sets reflects the status of the mailbox associated with both the PDNs and non-PDNs with the associated Extended Message Waiting Keys (XMWKs) or the Remote Message Waiting Keys (RMWKs). (LMPN) = The red LED on proprietary sets reflect the status of the mailbox associated with the PDNs.
...		
KEY	xx XMWK xxxx yyyy	Telephone function key assignments. Extended Message Waiting indication key Where: xx = key number xxxx = Message Center DN yyyy = mailbox DN Note: XWMK cannot be configured on key 0.

LD 11 – Configure the Remote Message Waiting Key (RMWK) to monitor remote sets with a mailbox.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
...		
CLS		Class of service option.
	MWA	Message Waiting Allowed.
		(MWD) = Message Waiting Denied.
	LMPX	The red LED on the proprietary sets reflects the status of
		the mailbox associated with both the PDNs and non-
		PDNs with the associated Extended Message Waiting
		Keys (XMWKs) or the Remote Message Waiting Keys
		(RMWKs).
		(LMPN) = The red LED on proprietary sets reflect the
		status of the mailbox associated with the PDNs.
...		
KEY		Telephone function key assignments.
	xx RMWK xxxx [yyyy]	Remote Message Waiting indication key
		Where:
		xx = key number
		xxxx = Message Center DN
		[yyyy] = DN to be monitored {optional}

Note: All sets with primary DNs to be monitored must be configured as RMMA/RMMO.

LD 10 – Configure new class of service options to enable analog (500/2500) sets to be monitored remotely.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	500	Analog (500/2500) set.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
CLS		Class of service option.
	MWA	Message Waiting Allowed. MWD = Message Waiting Denied.
	RMMA RMMO	Allow the set to be remotely monitored for messages. Allow the set to be remotely monitored for messages and allow the set to override, if it is being monitored already. (RMMD) = Deny set for Remote Monitoring of Messages.

Note: All sets with primary DNs to be monitored must be configured as RMMA/RMMO

LD 11 – Configure the class of service to enable Meridian 1 proprietary sets to be monitored remotely.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS		Class of service option.
	MWA	Message Waiting Allowed. MWD = Message Waiting Denied.
	LMPX	Enable the red LED on the supported proprietary sets to reflect the status of the mailboxes associated with both PDN and non-PDNs. (LMPN) = do not enable the red LED on the supported proprietary sets to reflect the status of the mailboxes associated with both PDN and non-PDNs.
	RMMA RMMO	Allow set for Remote Monitoring of Messages. Allow set for Remote Monitoring of Messages and Override, if it is being monitored already. (RMMO) = Deny set for Remote Monitoring of Messages.

Note: Voice Mailbox Administration (VMBA) must be configured before configuring one mailbox supporting Multiple Appearance DNs. Refer to *Hospitality Features: Description and Operation (553-3001-353)* for information on configuring VMBA.

LD 10 – Extend the message waiting indication function to all the analog (500/2500) sets on which the DNs sharing the mailbox are configured.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	500	Analog (500/2500) set.
...		
CLS	MWA SMWA	Class of service option. Message Waiting Allowed. MWD = Message Waiting Denied. Allow Extended Message Waiting Indication. (SMWD) = Deny Extended Message Waiting Indication.

Note: Voice Mailbox Administration (VMBA) must be configured before configuring one mailbox supporting Multiple Appearance DN's. Refer to *Hospitality Features: Description and Operation (553-3001-353)* for information on configuring VMBA.

LD 11 – Extend the message waiting indication function to all the Meridian 1 proprietary sets on which the DN's sharing the mailbox are configured (whether the DN's are PDN or non-PDN).

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
...		
CLS		Class of service option.
	MWA	Message Waiting Allowed.
	SMWA	Allow Extended Message Waiting Indication. (SMWD) = Deny Extended Message Waiting Indication.

Feature operation

Remote message monitoring:

- 1 Press the RMWK with the set in idle position.
- 2 The set winks and displays RMWK XXXX (where XXXX is the existing mailbox DN) prompting for a new mailbox DN. If there is no mailbox DN, the set displays RMWK.
- 3 Enter the new mailbox DN.
- 4 The screen displays the digits. Press the RMWK to validate the mailbox DN.

Note: If you press the RMWK without entering the digits, the RMWK remains programmed for the DN which was stored previously. If there is no DN stored, the Overflow tone is given.

- 5 If the DN is invalid, the Overflow tone is given. If the mailbox DN is valid:
 - If the set on which this DN is configured as PDN has a class of service set to RMMA or RMMO and is not monitored:
 - the RMWK starts flashing if there are any new voice messages for this DN.
 - the RMWK lamp becomes steady lit and the screen changes to idle mode if no new voice message exists for this DN.
 - If the set on which this DN is configured as PDN has a class of service set to RMMO and is being monitored by another set, this set overrides and continues to monitor.
 - Overflow tone is given if any set on which this DN is configured as PDN has class of service set to RMMD.
 - Overflow tone is given if any set on which this DN is configured as a PDN has class of service set to RMMA and is being monitored by another set.
- 6 To cancel remote message monitoring, press the RMWK when it is lit or flashing.

Message Waiting Lamp Maintenance

Content

The following are the topics in this section:

Feature description	1025
Operating parameters	1026
Feature interactions	1026
Feature packaging	1026
Feature implementation	1026
Feature operation	1027

Feature description

This maintenance enhancement alleviates the “dark effect” when neon lights are tested in low ambient light conditions.

Because the dark effect is inherent to neon lamps, it is recommended that PBXT Message Waiting Lamp tests not be run during low ambient light conditions. The line card detector circuitry can register lamp failures under these circumstances, and the Message Waiting Lamp test may be unreliable. Lamps are listed as faulty when they fail the test once in three attempts.

The PBXT Message Waiting Lamp tests can be run under one of the following conditions:

- automatically at a system-specified time, or
- manually at any time (LD 32).

Automatic scheduling should consider low traffic times, when there is still enough ambient light to avoid the dark effect. To prevent the automatic scheduling of LD 32, LD 32 must be excluded from the daily routines (“midnights”) and the system-defined hour must be the default “X” value.

When the hour defined defaults to the “X” value, an error message is output to remind the customer that the PBXT tests are still part of the daily routines, unless LD 32 is removed from the list.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

The Message Waiting Lamp Maintenance feature requires Message Waiting Center (MWC) package 46.

Feature implementation

LD 17 – Define the time for the maintenance tests.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	OVLY	Gate opener.
OVLY	(NO), YES	Change overlay area options.
- PBXH	hh	PBX Hour for maintenance tests, where: hh = hour for tests, 0-23.
	x	Enter x if no tests are to be performed.

Feature operation

No specific operating procedures are required to use this feature.

Message Waiting Unconditional

Contents

This section contains information on the following topics:

Feature description	1029
Operating parameters	1029
Feature interactions	1030
Feature packaging	1033
Feature implementation	1033
Feature operation	1033

Feature description

This feature enhances the use of the Message Indication key (MIK) and Message Cancellation key (MCK) by an Automatic Call Distribution (ACD) message center agent or message center attendant.

This feature enhancement applies to a Network Message Center. It is configured on a customer basis in LD 15.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

ACD Message Center

The operation of ACD Message Center telephones is basically the same as an ACD system with incoming call queues and available agent queues. The ACD Message Center cannot operate in combination with an Attendant Message Center. However, if all telephones are in the Make Busy mode (not logged in), Message Center calls can be routed to the attendants who can then function as the message center. Queue overflow features are allowed for a Message Center ACD DN in the same way as for any other ACD system with the properly equipped package. Other ACD features, such as RAN and Music, operate as for a normal ACD system with the appropriate packages.

A Message Center operator cannot originate calls on the MSG IN-CALLS key; therefore originating features are not applicable on this key. Separate DN keys must be provided for these functions.

DN Message Center

The Message Center DN must be the prime DN, otherwise all normal features can be assigned to this DN.

Attendant Message Center

Once a call is extended to an ACD Message Center by an attendant, it is released completely from attendant operation, and features, such as recall and camp-on, cannot be activated. For calls extended to a DN Message Center, normal attendant functions, such as recall and camp-on, can be used. Other attendant functions operate normally.

Call Forward (All Calls)

Call Forward should be denied at telephones serving as the message center. On a telephone basis, Call Forward takes precedence over the message center. If a call is forwarded to another telephone, activation of message waiting depends on whether or not the second telephone has message waiting allowed.

Call Forward Message Waiting dialtone can be provided to 500/2500 type telephones. This is an indication that Call Forward All Calls is active and a message is waiting at the message center.

Call Forward, Internal Calls

The Message Center treats Internal CFW in the same way as Call Forward All Calls (CFAC).

Call Forward Message Waiting dialtone can be provided to 500/2500 type telephones as an indication that Call Forward, Internal Calls is active and a message is waiting at the message center.

Call Forward Busy

Call Forward Busy (CFB) should be denied at telephones serving as the message center. An option is provided to allow DID calls to a busy telephone to be routed to the message center. If this option is selected by the customer, message waiting takes precedence over the customer-defined path for CFB.

Call Forward No Answer

Call Forward No Answer (CFNA) should be denied at telephones serving as the message center. On a telephone user basis, message waiting takes precedence over the customer defined path of CFNA.

The capability to light and extinguish message waiting lamps can be used in conjunction with CFNA to simulate a multiple message center. Any telephone equipped with message lamps, but without message waiting allowed class of service, can CFNA to specified DN's on the telephones equipped with MSG INDIC and MSG CANC key/lamp pairs.

These telephones have the capability to light or extinguish message waiting lamps by manually entering the DN of the telephone for which a message was taken. Call processing is the normal call processing for CFNA, not the message center call processing. When a call is forwarded, the MSG INDIC lamp does not light since this is not true message center operation.

Call Transfer/Conference from an Analog (500/2500 type) telephone

Message waiting interrupted dial tone is not provided when the user flashes the switchback to activate Call Transfer or Conference. The normal dial tone for this purpose is provided.

Flexible Call Forward No Answer to any DN

Flexible Call Forward No Answer (CFNA) to any DN forwards unanswered calls to a pre-designated CFNA DN. All telephones with message waiting allowed have the CFNA DN assigned to the message center regardless of whether Flexible CFNA has been selected by the customer or whether CFNA is allowed or denied for the telephone.

Hunting

Hunting should be denied at telephones serving as the message center (MC). On a user basis, hunting takes precedence over message waiting. However, message waiting can be activated after hunting provided the hunted telephone is message waiting allowed and does not answer the call. If desired, the MC DN can be specified as the hunt number.

Listed Directory Number

A message center can be assigned to a Listed Directory Number (LDN) and behaves in a similar manner to an attendant message center. The calls come in on an LDN ICI instead of the MSG CENTER ICI, and direct message calls do not activate the MSG CANC key. The operator must access the user telephone directly to cancel that telephone's message indication.

Ring Again for an Analog (500/2500 type) telephones

Message waiting interrupted dial tone is not provided when the user flashes the switch back to activate Ring Again. The normal dial tone for this purpose is provided.

User Selectable Call Redirection

User Selectable Call Redirection allows the user to perform two tasks:

- To assign the four redirection DNs from the telephone. These DNs include the CFNA DN and the external CFNA DN (if it exists).
- To change the way the number of ringing cycles are defined for Flexible Call Forward No Answer (CFNA). One of three options can now be selected from the telephone.

This feature does not support Basic Rate Interface (BRI) telephones.

Feature packaging

Message Waiting Center (MWC) package 46.

Feature implementation

LD 15 – Enable the Message Waiting Unconditional feature enhancement for a customer.

Prompt	Response	Description
...		
OPT	(MWUD) MWUA	Message Waiting Unconditional feature enhancement (denied) allowed.

Feature operation

The current operation is such that, if an internal call or an incoming external call to a station is not answered, the caller may leave a message at the message center (ACD agent or message center attendant). To activate or deactivate a message waiting indication on the desired station, the ACD agent or attendant presses the Message Indication key (MIK) and Message Cancellation key (MCK), respectively. To use this method when the message center has an active call, the active call must be placed on hold, or the message center attendant has to be placed in position busy or the ACD agent in Not Ready state before the MIK/MCK may be activated.

The enhanced operation allows the Message Indication key (MIK) and Message Cancellation key (MCK) to be used unconditionally (that is, if there is a call presented to the message center, and not answered, pressing the MIK or MCK takes precedence over the presented call).

Note: This enhancement applies only to presented calls which have not been answered. If the message center has a call already established, the current operation applies.

Mixed disk drive sizes with CP PII

Contents

This section contains information on the following topics:

Feature description	1035
Operating parameters	1035
Feature interactions	1036
Feature packaging	1036
Feature implementation	1036
Feature operation	1036

Feature description

This feature provides the functionality of disk redundancy for Multimedia disk units (MMDU) of different sizes on the respective cores. Regardless of the MMDU sizes, this feature configures them to be exactly 6GB. Therefore the existing functionality of disk redundancy is automatically preserved.

This feature uses the configuration option provided by the system software to configure MMDUs of any size to 6GB. This feature is automatically enabled during sysload. There is no manual intervention needed.

Operating parameters

The feature is not applicable for MMDU sizes less than 6GB.

Feature interactions

All existing features are unaffected.

Inventory feature

Since no pack ID is available, there is no data provided to the Inventory Reporting Feature.

CS 1000M SG and Meridian 1 PBX 61C

The CS 1000M SG and Meridian 1 PBX 61C systems use the install disk, which is modified to support the Mixed Disk Drive feature.

Feature packaging

No new software packages are introduced.

Feature implementation

The feature is automatically enabled during sysload. There is no manual intervention needed.

Feature operation

There are no specific procedures required to operate this feature.

Multi-language Messaging

Contents

This section contains information on the following topics:

Feature description	1037
Operating parameters	1038
Feature interactions	1039
Feature packaging	1039
Feature implementation	1039
Feature operation	1040

Feature description

System software has a system of message reporting that issues reports containing English sentences in addition to error codes and data, and the Error Message Lookup feature that enables Nortel Technical Publication (NTP) explanations of any error code to be displayed on the TTY. The Multi-language Messaging feature enhances these capabilities by providing an additional language besides English. In addition, the capacity to toggle from one language to another without suspending system operations is provided.

Operations, Administration and Maintenance users on Large Systems will now have the ability to have some messages, currently printed in English, to be displayed and logged using another language. The following messages are affected:

- Maintenance and start-up messages specific to Large Systems, with the following exceptions:

- Messages printed by the VxWorks OS
- Read Only Memory Firmware (ROM F/W) messages
- Interactive messages from overlays
- Explanation texts printed by the System Message Lookup Utility (MLU).

Operating parameters

This feature applies to Large Systems.

Every system can support only one language besides English, and changing this language to another language is only possible after re-initializing the system.

Upgrading the messages database to a more recent version is only possible by upgrading the software.

The language is selected for the whole system and changes simultaneously on all configured terminals and log files.

Messages are logged in the Report Processing Tool (RPT) log file as they come (that is, in the language currently configured in LD 17). Hence, the log file may contain messages in both English and the alternate language.

After the language option has been changed in LD 17, some messages may be displayed in the previous language, because they were sent to the printer queue immediately before service change.

At system start, the first messages will be displayed in English, since the current language will not yet have been read from the disk.

It is not possible for the current feature to enable translation of interactive or hard-coded messages in the system.

Translation is not possible for the following messages:

- Large System installation tools screens
- LDs 135 and 137 (interactive messages)
- Application modules

- New/existing tools for database consistency checks
- VxWorks OS
- Messages printed during initialization and SYSLOAD by the system software
- Liquid Crystal Display (LCD) displays on the Central Processing Unit (CPU) board, and
- ROM messages.

No new hardware is required for this feature.

Feature interactions

This feature is an improvement based on the Message Lookup Utility (MLU) and the Report Processing Tool (RPT).

Feature packaging

The following package must be activated for the Multi-language Messaging feature to operate: Multi-language TTY Input/Output (MLIO) package 211.

The following package must be activated to gain access to the System Message Lookup feature: System Message Lookup (SYS_MSG_LKUP) package 245.

Feature implementation

LD 17 – Select which messages to translate.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PARM	System Parameters
...		
PARM	YES	System parameters.

...		
- NDIS	(NO) YES	New distinctive ringing.
- TRNS	(NONE)	Selects which messages are going to be translated. NONE = Help and Large System specific system messages are printed in English.
	HELP	HELP = Help is printed in the translated language and Large System specific system messages are printed in English.
	BOTH	BOTH = Help and Large System specific system messages are printed in the translated language.
		Note: The translated language printed is dependent on the software packaging.

Feature operation

No specific operating procedures are required to use this feature.

Multi-Party Operations

Contents

This section contains information on the following topics:

Feature description	1041
Operating parameters	1046
Feature interactions	1046
Feature packaging	1055
Feature implementation	1055
Feature operation	1062

Feature description

Multi-Party Operations (MPO) introduces a number of capabilities. The capabilities are:

Call Join

Allows Meridian 1 proprietary telephone users to conference a held party into an active call without having to redial the held party.

Call Join applies to all Meridian 1 proprietary telephones, regardless of the Class of Service assigned, that are equipped with a Three-party (AO3) or Six-party (AO6) Conference key and at least one secondary DN or Call Waiting key.

This feature allows a Meridian 1 proprietary telephone user to conference a party held with an active party on their set, or transfer the active party to the held party by forming a conference then disconnecting.

Call Join is not available at the attendant console.

Three-party Service

Allows analog (500/2500 type) telephone users to toggle between two parties with the option of forming a conference between them, or releasing the active party and reconnecting the held party. Included under the Three-party Service capability are:

- **Three-party Service Timer** – A programmable timer to allow dialing of a Control Digit after a Register Recall.
- **Consultation Call Disconnect Option** – An option to provide alternative treatment to the parties involved in a Consultation call when the Consultation connection is released.

Three-party Service applies to analog (500/2500 type) telephones with Three-party Service Allowed (TSA) Class of Service.

During a normal two-party call, the user can place the established call on hold and originate another call. After the second call is established, the user can:

- a. Dial the Conference Control Digit (CNFD) to form a three-party conference between the user, held, and active parties, or transfer the active party to the held party by forming a three-party conference then disconnecting.
- b. Dial the Toggle Control Digit (TGLD) to exchange the active and held calls.
- c. Dial the Disconnect Control Digit (DISD) to release the active call and reconnect the held call.

Programmable Control Digits

The Control Digits may be programmed in LD 15.

Three-party Service time out treatment

A timer is provided on a customer basis to activate an optional time out treatment. The optional time out treatment is to release the active party and connect to the held party if the controlling party of a Consultation call does not dial a Control Digit within the time specified during a Register Recall. The result is the same as if the controlling party had dialed the Control Digit assigned to the DISD function.

The optional time out treatment is selected by the user by responding to the Control Digit Time Out (CDTO) prompt in LD 15 with a value in the range of 2 to 14 seconds.

If the user selects either the default, 14 seconds, or enters 14 seconds, then the operation is as it was prior to the introduction of the Three-party Service time out treatment. That is, if a Control Digit is not entered within 14 seconds, Overflow Tone is provided for 14 seconds, after which the call returns to its previous state; the held party remains on hold and the consulted party is reconnected. If a Register Recall is performed while Overflow Tone is given the call returns to its previous state.

Six-party Conference Enhancement for analog (500/2500 type) telephones

Provides analog (500/2500 type) telephone users with the ability to Conference up to six parties.

If the MPO package is equipped, then Six-party Conference Enhancement is available to analog (500/2500 type) telephones with a combination of the TSA and existing C6A Classes of Service.

This capability is an extension of Three-party Service which allows the user to build a conference of up to six parties by consulting and selectively adding members through the use of Control Digits.

Ignore Switchhook Flash

Provides the ability, on a customer basis, to ignore a Switchhook Flash from analog (500/2500 type) telephones. This eliminates the confusion between a flash signal and a dial "1" signal on Dial Impulse analog (500/2500 type) telephones, especially when the Dial Impulse analog (500/2500 type) telephones have been assigned DTN Class of Service.

If the flash is to be ignored, analog (500/2500 type) telephones must have a Ground (EARTH) Button in order to use features which require a Register Recall.

Forced Register Recall

Provides an option, on a customer basis, to force analog (500/2500 type) telephone users assigned DTN Class of Service to issue a Register Recall before dialing a Control Digit.

If the system does not have the Forced Register Recall option activated, then a Switchhook Flash is interpreted as a dial "1", default CNFD, causing that Control Digit assignment to be activated.

Manual return after enquiry (Manual Hold)

Provides an option (MHL) to require analog (500/2500 type) telephone users to issue a Register Recall to return to a held party following a Consultation dialing time out.

At present, when an analog (500/2500 type) telephone places a party on hold by using a Register Recall, sets with DIP Class of Service receive 30 seconds, while Digitone (DTN) Class of Service sets receive 14 seconds, of Special Dial Tone followed by 14 seconds of Overflow Tone before the held party is reconnected. During this period, the held party is listening to silence, or RAN if equipped.

The Manual Return after Enquiry option (MHL) controls the way the held party is reconnected to the controlling party. If MHL = NO (the default), the controlling party is automatically reconnected to the held party after the overflow tone timeout. If MHL = YES, the controlling party receives silence indefinitely after the overflow tone timeout until a second recall is performed to retrieve the held party. There is no automatic reconnection of the held party. The controlling party may manually return to the held party by performing a second Register Recall during Special Dial Tone, Overflow Tone or during the silence period.

Recovery of Misoperation during Call Transfer

The Recovery of Misoperation during a Call Transfer feature provides protection against having calls lost due to misoperation of the Call Transfer feature. Misoperation occurs whenever the user initiates an unexpected action that would normally cause a call to be lost.

If a station user tries to perform an illegal Call Transfer (for example, Call Transfer to a vacant number or Call Transfer to a busy extension), the station user receives the appropriate indication on the Consultation connection (for example, Overflow Tone and Busy Tone). However, since transfer in the ringing state is allowed, the user may still mis-operate and complete the Call Transfer operation immediately after dialing the desired number.

If a Meridian 1 proprietary telephone user attempts to complete a Call Transfer by pressing the Call Transfer key, the call is only transferred if the dialed party is in the ringing state or in the Consultation state with the controlling party. In other states the attempt to Call Transfer is ignored.

When an analog (500/2500 type) (500/2500) set initiates a supervised call transfer to a DN in any other state than ringing, the call transfer misoperation treatment is dependent upon the option chosen for AOCS (all other cases) in the customer data block (LD 15). If any set (either analog or digital) attempts a blind transfer in ringing state, the misoperation treatment is dependent upon the option chosen for Ring No Answer (RGNA) type of misoperation assigned in LD 15.

A number of options are available, where a call is transferred while the transferred station is ringing. For example if Attendant After Recall (AAR), or Disconnect After Recall (DAR) is selected, the transferred station will ring for an optional number of ring cycles (RCY2). On the expiration of this timer, the transferring set is rung back for an optional number of ring cycles (RCY1) with an optional recall ringing cadence. If the transferring station does not answer during the optional ringing cycles (RCY1), the transferred call will be forwarded to the attendant or Night Service DN (AAR) if external or disconnected by the DAR option if internal.

The Recovery options are specified for both Ring No Answer (RGNA) and All Other Cases (AOCS) cases in LD 15 when the MPO package is equipped. Separate treatment can be specified for external and internal calls.

Switchhook Contact Bounce

The situation occurs when an analog (500/2500 type) telephone goes on-hook. Switchhook contact bounce during disconnect may be interpreted by the system as a switchhook flash followed by an on-hook. When this occurs there is an unintended Call Transfer to the attendant or other type of misoperation.

In order to resolve this problem, with the MPO package equipped, the software is modified to delay recognition of any action for a minimum of 256 milliseconds following receiving a valid switchhook flash from analog (500/2500 type) telephones. During this delay, any signaling received from the parties involved is ignored.

Operating parameters

For enhanced functionality of the Multi-Party Operations, the following features should be equipped:

- Automatic Hold for Meridian 1 proprietary telephones
- Ground Button and Flash timers, and
- Recall of misoperation ringing cadence and Control and Special Dial Tones requires the Flexible Tones and Cadences (FTC) feature.

Feature interactions

Access to Paging trunks

Analog (500/2500 type) telephones with TSA Class of Service are restricted from initiating a Consultation connection while connected to a paging trunk.

Access to Recorded Dictation trunks

Analog (500/2500 type) telephones with TSA Class of Service are restricted from initiating a Consultation connection while connected to a dictation trunk.

Attendant Administration

Attendant Administration allows certain station classes of service to be altered. The operation of Attendant Administration is modified so that if an attendant tries to alter either Call Transfer Allowed (XFA) or Call Transfer Denied (XFD) Class of Service, then Three-party Service (TSA) Class of Service is disallowed. The TSA and XFA Classes of Service are mutually exclusive. When XFA is assigned, TSA will be disallowed if it was not configured. XFD is not mutually exclusive with TSA, but TSA will not be automatically assigned if the Class of Service is changed to XFD. TSA Class of Service cannot be assigned using Attendant Administration.

This feature can not be used to setup the Three-party Service TSA Class of Service.

Attendant Break-In

Break-In is not allowed to the party receiving the patience tone or the misoperation ringback.

Break-In with Secrecy

For Multi-Party Operation (MPO), the operation of features, such as going on-hook and releasing from a call, during the BKIS conference between the attendant and the desired party, takes precedence over MPO operations for those cases where the treatment differs from that defined by the customer.

All network nodes must have MPO software, with identical Multiple-party Operation (MPO) options. Otherwise, MPO options in the desired party's node have precedence.

Pertaining to MPO options, if the undesired party is not located on the same node as the desired party, the undesired party is considered as an external party on the desired party node.

Attendant Forward No Answer

Multi-Party Operations – Recovery of Misoperation During Call Transfer takes precedence over NFNA and NFNS for DID/DOD/CO calls.

When a DID/DOD/CO call is transferred from one station to another station on the same node, Ring Again No Answer has priority over NFNA and NFNS.

Attendant Recall

For analog (500/2500 type) telephones with TSA Class of Service, Attendant Recall is accomplished by performing a Register Recall during the two-party connection and dialing the Attendant DN.

Attendant Recall with Splitting

The Multi-Party Operations (MPO) feature introduces a new Class of Service, Three Parties Service Allowed (TSA), for analog (500/2500 type) telephones. It allows certain keys on these sets to be programmed for conference, toggle between sets, and disconnect. However, the toggle function will be disabled if a call is transferred to the attendant because of the Attendant Recall with Splitting feature.

Call Forward All Calls

A set which has activated Call Forward All Calls can still initiate calls and become the controlling party of a consultation connection. In this case, if the set mis-operates, then Multi-Party operations, while re-ringing the controlling party as a part of misoperation recovery, ignores the Call Forward All Calls indication present on the controlling party.

Call Forward No Answer

For Call Transfer with Ring No Answer (RGNA) if the user has selected an option other than Standard, the optional treatment has priority over the CFNA option selected in the LD 15. If the user has chosen the standard option for RGNA, the call will be treated as a normal CFNA call, and handled according to the options selected for CFNA in LD 15. Once the call is routed to a Night DN during recovery of misoperation and the Night DN does not answer, the call is treated according to the NFNA and FDN options chosen for the Night DN. The Night DN can use flexible CFNA DN in two levels. MPO misoperation does not change the operation of the DNFD timer if one has been configured in LD 15.

Call Pickup

Analog (500/2500 type) telephones with Call Pickup Allowed (PUA) and TSA Class of Service can pick up a call only if they are not involved in another call. After picking up a call, the user can form a Consultation connection and dial Programmable Control Digits as normal.

Call Pickup, Directed

Users of analog (500/2500 type) telephones involved in a Three-Party Service call cannot pick up another call by dialing the SPRE code.

Analog (500/2500 type) sets with TSA Class of Service, which are actively involved in Three-party Service, are not allowed to dial the Special Prefix (SPRE) code to pickup another call.

Call Transfer

Analog (500/2500 type) telephones with TSA Class of Service perform a supervised Call Transfer by going on-hook after establishing a conference. This differs from operation with XFA Class of service, where transfer can be achieved by going on-hook during Consultation connection. If an analog (500/2500 type) telephone with TSA Class of Service goes on-hook during consultation connection, it is treated as misoperation of All Other Cases and the recovery actions are done based on the CCDO and AOCS options selected in LD 15. If CDOC = NO, an analog (500/2500 type) telephone can achieve a transfer by going on-hook after establishing a conference.

During the Consultation connection, the non-controlling parties are restricted from using Call Transfer, Conference, and Three-party Service features.

Call Waiting

An analog (500/2500 type) telephone may be assigned both Call Waiting Allowed (CWA) and TSA Classes of Service. The user can establish a Consultation connection by answering Call Waiting during an active established call. If this is done, Control Digit features (Conference Digit (CNFD), Toggle Digit (TGLD), and Disconnect Digit (DISD)) are available. Note that Programmable Control Digit TGLD, rather than a switchhook flash, is used to toggle the calls. Operation with XFA Class of Service is unchanged.

The Three-party Service feature changes the operation of Call Waiting for all analog (500/2500 type) telephones as follows (regardless of whether the sets have TSA Class of Service). If an analog (500/2500 type) telephone user activates Waiting during an active call so as to establish a Consultation connection, and if the user goes on-hook during the Consultation connection, the operation is treated as an AOCS misoperation. The recovery of misoperation will take place even if the MPO package is not equipped. In this case, the controlling party will be re-rung by the held party regardless of the Consultation Connection Disconnect Option (CCDO) and the recovery of misoperation options.

If an analog (500/2500 type) telephone user attempts to set up a Consultation connection by dialing a busy DN and if the Call Waiting conditions are satisfied, the controlling party will hear ringback tone and the active party will hear Call Waiting tone. If the controlling party goes on-hook before the active party has answered, the held call is disconnected regardless of the MPO options and Call Waiting tone is removed from the active party.

Call Waiting Redirection

Recovery on Misoperation of Call Transfer – Call Transfer with Ring No Answer (RGNA)

With the Call Waiting Redirection feature enabled, if the Controlling Party goes on-hook to complete the call transfer before the Active Party answers the Call Waiting call, and before the CFNA timer applied Call Waiting Redirection feature times out, there is no change.

With the Call Waiting Redirection feature enabled, if the CFNA timer applied by the Call Waiting Redirection feature times out before the Call Transfer completes in the Ring No Answer (RGNA) state, CFNA treatment is given by the Call Waiting Redirection feature only if the RGNA option is defined to be Standard (that is, operation as it was prior to the introduction of the Multi-Party Operations feature).

For Call Transfer with Ring No Answer, if the user has selected an option other than Standard treatment, the RGNA option selected has priority over the CFNA option selected in the Customer Data Block. With the Call Waiting Redirection feature enabled, the non-Standard RGNA option will also be enforced. There are no interactions in the functioning of Multi-Party Operations for the Attendant After Recall, Disconnect After Recall, Attendant After Recall, Overflow, and Disconnect RGNA call treatment options.

As the transferred set tries to re-ring the transferring set, if the transferring set is busy, call redirection will again try Call Forward All Calls, Hunting, and Call Waiting in that order. Call Waiting Redirection will not apply CFNA treatment to the unanswered Call Waiting call as the non-Standard RGNA option selected has priority over the CFNA option selected in the Customer Data Block, and thus have priority over Call Waiting Redirection CFNA treatment.

Recovery on Misoperation of Call Transfer – Misoperation of Call Transfer for All Other Cases

This type of misoperation occurs when the transferring party attempts to complete the transfer in several other non-RGNA scenarios. There is no interaction with these Multi-Party Operations scenarios and the Call Waiting Redirection feature.

Camp-on

Camp-on to a controlling party DN which is involved in a Consultation connection is not permitted. However, Camp-on is allowed at non-controlling parties DN's which are involved in the Consultation connection.

Camp-On, Forced Override

With Multi-Party Operations (MPO), when a consultation call is made on a set equipped with Priority Override, a control digit has to be dialed from the set to perform a recall and return the call on hold.

China – Supervised Analog Lines

As in the cases with Call Transfer and Conference, the call type of the first active call determines whether battery reversal or hook flash supervision applies. Also, supervision signaling is not supported for the second call. A disconnect supervision signal is extended only when the last party disconnects.

Supervised Analog Lines

The call type of the first active call determines whether battery reversal or hook flash supervision applies. Also, supervision signaling is not supported for the second call. A disconnect supervision signal is extended only when the last party disconnects.

China – Toll Call Loss Plan

When a user toggles between one party and another, the Toll Loss Plan is inserted on the active call if it is a toll call. If the user toggles to a non-toll call, the Toll Loss Plan is removed.

Conference

Current Conference feature for analog (500/2500 type) telephones with C6A is not affected by conference with TSA Class of Service.

The Call Join feature allows a user of a system or digital telephone to conference in or transfer a third party to a party held on the user's telephone, without having to dial the third party. The user can then hang up.

The patience tone or the Misoperation ringback is not applied to a conference party.

Display of Calling Party Denied

When three parties are joined using the Call Join capabilities of the Multi Party Operations feature, display information is not provided on any of the conferee's sets. When setting up a conference call, by conferencing one set at a time, the display on the conferee's set is in accordance with the individual set's Class of Service. If one set leaves a three party conference, display information on the remaining sets is based on the individual Class of Service of each set.

End-to-End Signaling

The party receiving the patience tone or the Misoperation ringback is not able to use End-to-End Signaling.

Enhanced Music on Hold

Analog (500/2500 type) telephones with TSA Class of Service can receive music when put on hold during Three-party Service.

Enhanced Night Service

Enhanced Night Service allows a mis-operated call involving a Direct Inward Dial (DID) trunk to queue at the Night Service DN.

Group Hunt

As per the existing Multi-Party Operations (MPO) feature, recovery of misoperation of call transfer will not be applied to incoming calls which are transferred on ringing to a Pilot DN by transferring parties who are waiting in GPHT queues for service.

Last Number Redial

For analog (500/2500 type) telephones with TSA Class of Service, the first call of a Consultation connection is stored as the last number. Last Number Redial (LNR) is possible whenever Dial Tone or Special Dial Tone is given.

Night Service

If the system is in Night Service mode, mishandled calls which are routed to the attendant are rerouted to the appropriate Night Service DN. External trunk calls, other than DID, are queued till they are answered.

TIE trunk calls are not queued at the Night Service DN. If the Night Service DN is busy, TIE calls are disconnected.

Off-hook Alarm Security

Three-party Service (TSA) and Alarm Security Allowed (ASCA) Classes of Service are mutually exclusive. A set assigned TSA Class of Service cannot also be assigned ASCA Class of Service, and vice versa; a set assigned ASCA Class of Service cannot also be assigned TSA Class of Service.

Override, Enhanced

With Priority Override (POVR) equipped, there is a slight change in Multi-Party Operations functionality. When a consultation call is made without POVR equipped, and the telephone being called is busy, a recall returns to the party on hold without dialing a control digit. However, if POVR is equipped, a control digit must be dialed. Any control digit releases the busy call and returns to the call on hold.

Paging

Users of analog (500/2500 type) telephones cannot make a consultation call while connected to a paging trunk.

Recall to Same Attendant

Users of analog (500/2500 type) telephones can perform an attendant recall during a two-party connection by performing a switchhook flash and then dialing the attendant DN.

Recorded Telephone Dictation

Users of analog (500/2500 type) telephones cannot make a consultation call while connected to a dictation trunk.

Ring Again

When a TSA Class of Service analog (500/2500 type) telephone with a call on hold encounters Busy Tone, Ring Again is not possible.

Slow Answer Recall Enhancement

The Call Waiting Recall and Camp-on Waiting Recall enhancements take precedence over Attendant Recall Splitting (ATS), Secrecy (SYA), Enhanced Secrecy (EHS), and Multiple Party Operations.

Slow Answer Recall for Transferred External Trunks

The Multiple Party Operation recall can only be applied in a standalone environment, and therefore does not interact with this feature.

Stored Number Redial

For analog (500/2500 type) telephones with TSA Class of Service, the current LNR number can be stored only after the Consultation connection is completely released. Save Number Redial (SNR) is possible whenever Dial Tone or Special Dial Tone is given.

Tone to Last Party

When the MPO package is equipped, Tone to Last Party is not provided.

Trunk to Trunk Connection

In a standalone environment, the RGNA prompt in the Customer Data Block will be used when an external trunk is transferred on ringing and the called party does not answer. In a network environment, the Recall Timers (RTIM) timer value in the Customer Data Block will be used for slow answer recall.

Feature packaging

The basic Multi-Party Operations features are packaged under Multi-Party Operations (MPO) package 141.

For enhanced functionality of the Multi-Party Operations feature, the Flexible Tones and Cadences (FTC) package 125 is required.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 15 – Configure the Multi-Party Operations parameters in the Customer data block.
- 2 LD 10 – Assign Three party Service (TSA) Class of Service to sets.
- 3 LD 56 – Configure Control Dial Tone and recall Tones and Cadences cadences for analog (500/2500 type) telephones and Meridian 1 proprietary telephones.

LD 15 – Configure the Multi-Party Operations parameters in the Customer data block.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	MPO	Multi-Party Operations.
...		
- FMOP	YES	Change Flexible misoperation Parameters.
- - RGNA	xxx yyy	Ring No Answer. Enter treatment for Call Transfer Ring No Answer cases, where: xxx is the treatment for internal parties, and yyy is the treatment for external parties.
	(STD) (STD)	– (default for internal and external parties) Standard treatment
	AAR AAR	– Attendant After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles route call to an attendant.
	ATN ATN	– Attendant: Route call to an attendant.
	DAR DAR	– Disconnect After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles disconnect call.
	DIS DIS	– Disconnect: disconnect call.
	OVF OVF	– Overflow tone: Call is given Overflow Tone.

-- AOCs	xxx yyy	All Other Cases. Enter treatment for Call Transfer cases other than Ring No Answer: xxx is the treatment for internal parties and yyy is the treatment for external parties.
	AAR AAR	– Attendant After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles route call to an attendant.
	ATN (ATN)	– (default treatment for external parties) Attendant: Route call to an attendant.
	DAR DAR	– Disconnect After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles disconnect call.
	(DIS) DIS	– (default treatment for internal parties) Disconnect: disconnect call.
	OVF OVF	– Overflow tone: Call is given Overflow Tone.
	STD STD	— Standard treatment Note: If entered in response to AOCs in LD 15, responses will be printed as DIS ATN in LD 21.
-- RCY1	1-(6)-15	Ring Cycles 1. Number of ring cycles (default is 6) a transferring (controlling) station is rung before routing to an attendant or disconnect occurs.
-- RCY2	1-(4)-15	Ring Cycles 2. Number of ring cycles (default is 4) target (transferred to) station is rung before Ring No Answer treatment is applied. Does not apply to AOCs.
-- RALL	YES	Recall YES – Mandatory recall is required prior to dialing Control Digits.
-- CDTO	2-(14)	Control Digit Time Out. Range is 2 - 14 seconds and inputs must be a multiple of 2, (that is, 2, 4, 6, 8, 10, 12, or 14). 2 to 12 activates the optional time out treatment. 14 (default) activates the normal time out treatment.

- IFLS	(NO), YES	<p>Ignore switchhook flash.</p> <p>NO – (default) Allows a switchhook flash, or dial “1”, from an analog (500/2500 type) telephone to be interpreted as a Register Recall.</p> <p>YES – A switchhook flash, or dial “1”, from an analog (500/2500 type) telephone will not be interpreted as a Register Recall.</p> <p>Note: If this option is selected, analog (500/2500 type) telephones should be equipped with a special Ground (Earth) Button.</p>
- MHL D	(NO), YES	<p>Manual Hold.</p> <p>NO – (default) Manual hold is not allowed.</p> <p>YES – Manual hold is allowed.</p>
- PCDS	(NO), YES	<p>Program Control Digits.</p> <p>YES – Allows user to alter default settings of Control Digits.</p> <p>NO – (default) Does not allow the alteration of the existing Control Digit settings. CCDO is the next prompt.</p> <p>Programming of control digits is not required. The default is NO. The defaults values for their respective functions are 1, 2 and 3. If YES then:</p>
-- CNFD	0-(1)-9, *,#	<p>Conference Digit.</p> <p>Prompted if response to PDCS was YES.</p> <p>Enter the Control Digit used to create, or add parties to, a conference. Default is 1.</p>
-- TGLD	0-(2)-9, *,#	<p>Toggle Digit.</p> <p>Prompted if response to PDCS was YES.</p> <p>Enter the Control Digit used to toggle, put active party on hold and connect to held party/parties. Default is 2.</p>
-- DISD	0-(3)-9, *,#	<p>Disconnect Digit.</p> <p>Prompted if response to PDCS was YES.</p> <p>Enter the Control Digit used to disconnect the active party and connect to the held party. Default digit is 3.</p>

- CCDO	(NO), YES	<p>Consultation Connection Disconnect Option.</p> <p>NO – (default) Alternative treatment is not applied to Consultation calls where one of the parties disconnects.</p> <p>YES – Alternative treatment is applied to Consultation calls where one of the parties disconnects.</p>
- AFNO	(NO), YES	(Manual) Forced Camp-On Automatic.
- - ACNS	(NO) EXT ALL	<p>Attendant Clearing during Night Service. Prompted when the MPO package is equipped and MPOP and FMOP = YES.</p> <p>No automatic treatment. External calls only. All calls.</p>

LD 10 – Assign Three party Service (TSA) Class of Service to sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Type of telephone.
...		

- PBCS		Recall of misoperation ringing tone and cadence for Meridian 1 proprietary telephones.
TDSH	i bb cc tt	Tone and Digit Switch Hexadecimal code. Prompted if Tone and Digit Switches (TDS) are configured in LD 17. Defaults are values assigned to NBCS.
XTON XCAD	0-255 0-255	Extended tone code. Extended cadence code. Respond to the XTON prompt with a value from 0 to 255, for the NT8D17 TDS Tone code. Respond to the XCAD prompt with a value from 0 to 255, for the NT8D17 TDS cadence code for FCAD. Prompted if system configured with Extended Conference and Tone and Digit Switches (XCT) in LD 17. Defaults are the values assigned to NBCS.
...		
HCCT	YES	Hardware Controlled Cadences and Tones.
...		
- CDT		Control Dial Tone. Define tone and cadence for Control Dial Tone.

TDSH	i bb cc tt	Tone and Digit Switch Hexadecimal code. Prompted if Tone and Digit Switches (TDS) configured in LD 17. Defaults are values assigned to DIAL.
XTON XCAD	0-255 0-255	Extended tone code. Extended cadence code. Respond to the XTON prompt with a value from 0 to 255, for the NT8D17 TDS Tone code. Respond to the XCAD prompt with a value from 0 to 255, for the NT8D17 TDS cadence code for FCAD. Prompted if system configured with Extended Conference and Tone and Digit Switches (XCT) in LD 17. Defaults are the values assigned to DIAL.

Note: Refer to *Software Input/Output: Administration (553-3001-311)* for complete information regarding the administration of tones and cadences.

LD 81 – This overlay is modified to print the stations associated with Three-party Service Allowed (TSA) Class of Service if the MPO package is equipped.

LD 83 – This overlay is modified to include the TSA Class of Service, when sorting TN by Class of Service, if the MPO package is equipped.

Feature operation

Prior to describing the feature operation the following terms are defined to ensure there is no misunderstanding as to their meaning in terms of the Multi-Party Operations feature.

Active party – The party with which the controlling party has a Consultation connection.

Analog (500/2500 type) set – For the purpose of this document, this term is used to refer to standard analog (500/2500) sets.

Meridian 1 proprietary telephone – For the purpose of this document, this term is used to refer to standard SL-1 sets and to digital sets (M2000 series and M3900 series).

Bridged sets – The “Bridging” feature allows the same DN to appear on more than one single line telephone. Bridged sets share the same TN. Up to eight of these sets can be bridged, and a maximum of five of this group can be equipped with ringers. An incoming call rings all sets that have ringers connected and can be answered by any single line telephone user within the bridged group.

Controlling party – The “Controlling Party” is the party which optionally has the “Held Party” in the hold mode and the “Active Party” in the “Consultation Connection”.

Consultation connection – When the controlling party and the active party are in conversation, they are said to be in “Consultation Connection”.

Dial “1” – A pulse recognized as digit 1.

External party – Any CO, DID or TIE trunk (incoming or outgoing), connected to the system is considered an external party, regardless of the way the connection is established.

Flash Timer – The Flash Timer defines the flash period of a valid Switchhook Flash.

Held party – The Held party is the party put on hold (by the Controlling party).

Programmable Control Digit – A digit which is dialed by the controlling party, after the Consultation connection is established, to achieve certain functions of Three-party Service for an analog (500/2500 type) telephone.

Register Recall – A user request for service produced either by Switchhook Flash or by pressing the Ground Button or the Link button.

Switchhook Flash – An on/off-hook pulse which may be either a Register Recall signal or a Digit 1 depending on the conditions during which it occurs and on the flash timing.

Call Join

Call Join is available on any Meridian 1 proprietary telephone that is equipped with a Three-party (AO3) or Six-party (AO6) Conference key and at least one secondary DN or Call Waiting key.

The following describes the operation of Call Join:

- If the user presses the AO3 or AO6 key during an active call with party A on DNx (DNx is any DN key, including Call Waiting), party A is placed on hold and Special Dial Tone is returned as normal. The user can dial another DN and conference as normal or the user can conference a held party B on DNy (DNy is any DN key, excluding DNx) by continuing as follows:

Note: M2317 telephone soft keys may not display correctly.

- The user presses DNy during Special Dial Tone. This causes party B to be moved to the Conference key. DNy key is idled. The Conference key remains active and the user consults with party B.
- When the user has finished consulting with party B, the user presses the Conference key a second time. Party A, party B and the user form a conference (subject to normal restrictions) on DNx. The Conference key is idled. If the user disconnects during the conference, party A is transferred to party B, subject to normal restrictions.

The conference can be enlarged by operating the AO6 key either as described above to add a held party to the conference, or as normal to conference a dialed party.

Note 1: The DNx or secondary DN key can be any Meridian 1 proprietary telephone key capable of holding an independent Directory Number.

Note 2: If the Call Waiting is a Group Call, that call cannot be joined.

Analog (500/2500 type) telephone features

Multi-Party Operations introduces Three-party Service Allowed (TSA) Class of Service. Analog (500/2500 type) telephones can now be assigned TSA Class of Service and either C6D (Conference 6-party Denied) or C6A (Conference 6-party Allowed) Class of Service. Analog (500/2500 type) telephone operation is not changed for XFD or XFA Classes of Service.

Three-party Service permits the user to toggle, release or form a three-party conference through the use of Programmable Control Digits.

The combination of TSA and Conference 6-party (C6A) Classes of Service extend the operation of Three-party Service so as to permit the user to enlarge the three-party conference by consulting and selectively adding members through the use of Programmable Control Digits.

The following sections describe Three-party Service (TSA Class of Service).

Establishing a Consultation connection

If the user requests a Register Recall during any established two-party connection, excluding calls to Dictation or Paging trunks or to an attendant, the call is placed on hold and Special Dial Tone is returned. The user can dial a second party for Consultation.

If the controlling party goes on-hook before the second call is established (that is, when the transferred station is ringing, the call is treated as per Misoperation of Call Transfer).

When the second call is established, the user becomes the controlling party of the “Consultation” connection. The user can modify the connection through the use of a Programmable Control Digit.

Dialing a Control Digit from a Dial Impulse analog (500/2500 type) telephone with DIP or DTN Class of Service

After the consultation connection is established, the controlling party can dial a Programmable Control Digit. Here, if RALL = NO, both sets with DIP and DTN Class of Service dialing using dial impulses can dial the programmable control digits without performing the recall. However, for a dial impulse sets with DTN Class of Service the mode of dialing control digits depends upon how the set has setup the consultation call. If the set has used pulse dialing, then the control digits are recognized without recall. If the set has used touchtone dialing, Register Recall is mandatory.

If RALL = YES, a register recall must be performed prior to dialing a control digit, regardless of the set's Class of Service.

- 1 Dialing the Conference (CNFD) Control Digit produces a three-party conference between the user, held and active parties. During the Conference connection, all parties are restricted from using Call Transfer, Three-party Service and Three-party Conference features (unless the user has C6A Class of Service). If the user goes on-hook during the conference, the remaining parties stay connected as a normal two-party call, subject to normal restrictions.
- 2 Dialing the Toggle Control Digit (TGLD) exchanges active and held parties. During the Consultation connection, the controlling party is restricted from adding other parties to the call, and the non-controlling parties are restricted from using the Call Transfer, Conference and Three-party Service features.
- 3 Dialing the Disconnect Active Control Digit (DISD) releases the active party. The connection to the held party is automatically restored as a normal two-party connection. Either party can initiate another Consultation or Conference connection, subject to normal restrictions.

If the user dials any other digit, the connection to the active party is restored and the held party remains on hold.

Dialing a Control Digit from a Dual-tone Multifrequency analog (500/2500 type) telephone with DTN Class of Service

After the Consultation connection is established, the controlling party can dial a Control Digit. If the controlling party is a Dual-tone Multifrequency (DTMF) analog (500/2500 type) telephone with DTN Class of Service, a Register Recall must precede the Programmable Control Digit.

When the controlling party performs a Register Recall, the speechpath to the active party is removed. If no Digitone Receivers (DTRs) are available, no tone is given and the active party is reconnected. If a DTR is found, a new tone, Control Dial Tone, is given to the controlling party. The cadence, level and frequency of Control Dial Tone are flexible and defined on a per-customer basis.

During Control Dial Tone, the user can dial a Programmable Control Digit.

If a disconnect signal is received from the held party during Control Dial Tone, or if the user does not dial a Programmable Control Digit within 15 seconds, the DTR is removed and Overflow Tone is given for 14 seconds. During this time, the controlling party can restore the connection to the active party by performing a switchhook flash. At the end of Overflow Tone, the active party is reconnected and the held party (if still connected) remains on hold.

If the user performs a switchhook flash during Control Dial Tone, the connection with the active party is restored and the held party remains on hold.

Dialing a Control Digit from a Bridged Set

If Dial Impulse analog (500/2500 type) telephones and DTMF analog (500/2500 type) telephones are bridged and assigned DTN Class of Service, the operation depends on whether the Consultation connection was set up using Dial Impulse or DTMF.

If the Consultation connection was set up using Dial Impulse, only Dial Impulse analog (500/2500 type) telephone users can dial a Programmable Control Digit. If the Consultation connection was set up using DTMF, only DTMF analog (500/2500 type) telephone users can dial a Programmable Control Digit.

Any dial pulses or Register Recalls are recognized only if all other sets on the bridged line are on-hook. A Register Recall performed by using a Ground Button is also recognized.

Controlling party actions

The following table summarizes the affect on Consultation connections when controlling parties with XFA or TSA Class of Service perform the following actions:

Table 86
Control Digit results based on Class of Service

Controlling party action	System Response	
	Class of Service	
	XFA	TSA
Dial CNFD	Conference	Conference
Dial TGLD	Conference	Toggle
Dial DISD	Conference	Release Active Party
On-hook	Transfer	Disconnect

Note 1: Dial Impulse analog (500/2500 type) telephones with DIP Class of Service are required to issue a Register Recall prior to dialing Control Digits if RALL = YES.

Note 2: If Control Dial Time Out is any value other than the default (14), then the time out results in the same action as if DISD had been dialed.

Note 3: If CCDO is YES, Call Transfer takes place when the controlling party goes on-hook during a consultation connection. This is similar to XFA operation.

Consultation Call Disconnect

Active Party Disconnects

If the disconnect during Consultation connection default (CCDO = NO) option is chosen after a Consultation connection has been established, then the active party disconnects if:

- The active party is internal to the circuit switched network or is external and a disconnect signal is received by the circuit switched network, the held party is reconnected for a normal two-party connection.
- The active party is external to the circuit switched network and a disconnect signal is not received by the circuit switched network, then the controlling party is able to release the disconnected trunk by dialing the Disconnect Active (DISD) Programmable Control Digit. The connection to the remaining party then becomes a normal two-party connection.

If the disconnect during Consultation connection alternative treatment (CCDO = YES) option is chosen, and the active party goes on-hook during an enquiry call, then the controlling party is given Overflow Tone. On tone time out or Register Recall, the held party is reconnected. If the controlling party goes on-hook during Overflow Tone, the call is treated as in Controlling Party Disconnects.

Held Party Disconnects

If the disconnect during Consultation connection option chosen is the default, after a Consultation connection has been established, the held party disconnects if:

- a. The held party is internal to the circuit switched network or is external and a disconnect signal is received by the circuit switched network, then the connection with the active party becomes a normal two-party connection.

- b. The held party is external to the circuit switched network and a disconnect signal is not received by the circuit switched network, due to the fact that the remaining connection is effectively a two-party connection, the trunk to which the departed party was connected is still on hold. The controlling party can release the disconnected trunk by dialing the Toggle (TGLD) Programmable Control Digit (to hold the active party and activate the connection to the disconnect trunk) and then dialing the Disconnect Active (DISD) Programmable Control Digit (to release the trunk). The connection to the remaining party becomes a normal two-party connection. If the controlling party goes on-hook with the disconnected trunk on hold, the set is rung back.

In the case of Procedure a (above), when a Dial Impulse analog (500/2500 type) telephone with DIP Class of Service user dials a Programmable Control Digit during the active call, Special Dial Tone is returned, indicating that the held party has disconnected. Similarly, when a DTMF analog (500/2500 type) telephone with DTN Class of Service user performs a switchhook flash during the active call (expecting to receive Control Dial Tone), Special Dial Tone is returned, indicating that the held party has disconnected.

During Special Dial Tone, the controlling party has the option of dialing a DN to set up another Consultation connection, or of resuming the normal two-party connection. The latter is achieved by performing a Register Recall with a duration greater than 150 milliseconds and less than the maximum flash time (a short Register Recall would be mistaken for a digit "1"). A dial "1" from a Dial Impulse analog (500/2500 type) telephone with DIP Class of Service cannot be used to simulate the flash, as the digit "1" may be the first digit of a DN. The user can do a valid switchhook flash during the middle of dialing a DN and be returned back to the held party. The only restriction is that the switchhook flash must be unambiguous (that is, the duration of the switchhook flash is greater than the digit "1" duration).

If a 2500 set recalls during a consultation connection and the held party has disconnected with the held party being an internal party or the system has received a disconnect signal, special dial tone is returned instead of control dial tone. This is similar to CCDO = NO.

If RALL = YES, the above operation also applies to 500 sets.

With RALL = NO and a 500 set (dial impulse) dials a control digit other than DISD, the set is given overflow tone indicating that the held party has disconnected. If the 500 set dials the DISD control digit, the active party is disconnected and the control party gets overflow tone.

Controlling Party Disconnects

If the disconnect during Consultation connection option chosen is default, then if the controlling party goes on-hook during the Consultation connection, it is considered as a misoperation of All Other Cases type (AOCS) and the active party is released.

DIS, ATN, AAR, DAR, and OVF options are available for both internal and external parties. If the held party is internal to the circuit switched network, the held party is optionally (DIS) released also. If the held party is external, the controlling set is optionally (AAR) rung back immediately. The external party does not receive Ringback Tone while the controlling set is being rung.

If the controlling party answers, the external party is connected for a normal two-party connection. If the controlling party does not answer within the optional ring cycles (RCY1) for any call (regardless of whether the set has FND or FNA Class of Service), the controlling station is idled while the external party receives Ringback Tone and is optionally routed to the attendant and appears on the CFNA Incoming Call Indicator. Other options are also available.

If the disconnect during Consultation connection option chosen is to give the alternative treatment, then if the controlling party goes on-hook during conversation with the active party, the call is transferred (as current operation with XFA Class of Service on the station).

Six-party Conference

The combination of C6A and TSA Classes of Service, provides an enhancement to the Six-party Conference feature where the user can perform a Register Recall during the Conference connection, dial a consulted party and then dial a Programmable Control Digit to toggle, release, or add the consulted party to the conference. The following describes the sequence of events required of an analog (500/2500 type) telephone with C6A and TSA Classes of Service to set up a multi-party conference:

- a. During a normal two-party connection with party A, the user performs a Register Recall and dials party B. The user becomes the controlling party of the Consultation connection.
- b. The user dials the Conference (CNFD) Programmable Control Digit to form a three-party conference. The Consultation connection becomes a Conference connection.
- c. The user performs a Register Recall during the Conference connection. The conference is placed on hold (the other parties in the conference remain connected) and Special Dial Tone is returned. The normal timing and misoperation procedures apply while setting up the Consultation call. The user dials party C. When the Consultation call is established, the user becomes the controlling party of the new Consultation connection.
- d. The user can dial a Programmable Control Digit which is interpreted as follows:
 - Dialing CNFD causes the consulted party to be added to the conference, as shown in Procedure b. The Consultation connection becomes a Conference connection.
 - Dialing TGLD causes the consulted party to be placed on hold and the conference to be reconnected. The user can toggle between the conference and the consulted party in this manner.
 - Dialing DISD causes the consulted party to be disconnected. The Conference connection is restored.

The user can repeat Steps 3 and 4 to add parties to the conference. If the user goes on-hook during the Consultation connection, the consulted party is released and the conference stays connected, subject to normal restrictions. Six-party Conference Enhancement for analog (500/2500 type) telephones follows the same operation as the existing Six-party Conference feature with respect to misoperation, access and connection restrictions.

Recovery of misoperation during Call Transfer

Call Transfer with Ring No Answer (RGNA)

RGNA is applicable only when the user transfers a call while the active party is still in ringing state. All other types of misoperation are handled as AOCS misoperations.

Call treatment is then determined by the response to the RGNA prompt in LD 15. The following is a list of the responses to the RGNA prompt and the resulting treatment:

- a. STD (Standard) – The operation as it was prior to the introduction of the MPO feature.
- b. ATN (Attendant) – The transferred party is routed to the attendant if the target (transferred to) station, after having rung for an optional number of ring cycles (RCY2), has not answered the call. The call is rerouted to the attendant as a Call Forward No Answer (CFNA) and is presented on the FNA Incoming Call Indicator (ICI), the call is then treated as a regular CFNA call to the attendant.
- c. If the transferred call was a Consultation connection the transferred party is disconnected and the held party is routed to an attendant and presented as a Recall on the RLL ICI.
- d. DAR (Disconnect After Recall) – The target station rings for an optional number of ring cycles (RCY2). If the call is not answered during this time, the transferred party recalls the transferring (controlling) station. The transferring station rings for an optional number of ring cycles (RCY1), with recall ringing cadence. If the transferring station does not answer during this time, the transferred party is disconnected.

- e. If the transferred call was a Consultation connection then the held party is retrieved and treated as defined by its type (internal or external) and the treatment selected. If the treatment selected is ATN or AAR the held party is routed to an attendant and presented as a Recall on the RLL ICI. If the treatment selected is DAR or DIS, the party is disconnected.
- f. If the transferring station became busy before recall, the transferred party is disconnected immediately.
- g. AAR (Attendant After Recall) – This option is similar to the DAR option, except that after the optional number of ringing cycles (RCY1) the transferred party is routed to an attendant as a Call Forward No Answer (CFNA) recall and is presented on the CFN ICI.
- h. If the transferred call was a Consultation connection then the held party is retrieved and treated as defined by its type (internal or external) and the treatment selected. If the treatment selected is ATN or AAR the held party is routed to an attendant and presented as a Recall on the RLL ICI. If the treatment selected is DAR or DIS, the party is disconnected.
- i. If the transferring station became busy before recall, the transferred party is routed to attendant immediately.
- j. OVF (Overflow) – Overflow Tone is given to the transferred party after the optional number of ring cycles (RCY2).
- k. If the transferred call was a Consultation connection, the transferred party is disconnected and the held party is given Overflow Tone.
- l. DIS (Disconnect) – The transferred party is disconnected after the optional number of ring cycles (RCY2).
- m. If the transferred call was a Consultation connection the transferred party and held party are disconnected.

Note: The ring cycles are counted from the time the transfer has been completed (analog (500/2500 type) telephone has gone on-hook or Meridian 1 proprietary telephone has pressed the TRN key for the second time).

This feature applies to both external and internal calls, transferred by station users to another station. The feature does not apply to calls transferred to the attendant, or extended by the attendant.

Misoperation during Call Transfer – All Other Cases (AOCS)

This section describes misoperation during Call Transfer for All Other Cases (AOCS) and their default options. Similar options as for Ring No Answer (RGNA) are available for AOCS. The only difference being that the ringing cycle (RCY2) is not valid for AOCS.

Call Transfer to a Busy Station

If an analog (500/2500 type) telephone user tries to transfer a call to a busy station, Busy Tone is returned during the Consultation connection. If the user then goes on-hook to complete the Transfer operation and if the held party is an external trunk, the external trunk is routed automatically to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall call to the attendant.

If the held party is an internal call, it is disconnected.

Call Transfer to Intercept Treatment

While using the Call Transfer feature, the analog (500/2500 type) telephone user may be intercepted while dialing the third party due to any of the following illegal dialing situations:

- a. Dialing a vacant number.
- b. Dialing a number of a terminal in the maintenance busy or RPE failure state.
- c. Access denied.
- d. Code Restriction or Toll Restriction.
- e. Invalid, restricted, or blocked Network Automatic Route Selection (NARS) or Basic Automatic Route Selection (BARS) calls.

In any of the above cases, while involved in the Consultation connection (according to the selected customer option) the user is:

- given Overflow Tone

- given an intercept recorded announcement or
- routed to the attendant

If the user goes on-hook while connected to Overflow Tone or recorded announcement, and if the held party is an external trunk, the external trunk is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

If the MPO package is equipped and the user waits until time out occurs while connected to Overflow Tone or a recorded announcement, the held party is reconnected to the station user, and the call is treated as a regular two-party call again.

If the MPO package is not equipped, and the user waits until time out occurs while connected to Overflow Tone or a recorded announcement, both the internal and external calls are disconnected.

Unsuccessful Transfer Connection

While transferring an external trunk to another destination from an analog (500/2500 type) telephone, if network blocking prevents the completion of the Call Transfer or if the controlling party dials the access code of a busy trunk route, the controlling party receives Overflow Tone during the Consultation connection. If the analog (500/2500 type) telephone user goes on-hook in spite of the blocking indication, the external trunk is routed to the attendant as an Intercept Recall. At this point, the call is treated as a regular Intercept Recall to the attendant.

Call Transfer on Partial Dialing

If an analog (500/2500 type) telephone user dials an incomplete number as a third party and attempts to complete the Transfer operation by going on-hook, and if the held party is an external trunk, the external trunk is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

Disconnect Situations during Consultation

If the analog (500/2500 type) telephone user (the controlling party) disconnects while in the Consultation state, the call is transferred as normal. However, if the new connection is not possible (for example, due to trunk-to-trunk connection restrictions), and if the held party is external, then this external party is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

Also, if the analog (500/2500 type) telephone user (the controlling party) disconnects while connected to Dial Tone, and if the held party is external, then this external party is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

If one of the other parties in the call disconnects, the following occurs:

- If the held party disconnects, the controlling party receives no indication until the hook switch is flashed to establish a conference. At that time Dial Tone is returned instead of all three parties creating a conference. The call is treated as a normal two-party call from the time the held party disconnects.
- While an external party is in the Consultation hold state, if the party being consulted disconnects followed by the controlling party disconnect, then the held party is routed automatically to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

Misoperation during Control Dial Tone

The treatment given depends upon the type of active party. If the active party is internal, the internal option is also applied to the held party (for example, if for internal calls AOCS is DIS ATTN, the held call even though external will also be disconnected). The misoperation option selected in this case is solely dependent upon the type of active call (internal or external), and the related misoperation option. This option is consistently applied to the held, as well as the active party.

With the Consultation Connection Disconnect Option (CCDO) in LD 15 not selected, if an analog (500/2500 type) telephone user (the controlling party) disconnects while receiving Control Dial Tone in the Consultation state, internal held parties are disconnected while external parties are routed to the attendant as Intercept Recalls. The external calls are then treated as a regular Intercept Recalls to the attendant.

With CCDO selected, if an analog (500/2500 type) telephone user (the controlling party) disconnects while receiving Control Dial Tone in the Consultation state the held parties are given treatment as defined by the responses to the All Other Cases (AOCS) prompt in LD 15.

Misoperation Treatment Options

A number of misoperation treatment options are made available both for internal and external calls. These treatment options are available for Ring No Answer (RGNA) and for All Other Cases (AOCS). The following are the cases for AOCS:

- Call Transfer to Intercept Treatment for:
 - Call Transfer to busy station
 - Dialing a vacant number
 - Terminal is in maintenance busy
 - RPE failure state
 - Access denial
 - Code or Toll restricted set
 - Network blocking
 - Invalid, restricted and blocked Network Automatic Route Selection (NARS)/Basic Automatic Route Selection (BARS) calls
 - Partial dialing
 - Trunk-to-trunk connection restrictions
 - Inter-tenant blocking
 - During reception of announcements, and
 - During reception of tones (Control, Special),

- Call Transfer while Dial Tone is being heard
- Call Transfer before completing dialing
- Call Transfer during outpulsing of digits on a trunk, and
- Controlling party goes on-hook during Consultation connection (CCDO = NO).

Recall of misoperation Ringing Cadence Option

When a transferring set is rung back after Call Transfer misoperation, Recall of misoperation ringing cadence is optionally given to this set. A Recall of misoperation cadence for analog (500/2500-type) telephones and Meridian Modular telephones (PCAD) is optionally selectable in LD 56.

Multi-Party Operations Enhancements

Contents

This section contains information on the following topics:

Feature description	1081
Operating parameters	1082
Feature interactions	1082
Feature packaging	1083
Feature implementation	1083
Feature operation	1084

Feature description

The following enhancements pertain to the Three-party Service capability of Multi-Party Operations (MPO). Refer to the Multi-Party Operations feature description contained in this document for a description of Three-party Service.

Patience Tone

The controlling party may modify a Consultation connection by performing a Register Recall and then entering a Control Digit. During the call modification, this enhancement provides a “Patience” tone to the party on Consultation hold, rather than silence.

Ringback to external parties after misoperation

If the controlling party goes on-hook as a misoperation, the controlling set is rerung immediately. This enhancement allows the external party to receive ringback tone while the controlling party is rerung after misoperation.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Attendant Break-in

Attendant Break-in is not allowed to a connection in which a party is receiving Patience Tone or recall of misoperation ringback.

Call Transfer

A party receiving Patience Tone or recall of misoperation ringback is not able to Call Transfer.

Call Waiting

An analog (500/2500 type) telephone cannot have Call Waiting during Patience Tone.

Camp-on Periodic Camp-on

While Camp-on and Periodic Camp-on are allowed on a party receiving Patience Tone, Camp-on tone and Periodic Camp-on tone are not applied to the party during Patience tone. However, Camp-on tone and Periodic Camp-on tone are applied when the speechpath has been reestablished.

Conference

Patience tone or recall of misoperation ringback are not applied to a conference party.

End-to-end Signaling

A party receiving Patience Tone or recall of misoperation ringback is not able to invoke End-to-end Signaling.

Multi-Party Operations

Usually the party on Consultation hold receives silence; with this improvement it will receive Patience Tone.

After a misoperation, when the controlling party is rerung and the far end receives silence, this improvement will provide ringback tone.

Feature packaging

These enhancements are packaged as part of the Supplementary Features (SUPP) package 131.

French Type Approval (FRTA) package 197 is also required to provide ringback tone to the held party while the controlling party is being rerung.

Feature implementation

LD 56 – Define Patience Tone and cadences.

Prompt	Response	Description
REQ	NEW CHG	Add new data, or change existing data.
TYPE	FTC	Flexible Tones and Cadences
...		
HCCT	YES	Hardware Controlled Cadences and Tones
- TLPT	(0)-30	Tone to Last Party Timer in seconds
- PATI		Patience tone Define Patience Tone and cadence

Prompt	Response	Description
TDSH	i bb cc tt	Tone and Digit Switch Hexadecimal code. Prompted if Tone and Digit Switch (TDS) is configured in LD 17. Default is (0000) no tone.
XTON XCAD	(0)-255 (0)-255	Extended Tone code. Extended Cadence code. Respond to the XTON prompt with a value from 0 to 255, for the NT8D17 TDS tone code. Default is 0. Respond to the XCAD prompt with a value from 0 to 255, for the NT8D17 TDS cadence code for FCAD. Default is 0. Prompted if system configured with Extended Conference and Tone and Digit Switches (XCT) in LD 17. Default is no tone.
...		

Note: Refer to *Software Input/Output: Administration* (553-3001-311) for complete information regarding the administration of tones and cadences.

Feature operation

Patience Tone to Consultation Held party during Control Dial Tone

To initiate Three-party Service analog (500/2500 type) telephones must perform a Register Recall, (that is, Switchhook Flash).

When the controlling party has established a Consultation connection, there is a call on hold and the Consultation connection is active. The controlling party can modify the connection through the use of a Control Digit.

To modify the call the controlling party performs a Register Recall, if the response to RALL in LD 15 is YES, to receive Control Dial Tone for 15 seconds. If no digit is dialed within 15 seconds the controlling set then receives Overflow Tone. If no digit is dialed, the controlling set is eventually put in lockout state.

The current operation is when a controlling party performs the Register Recall, the speechpath to the consulted party is removed, and the consulted party receives silence.

This enhancement allows a Patience Tone to be given to the consulted party instead on silence while the speechpath is removed.

Ringback sent when the controlling party is rerung after a misoperation

Current operation is when a controlling party goes on-hook and the on-hook constitutes a misoperation, the initial held call or the held consultation party may re-ring the controlling set immediately if the appropriate option (either AAR or DAR) is active. The external party does not receive ringback tone while the controlling set is being rung.

This enhancement allows a ringback tone to be provided to the external party when the controlling set is being rerung.

Multiple Appearance Directory Number

Contents

This section contains information on the following topics:

Feature description	1087
Operating parameters	1089
Feature interactions	1089
Feature packaging	1098
Feature implementation	1098
Feature operation	1099

Feature description

DNs can appear on more than one multiline telephone, and can be shared between those telephones and single-line telephones. Up to 30 appearances of the same DN are allowed on Large Systems only. Four multiple-appearance options are provided, as follows:

- Multiple Call Arrangement with Ringing (MCR)
- Multiple Call Arrangement without Ringing (MCN)
- Single Call Arrangement with Ringing (SCR), and
- Single Call Arrangement without Ringing (SCN).

The customer can specify which of the four options applies to each appearance of the DN.

Multiple Appearance Directory Numbers (MADNs) are not restricted to telephones connected to the same loop. Telephones with MADNs can be assigned to different loops if the Loop Removal enhancement is allowed in LD 17 under the prompt MLDN.

A Multiple Appearance, Multiple Call Arrangement is available between Meridian 1 proprietary telephones only. It allows as many calls to be in progress as there are appearances of the DN. Selection of the ring option allows the DN to be rung whenever an incoming call is directed to the idle DN.

Selection of the no ring option causes the DN appearance not to ring when an incoming call is directed to the DN. Indication of an incoming call is limited to a flashing lamp associated with the DN.

Multiple Appearance, Single Call Arrangement DNs allow a single call to be active on the DN, irrespective of its number of appearances. Multiple Appearance, Single Call Arrangement is available to all telephones.

Selection of the ring option allows ringing to accompany lamp flashing when a call is directed to a DN. Privacy is inherent in active calls, except in a mixed arrangement – analog (500/2500 type) telephones and Meridian 1 proprietary telephones with an appearance of the same DN.

Call redirection parameters such as Hunt and Call Forward No Answer are derived from the TN data block (LD 20 TNB) of the prime appearance of the called DN. If there is more than one prime appearance, the parameters are selected from the last TN in the DN block for the DN (LD 22 DNB).

If more than one prime appearance of an MADN exists, the information noted in the following list must be considered prior to configuring call redirection parameters for MADNs.

- The DNB organizes MADN information in numerical TN order. The TN with the highest numerical value (000-0-06-03) is placed at the beginning of the DN list. The list then continues in descending order with the lowest numerical TN (000-0-03-01) at the end of the list.
- If a telephone undergoes Service Change, the TN of the telephone is moved to the beginning of the DN list regardless of the numerical value of the TN. This telephone remains at the beginning of the list until another telephone undergoes Service Change or a SYSLOAD is performed. A SYSLOAD restores the DN list to numerical TN order.

- If a DN is assigned as a prime DN on one telephone, and as a secondary DN on one or more telephones, the DN list is still organized as described in the preceding text. However, if only one prime appearance of a DN exists, call redirection parameters are derived from the TN of the prime appearance telephone, even though it may not be at the end of the list. A prime appearance is always the first TN used when the system looks for call redirection instructions.
- If a DN appears on analog (500/2500 type), and Meridian 1 proprietary telephones simultaneously, the analog (500/2500 type) telephones are listed in numerical TN order at the top of the DN list, and Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves the TN of that telephone to the beginning of the list. A service change to a Meridian 1 proprietary telephone moves the TN of the telephone to the end of the list. A SYSLOAD restores the list to numerical TN order, with analog (500/2500 type) telephones at the top of the list and Meridian 1 proprietary telephones at the bottom of the list. Call Redirection parameters continue to be derived as described in the preceding text.

It is not necessary to change any data to register service change activity. To put a telephone at the end of the list, simply call up the service change data and default through the data.

Operating parameters

Multiple Appearance, Multiple Call Arrangement is limited to Meridian 1 proprietary telephones. If telephones are mixed, only Multiple Appearance, Single Call Arrangement is allowed.

For Multiple Appearance, Single Call Arrangement, the no ring option is limited to Meridian 1 proprietary telephones.

Feature interactions

Automatic Redial

An ARDL call from a Single Call Ringing (SCR) or Single Call Non Ringing (SCN) is only redialed when all sets that have the same DN are free.

An ARDL call from a Multiple Call Ringing (MCR) or Multiple Call Non Ringing (MCN) is only redialed when the originating key is free.

Automatic Wake Up

All Multiple Appearance DNs are rung, including both primary and secondary DNs. Programming the wake up request using the Wake Up key applies only to telephones with the primary DN on key 0, and the Wake Up indicator operates as described only on the telephone that is currently programming the wake up request.

In addition, if two or more Multiple Appearance Primary DN telephones program a wake up request at the same time, the last telephone to finish overrides. All telephones with the same primary DN get the same request time of the last telephone to program a request. If the last telephone cancels the request, all requests are canceled.

When the wake up programming sequence is finished, all Wake Up indicators on Multiple Appearance Prime DNs are updated unless a telephone is in the middle of Wake Up programming.

If the AWU Recall option is chosen, the recall is presented to any idle attendant console in the same Console Presentation Group (CPG) equipped with the AWU key.

Automatic Wake FFC Delimiter

For Multiple Appearance Directory Numbers, wake up information is stored, deleted and queried from a DN's first primary appearance terminal number.

Call Detail Recording on Redirected Incoming Calls

If the DN of the set forwarding the call is a Multiple Appearance DN, the Terminal Number of the set will be printed out in the AUX ID field (that is, line two of the Call Detail Recording record).

Call Forward by Call Type Call Forward No Answer, Second Level

Call redirection parameters like Call Forward No Answer are derived from the TN data block of the prime appearance of the called MADN. If there is more than one prime appearance, the parameters are selected from the last TN in the DN block.

If more than one prime appearance of a MADN exists, the following information must be considered prior to configuring call redirection parameters for MADNs.

The DN Block organizes MADN information in numerical TN order. The TN with the highest numerical value (000-0-06-03) is placed at the beginning of the list. The list then continues in descending order with the lowest numerical TN (000-0-03-01) at the end of the list. Service change activity affects the organization of the DN list as described in the following paragraphs.

- If a telephone undergoes Service Change, its TN is moved to the beginning of the DN list, irrespective of the numerical value. This telephone remains at the beginning of the list until another service change or a SYSLOAD.
- If a DN appears on analog (500/2500 type) telephones and Meridian 1 proprietary telephones, the analog (500/2500 type) telephones are listed in numerical TN order at the top of the list. Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A Service Change to an analog (500/2500 type) telephone moves its TN to the beginning of the list. A Service Change to a Meridian 1 proprietary telephone moves its TN to the end of the list.
- A SYSLOAD restructures the list back to numerical TN order, with analog (500/2500 type) telephones at the top and Meridian 1 proprietary telephones at the bottom. Call Redirection parameters continue to be derived as described in the preceding paragraphs.

Call Forward, Remote (Attendant and Network Wide)

The Call Forward, Remote (RCFW) feature only applies to the primary appearances of Multiple Appearance DNs, and it is recommended that only one appearance of a Multiple Appearance DN be configured as the prime DN.

For the case of multiple stations with the same prime DN and SCPW, the RCFW operation will apply to the station that has the Multiple Appearance Redirection Prime (MARP) assigned to it.

If none of the stations having the DN and SCPW assigned are configured as the MARP TN for that DN, the RCFA and RCFD will apply to all stations matching the DN and SCPW.

The attendant-based RCFW feature will only apply remote call forward operation to the prime DN with MARP status. If the DN is not the prime DN or does not have MARP status, overflow tone will be received by the user.

Calling Party Name Display Denied

For a ringing call to a Multiple Appearance DN, the name on the calling set display can be suppressed by configuring any of the Terminal Numbers with NAMD Class of Service. The digit display on the calling set cannot be suppressed – the called digits are displayed even though the Class of Service on any of the Terminal Numbers is DIGD. The called set display is subject to the Class of Service of the calling party. For an established call to a Multiple Appearance DN, the calling set display is subject to the Class of Service configured for the answering set. The answering set display only is subject to the Class of Service of the calling party – the displays of the other sets in the Multiple-appearance group are blank.

Call Waiting Redirection

The Call Waiting Redirection feature applies to unanswered Call Waiting calls which apply to single appearance DNs and primary appearance DNs of MADNs.

China – Attendant Monitor

If Attendant Monitor is attempted on a Multiple Appearance DN, the Multiple Appearance Redirection Prime (MARP) TN becomes the desired party.

Controlled Class of Service

Controlled Class of Service (CCOS) restriction levels are activated or canceled on controlled telephones through their Prime Directory Number (PDN). When the PDN of a Meridian 1 proprietary telephone is made CCOS active, all DNs on that telephone are also restricted. If the DN is a PDN on other telephones, those telephones are also restricted (if they have CCSA Class of Service).

Controlled Class of Service, Enhanced

All Controlled Class of Service (CCOS) restriction levels are activated and canceled from the Prime Directory Number (PDN) for CCOS controlling telephones. The PDN for an SL-1 telephone is made CCOS active, and all DN's for that telephone are restricted as well. If that DN is a PDN on other telephones, they are also restricted (if they have CCSA Class of Service).

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

If the attendant tries to extend a call to a DN which appears on more than one set, this DN can either be:

- **Multiple-Call Arrangement with Ringing (MCR):** when a call terminates on this DN, all idle stations on which the DN appears are rung. The call is established only with the station which has answered first. All others are idle.
- **Multiple-Call Arrangement with No Ringing (MCN):** the only difference between MCN and MCR is that the called stations are not rung (only their DN keys flash).
- **Single-Call Arrangement with Ringing (SCR):** when a call terminates on this DN, all idle stations on which the DN appears are rung. The call is established only with the station which has answered first. All others are busy.
- **Single-Call Arrangement with No Ringing (SCN):** the only difference between SCN and SCR is that the called stations are not rung (only their DN keys flash).

Digital Trunk Interface (DTI) – Commonwealth of Independent States (CIS)

Since the ANI category is defined on a per set basis, two stations with the same Multiple Appearance Directory Number (MADN) can be assigned different ANI categories.

Directory Number Expansion

The DN can have up to seven digits if the Directory Number Expansion package is equipped.

If Loop Restriction Removal is allowed, telephones with MADNs can be moved across loops using Automatic Set Relocation (LD 25), the Meridian 1 proprietary telephones data block (LD 11), the analog (500/2500 type) telephone data block (LD 10), or Attendant Administration.

Display Calling Party Denied

When a Multiple Appearance DN is ringing, the display of the calling telephone does not show the caller's name if at least one of the TNs has Named Denied (NAMD) Class of Service. The dialed DN is displayed even if one of the TNs has DN Denied (DDGD) Class of Service. The display of the called telephone shows the DN and the caller's name according to the Class of Service of the calling DN.

When a Multiple Appearance DN is answered, the display of the calling telephone shows the DN and caller's name and DN according to the Class of Service of the answering TN. The display of the answering telephone remains the same, while the displays of the other telephones are blanked.

Electronic Lock Network Wide/Electronic Lock on Private Lines

The same locked or unlocked state applies to all Terminal Numbers with the same primary DN and the same SCPW. Terminal Numbers with the same DN, but not having the same SCPW, cannot be locked or unlocked.

Group Call

The maximum number of DNs that can be added as members of a Group Call is 20. Each Multiple Appearance, MCR/MCN DN reduces the number of telephone sets that can be added to a Group Call. For example, if two telephones have the same MCR appearance of a DN, the number of telephones in the Group Call becomes 19. That is, each appearance of a DN counts as one member, up to a maximum of 20, of the Group Call.

Note: Multiple Appearance, SCR/SCN DNs count as one member of a Group Call, irrespective of its number of DN appearances.

Group Hunt

While Multiple Appearance DNs (MADN) single call arrangements are treated the same as Single Appearance DNs (SADN), MADN multiple call arrangements must be avoided in a group hunt list.

With MADN multiple call arrangement, the idle or busy status of the MADN is determined by the terminal number (TN) data block of the prime appearance of the called DN. If there is more than one prime appearance of the called DN, the idle or busy status is then selected from the last TN in the DN block for the MADN (DNB prompt in LD 22). This means that there may be idle appearances of the MADN, while the hunt cycle regards them as busy and attempts to terminate on the next idle member of the group hunt list. If a MADN multiple call arrangement has to be used, a supervisor set must be assigned to the hunt group. This supervisor set must be given the only prime appearance of the MADN. Any other appearance must have the MADN programmed as a secondary DN (any DN key other than 0). In this way, the supervisor set controls the status of the MADN and thus the group hunt treatment. If the supervisor set is busy, the hunt does not terminate on the MADN.

Hunting

Hunting can be controlled by the MADN Redirection Prime (MARP) Terminal Number (TN). If the MARP system option is disabled, Hunting proceeds as if MARP did not exist.

If all the telephones in the Multiple Appearance Directory Number (MADN) group are Meridian 1 proprietary telephones, ringing telephones are placed at the top of the DN list, and non-ringing telephones are placed at the bottom.

If a Multiple Appearance Directory Number appears in a group with several telephone types, the telephone type affects the position of the TN in the list. The analog (500/2500 type) telephones are listed at the top, and Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves its TN to the top of the list. A service change to a Meridian 1 proprietary telephone moves it to the bottom of the list. Call redirection follows the TN order from top to bottom.

The MARP TN is always checked to determine if and how the call is to be redirected by Hunting, regardless of where the MARP TN resides in the TN list of the DN block. No searching of the TN list of the DN block is needed. Hunting will follow the hunt chain based on the originally dialed DN. The actual functioning and requirements for Hunting are not changed by the MARP feature. The basic change introduced by the MARP feature is to always have a designated TN, the MARP TN, as the TN supplying the call redirection parameters.

If the MARP TN does not have Hunting control enabled, no Hunting is attempted. Other features for redirecting calls to busy DNs may be attempted based on the MARP TN.

A Short Hunting sequence begins when the MARP TN of a busy DN can perform Short Hunting. When a Short Hunt begins, it completes on that telephone before going to the Hunt DN. The precedence of Short Hunting over normal Hunting is maintained. Once a Short Hunting sequence is started on a digital TN, all the DNs in the Short Hunt sequence on that TN are attempted before redirecting the call to the TN's Hunt DN. Thus, a Hunt Chain connects Short Hunting sequences through Hunt DNs only.

Last Number Redial

A last number dialed on a Directory Number (DN) with multiple appearances is stored only against the telephone from which the number was originally dialed.

Loop Restriction

If Loop Restriction removal is not allowed, telephones with MADNs can be moved by using the Automatic Set Relocation feature (LD 25), or the Attendant Administration feature.

Meridian 911

The DN keys for multiple appearance sets can be defined as an SCR (single call ringing) key or as an MCR (multiple call ringing) key. For those DNs (keys on MADN sets) that are SCR, only one call may be answered at a time. That is to say that once a call taker has answered a call, future calls to that DN will receive busy tone until the call taker on that DN has disconnected.

For DNs that are MCR, calls will only be given busy tone once every call taker is busy answering a call. If one call taker is answering a call and there are other call takers available, a new call to that DN will cause the sets of the available call takers to ring. Any available call taker can then answer the new call.

Message Registration

For Multiple Appearance Directory Number (MADN), the system selects the appropriate meter for the DN based on following this procedure:

- It accesses the meter of the most recently configured telephone having a Prime DN (PDN) appearance and Message Registration Allowed (MRA) Class of Service.

If no Terminal Number (TN) in the DN block has MRA Class of Service, the customer meter is charged. For the Message Registration Key (MRK), the system provides overflow and sets the MRK lamp to flash. For the Background Terminal (BGD), it prints a NO DATA FOUND message.

Privacy

If a Multiple Appearance, Single Call Arrangement (SCR) or Single Call Arrangement without Ringing (SCN) DN is shared by Meridian 1 proprietary telephones only, Privacy is in effect. No one can enter a call unless the call is first placed on Hold, or unless Privacy Release is activated to allow another appearance to enter the call. If this configuration is shared between these telephones and single-line telephones, Privacy is not in effect for any appearance of the DN. Anyone sharing the DN can enter the call at any time.

Privacy Override

Since the Privacy feature is not active in this mode, telephones with a Privacy Override Denied Class of Service can bridge into an active call.

Privacy Release

Privacy Release has no effect on Multiple Appearance, Multiple Call Arrangement with Ringing (MCR), or Multiple Call Arrangement without Ringing (MCN) calls.

Remote Call Forward

With a Multiple Appearance Directory Number (DN) and both sets having a Station Control Password (SCPW), Remote Call Forward may not operate as intended (that is, if Call Forward has been activated using the Remote Call Forward feature, Call Forward remains activated when an attempt to deactivate it is made from the set on which it is active).

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

Since the ANI category is defined on a per set basis for Three Wire Analog Trunks, two stations with the same multiple Appearance DN can be assigned different ANI categories.

Voice Call

If a Voice Call DN is added to a second telephone, the DN becomes a Multiple Appearance DN (MADN). Voice Call does not support MADN.

Feature packaging

This feature is included in base system software.

Feature implementation

LD 11 – Assign a Multiple Appearance Directory Number key.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

TN	l s c u c u	Terminal Number For Large Systems For Small Systems and CS 1000S systems
KEY	xx MCN yyy...y xx MCR yyy...y xx SCN yyy...y xx SCR yyy...y	Add a multiple-call non-ringing DN key, where: xx = key number, and yyy...y = DN. Add a multiple-call ringing DN key, where: xx = key number, and yyy...y = DN. Add a single call non-ringing DN key, where: xx = key number, and yyy...y = DN. Add a single call ringing DN key, where: xx = key number, and yyy...y = DN.

Feature operation

No specific operating procedures are required to use this feature.

Multiple Appearance Directory Number Redirection Prime

Contents

This section contains information on the following topics:

Feature description	1101
Operating parameters	1102
Feature interactions	1103
Feature packaging	1109
Feature implementation	1110
Feature operation	1117

Feature description

Multiple Appearance Directory Number (DN) Redirection Prime (MARP) standardizes call redirection on Multiple Appearance DN (MADNs) by using a service changeable Multiple Appearance DN Redirection Prime Terminal Number (MARP TN).

Each defined Single or Multiple Appearance DN has only one associated MARP TN. When a call redirection feature activated against a DN needs Terminal Number (TN) specific information, the MARP TN is used to determine feature operation. Call redirection always refers to the MARP TN.

MARP provides consistent operation for the following call redirection features:

- Call Forward All Calls

- Call Forward Busy
- Call Forward No Answer, and
- Hunting.

Operating parameters

All systems support a maximum of 30 appearances of the same DN.

Short Hunt takes precedence over MARP TN directions.

MARP is activated in LD 17. If MARP is not active, refer to specific call redirection modules in this document for call redirection details. MARP prompts and messages appear even if MARP is not active. MARP TNs can still be added, assigned, and changed.

The MARP TN is defined in LD 10 or LD 11. When activated, only the MARP TN is used to determine call redirection.

If MARP is not activated, the overlays listed have this message printed: "MARP NOT ACTIVATED." The message appears only once, when the overlay is loaded. When MARP is active, no message appears. The overlays affected are: LDs 10, 11, 20, 22, 25, 80, 81, 82, and 83.

When MARP is activated in Service Change (MARP = YES), calls are immediately directed according to the MARP TN. There is no need to SYSLOAD.

Every Single or Multiple Appearance DN has a MARP TN. MARP TNs are also defined for Data DNs, optional incoming two-way Hot Line DNs, and ringing and nonringing Private Line DNs. Automatic Call Distribution (ACD) DNs are not assigned MARP TNs.

New systems are installed with MARP activated. MARP TNs are assigned to all Single and Multiple Appearance DNs. Call redirection follows the MARP TN assignments.

MARP TNs assigned at Service Change

Each DN must have an associated MARP TN. After a Service Change or a telephone relocation, the system assigns a MARP TN to the DN in the following situations:

- The MARP TN containing the DN is removed.
- The DN appearance on its MARP TN is changed to another DN.
- The DN appearance on its MARP TN is no longer the redirection prime.

The “TN list” refers to the list of TNs that appears when you print the DN block in LD 20 or LD 22 (TYPE = DNB). To determine the order in which your TNs appear, print out the DN block.

When assigning MARP TNs during Service Change, the system conducts a search beginning at the top of the TN list for the first appearance of the DN as the Prime DN. The MARP TN is assigned based on the following:

- The first TN found with a primary appearance of the DN is assigned as the MARP TN.
- If no primary appearance of the DN is found, the first TN encountered with a secondary appearance of the DN is assigned as the MARP TN.

Feature interactions

Attendant Administration

MARP TNs cannot be added, moved, or deleted with Attendant Administration. The DN information that displays on the console includes the MARP designation if applicable.

Attendant administration activities, like changing key assignments or DN appearance, may change MARP TN assignments. If so, CSC102 appears on the teletype (TTY) indicating a new default MARP TN, as follows:

```
CSC102 DN nnnn NEW MARP l s c u
```

where

nnnn = the DN associated with the MARP TN

l s c u = the new MARP TN assigned to DN nnnn

Attendant and Network-Wide Remote Call Forward (RCFW)

The RCFW feature operation applies only to one prime DN of a Multiple Appearance DN. If multiple stations are configured with the same prime DN, the set-based network RCFW feature operation is the same as the standalone RCFW feature operation.

If multiple stations are assigned the same prime DN and station control password (SCPW), the RCFW operation applies to the station to which the MARP TN is assigned. If none of the stations is configured as the MARP TN for that prime DN, the Remote Call Forward Activate and Deactivate Flexible Feature Codes (FFCs) apply to all stations matching the DN and SCPW. Remote Call Forward Verify applies to the station according to MADN call presentation priority, placing the station with the last service change at the end of the list.

The attendant-based RCFW operation applies to the station with the MARP TN of the DN entered.

Attendant Break-In

The attendant may get a busy tone if all the telephones with the required DN are busy. Attendant Break-In permits the attendant to break in to the connection with the least restricted TN. Where more than one TN exists that meets this criterion, Break-In chooses the one at the bottom of the DN block.

Automatic Set Relocation Modular Telephone Relocation

When Automatic Set Relocation is used to move a telephone, the telephone's MARP designations are maintained. During the relocation, a temporary MARP TN is assigned. The original MARP TN is restored when the telephone relocates.

- When a telephone leaves the system due to set relocation, the following Customer Service Change (CSC) message appears:

CSC010 x y

where

x = old TN (l s c u) for the telephone

y = ID code entered

- The following Service Change (SCH) message appears for any MARP TN reassignment:

SCH5524 DN nnnn NEW MARP l s c u

where

nnnn = the DN associated with the MARP TN

l s c u = the new default MARP for DN nnnn

- The History File can be configured to store these messages until a printout is requested.
- When a telephone reenters the system, the following message appears:

CSC011 x y

where

x = old TN (l s c u) for the telephone

y = new TN (l s c u) for the telephone

- The following message appears again for each changed TN:

SCH5524 DN nnnn NEW MARP l s c u

where

nnnn = the DN associated with the MARP TN

l s c u = the new MARP TN assigned to DN nnnn

Automatic Call Distribution

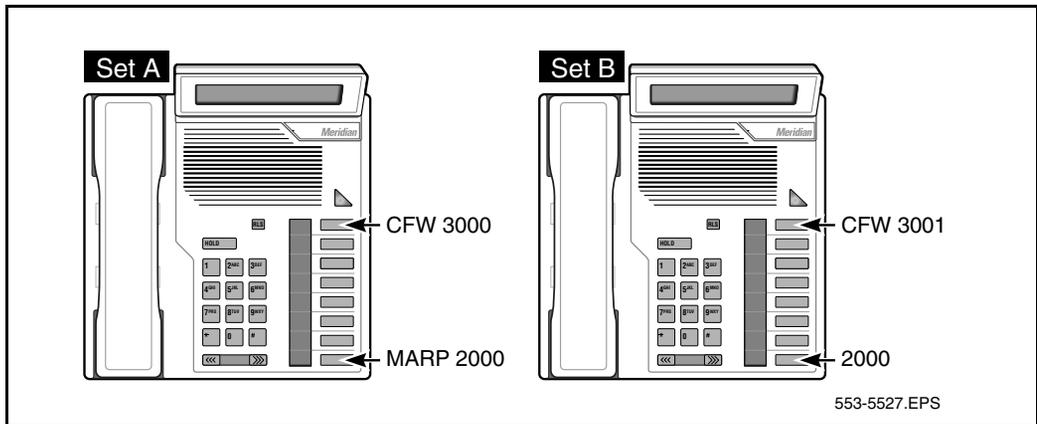
Automatic Call Distribution (ACD) DNs are not assigned MARP TNs. Agent Individual DNs (IDNs) are assigned MARP TNs.

Call Forward All Calls

If CFW is active for a DN, incoming calls are forwarded if a TN is found that has CFW enabled and is a single appearance or a prime multiple appearance of that DN (according to existing operation). The MARP TN is always checked first to meet these criteria. When the requirements are met, the system uses the information associated with the MARP TN to redirect the call.

If the MARP TN is not a prime appearance but does have CFW enabled, a search is made for a telephone with a prime appearance of that DN with CFW enabled. When a TN is found, the call is redirected according to the MARP TN's parameters. If the MARP TN is not a prime appearance and does not have CFW enabled, the system searches for a prime appearance with CFW enabled. The incoming call is forwarded according to the other telephone's instructions (not the MARP TN's), as shown in Figure 70.

Figure 70
CFW and MARP

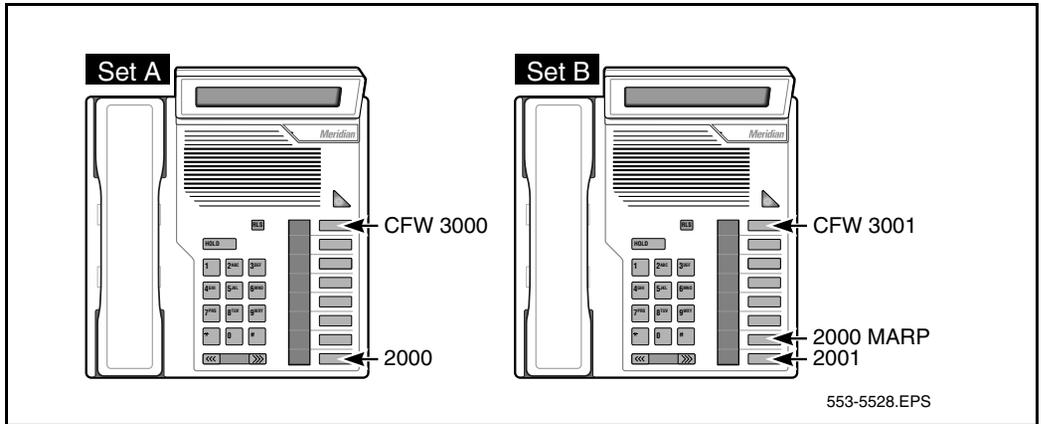


CFW DN on Telephone A is DN 3000. CFW DN on Telephone B is DN 3001.

- If only Telephone A has CFW active, calls to DN 2000 are forwarded to DN 3000.
- If only Telephone B has CFW active, calls to DN 2000 are forwarded to DN 3001.
- If both Telephone A and B have CFW enabled, calls to DN 2000 are forwarded to DN 3000 because Telephone A is the MARP TN.

At times, even though the MARP TN is actually a secondary DN appearance, it can control where a call is redirected. Due to potential confusion, it is recommended that a secondary appearance not be defined as the MARP TN when a prime appearance is available. Refer to Figure 71.

Figure 71
MARP control



CFW DN on Telephone A is DN 3000. CFW DN on Telephone B is DN 3001.

- If both Telephone A and Telephone B have CFW active, all calls to DN 2000 go to DN 3001 because Telephone B is the MARP TN.
- If only Telephone A has CFW active, all calls to DN 2000 go to DN 3000.
- If only Telephone B has CFW active, no calls to DN 2000 are forwarded.

If all DN appearances are secondary, no calls are forwarded.

Call Forward No Answer

The MARP TN always controls the call redirection for Call Forward No Answer.

- If a DN is assigned as a Prime DN on a telephone and as a secondary DN on one or more telephones, the DN list is still organized as described in the preceding paragraphs. If only one prime appearance of a DN exists, however, call redirection parameters are derived from the TN of the prime appearance telephone, even though it may not be at the end of the list. A prime appearance is always the first TN used when the system looks for call redirection instructions.

- If a DN appears on analog (500/2500 type) telephones, and Meridian 1 proprietary telephones, the analog (500/2500 type) telephones are listed in numerical TN order at the top of the list. Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves its TN to the beginning of the list. A service change to a Meridian 1 proprietary telephone moves its TN to the end of the list.
- A SYSLOAD restructures the list back to numerical TN order with analog (500/2500 type) telephones at the top and Meridian 1 proprietary telephones at the bottom. Call redirection parameters continue to be derived as described in the preceding paragraphs.

Call Redirection by Time of Day (CRTOD)

When CRTOD and Multiple Appearance DN Redirection Prime (MARP) are activated, Call Forward or Hunt are dependent on the time of day and follows the MARP feature for Call Forward No Answer or Hunt treatment.

Call Waiting Redirection

If the Multiple Appearance Directory Number Redirection Prime (MARP) feature is activated, the Call Forward No Answer (CFNA) treatment given by Call Waiting Redirection for an unanswered Call Waiting call follows the MARP feature for CFNA treatment of calls to an idle DN.

Electronic Lock Network Wide/Electronic Lock on Private Lines

The same locked or unlocked state applies to all Terminal Numbers with the same primary DN and the same SCPW. Terminal Numbers with the same DN, but not having the same SCPW, cannot be locked or unlocked.

Hunting

The MARP TN always controls the call redirection for Hunting. Short Hunting takes precedence over Hunting and MARP. The MARP TN is referred to until Short Hunting is encountered. Short Hunting is in control until it expires. When short hunting expires, the MARP TN for the first DN in the Short Hunt sequence takes control.

Network Intercom

If more than one set is allocated the same prime DN, the Hot Type I call will terminate on the set designated as the Multiple Appearance Redirection Prime (MARP). If the MARP DN is not the prime DN on the set, or if the set designated as the MARP DN is not a Meridian 1 proprietary telephone, the first Meridian 1 proprietary telephone with the prime DN will be used. If none of these conditions are met, the call will terminate as a non-Hot Line call and the calling party will be notified on the display.

Hot Type D calls can have voice termination only on a MARP Terminal Number (TN), or if there is no MARP TN, then on the first TN in the TN list. A No Answer Indication for Hot Type D can only be left on the MARP TN, or if there is no MARP TN, then on the first TN in the TN list.

Phantom Terminal Numbers (TNs)

Multiple Appearance DN's and MARP cannot be enabled on a phantom TN.

User Selectable Call Redirection

When a Multiple Appearance DN is rung, the determination of the number of ringing cycles for CFNA depends on the value of the MARP prompt in LD 17. If the value is "YES," the number of ringing cycles is determined by the Ringing Cycle Option (RCO) number of the DN that is classified as a MARP TN. If the DN is a Multiple Appearance DN (MADN), the RCO values in the other TN blocks for that DN are ignored.

If the MARP value is "NO," the RCO is taken from the first TN in the DN block with a primary appearance of the DN. If there is none, the last TN in the DN block is used.

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Activate or deactivate MARP.
- 2 LD 10 – Add an analog (500/2500 type) telephone with a Single Appearance DN.
- 3 LD 10 – Add an analog (500/2500 type) telephone with a Multiple Appearance DN.
- 4 LD 10 – Change an analog (500/2500 type) telephone with a Multiple Appearance DN.
- 5 LD 11 – Add a telephone with a Single Appearance DN.
- 6 LD 11 – Add a telephone with a Multiple Appearance DN.
- 7 LD 11 – Change a telephone with a Multiple Appearance DN.
- 8 LD 10 – Remove a MARP TN.
- 9 LD 11 – Remove a MARP TN.
- 10 LD 20 or LD 22 – Print MARP information.

If MARP is not activated, the overlays listed have this message printed: “MARP NOT ACTIVATED.” The message appears only once, at the very beginning of the overlay. When MARP is active, no message appears. The overlays are: LDs 10, 11, 20, 22, 25, 80, 81, 82, and 83.

When changing or adding a new Single Appearance DN to the system, the MARP TN is automatically assigned. The system indicates this TN is the MARP for the new DN with a MARP message.

When adding or changing a Multiple Appearance DN, the system indicates which TN is the current MARP TN. You can reassign the MARP TN if required.

SCH5524 appears at the end of the Service Change session, when the MARP TN has been changed.

LD 17 – Activate or deactivate MARP.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. Gate opener.
PARM	YES	Change system parameters.
- MARP	YES NO	Activate or deactivate MARP. There is no default. <CR> retains the previous system data.

LD 10 – Add an analog (500/2500 type) telephone with a Single Appearance DN.

Prompt	Response	Description
REQ:	NEW	Add new data to the system.
TYPE:	500	500/2500 telephone.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
DN	xxx...x	Directory Number.
- MARP		MARP prints on the next line indicating this TN is the MARP for DN xxxx.

LD 10 – Add an analog (500/2500 type) telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ:	NEW	Add new data to the system.

TYPE:	500	500/2500 telephone.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
DN	xxx...x	Directory Number.
- MARP ON TN	l s c u c u	<i>MARP ON TN l s c u</i> prints on the next line indicating TN l s c u (c u for Small Systems and CS 1000S systems) is the current MARP.
- MARP	(NO) YES	(Do not) set the MARP to this new TN.

LD 10 – Change an analog (500/2500 type) telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ:	CHG	Modify existing data.
TYPE:	500	500/2500 telephone.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
DN	xxx...x	Directory Number.

- MARP ON TN	l s c u c u	This message indicates the current MARP is TN l s c u (c u for Small Systems and CS 1000S systems).
- MARP	(NO) YES	(Do not) set the MARP to this TN.

LD 11 – Add a telephone with a Single Appearance DN.

Prompt	Response	Description
REQ:	NEW	Add new data to the system.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx aaa yyyy	xx is the key number aaa is the DN type: MCN (multi-call nonring) MCR (multi-call ring) SCN (single-call nonring), or SCR (single-call ring). yyyy is the DN.
- MARP		MARP prints on the next line indicating this TN is the MARP for DN yyyy.
KEY		Reprompts until <CR> is entered.

LD 11 – Add a telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ:	NEW	Add new data to the system.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx aaa yyyy	xx is the key number. aaa is the DN type: MCN (multi-call nonring) MCR (multi-call ring) SCN (single-call nonring), or SCR (single-call ring). yyyy is an existing DN.
- MARP ON TN	l s c u c u	<i>MARP ON TN l s c u</i> prints on the next line indicating TN l s c u (c u for Small Systems and CS 1000S systems) is the current MARP.
- MARP	(NO) YES	(Do not) set the MARP to this new TN.
KEY		Reprompts until <CR> is entered.

LD 11 – Change a telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ:	CHG	Modify existing data
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
KEY	xx aaa yyyy	xx is the key number. aaa is the DN type: MCN (multi-call nonring) MCR (multi-call ring) SCN (single-call nonring), or SCR (single-call ring). yyyy is the DN.
- MARP ON TN	l s c u c u	<i>MARP ON TN l s c u</i> prints on the next line indicating TN l s c u (c u for Small Systems and CS 1000S systems) is the current MARP.
- MARP	(NO) YES	(Do not) set the MARP to the working TN.
KEY		Reprompts until <CR> is entered.

LD 10 – Remove a MARP TN.

Prompt	Response	Description
REQ:	OUT	Remove data from the system.
TYPE:	a...a	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

LD 11 – Remove a MARP TN.

Prompt	Response	Description
REQ:	OUT	Remove data from the system.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

LD 20 or LD 22 – Print MARP information.

Prompt	Response	Description
REQ	PRT	Print information.
TYPE	TNB (DNB)	Terminal Number data block. (Can also print out DN data block or telephone type.)

The printout will look like the following.

- For the DN data block:


```
DN 2000
TYPE 2016
TN 018 0 02 00 KEY 00  MARP  DES NO DES  NO DATE
TN 018 0 02 01 KEY 01           DES NO DES  NO DATE
```
- For a telephone data block:


```
DES NO DES
TN 001 0 0 00
TYPE 2016
```

KEY 00 MCR 2000 MARP
01 MRK

Feature operation

No specific operating procedures are required to use this feature.

Multiple Console Operation

Contents

This section contains information on the following topics:

Feature description	1119
Operating parameters	1121
Feature interactions	1121
Feature packaging	1121
Feature implementation	1121
Feature operation	1123

Feature description

The system permits each customer to have up to 63 attendant consoles. Incoming calls are routed in a circular fashion to the first idle attendant. If all consoles are busy, calls are held in the attendant queue and are presented to the first idle attendant. Each console is identified by a customer-defined, two-digit attendant console number (01 to 63).

The assignment of Incoming Call Indicators (ICIs) and Trunk Group Busy (TGB) key/lamp pairs is identical for all attendant consoles in the customer group, except when Console Presentation Group Level Services, a multi-tenant feature, is configured. The flexible features key/lamp strip can be assigned on a per console basis.

The features that can be assigned to the flexible features strip include the following:

- Attendant Administration

- Autodial
- Automatic Wake Up
- Barge-In
- Busy Verify
- Call Park
- Calling Party Number
- Charge Account
- Controlled Class of Service, Enhanced
- Display Calls Waiting
- Display Date
- Display/Change Date
- Display Destination
- Display Source
- Display Time
- Display/Change Time
- Do Not Disturb (Individual)
- Do Not Disturb (Group)
- End-to-End Signaling
- Malicious Call Trace
- Message Cancellation
- Message Indication
- Paging
- Routing Control
- Speed Call Controller
- System Speed Call Controller, and
- Stored Number Redial.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Departmental Listed Directory Number

Departmental Listed Directory Number (DLDN) supports the assignment of 63 consoles per DLDN.

Multi-Tenant Services

Up to 63 consoles can be defined in a single Console Presentation Group (CPG).

Feature packaging

This feature is included in base system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 12 – Select attendant console number.
- 2 LD 15 – Select Supervisory Console.
- 3 LD 93 – Configure Multi-Tenant Service.

LD 12 – Select attendant console number.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	2250	Attendant console type.
...		
ANUM	1-63	Attendant Number.

LD 15 – Select Supervisory Console.

Prompt	Response	Description
REQ:	CHG	Change existing data block.
TYPE:	ATT_DATA	Attendant console options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
...		
SPVC	(0)-63	Supervisory Console.

LD 93 – Configure Multi-Tenant Service.

Prompt	Response	Description
REQ	NEW CHG	Change.
TYPE	a...a	Type of data block (a...a = ACG, CPG, CPGP, RACC, RACG, RCPG, TACC, TACG, TCPG, TENS or TGEN).
CUST	xx	Customer number, as defined in LD 15

CPG	1-63	Console Presentation Group number.
...		
AGNO	0-63	Attendant Console Group Number.
...		
ANUM	1-63 1-63	Add Attendant Console Numbers.
...		
NAGN	0-63	Night Attendant Console Group Number.

Feature operation

No specific operating procedures are required to use this feature.

Multiple Customer Operation

Contents

This section contains information on the following topics:

Feature description	1125
Operating parameters	1125
Feature interactions	1126
Feature packaging	1126
Feature implementation	1126
Feature operation	1126

Feature description

The system can serve up to 32 (customer numbers 0-31) individual customers from the same machine. The system software supports 100 customer groups (numbered 0-99). Customers have their own features, restrictions, numbering plans, trunks, and special services. They are granted access to the system as if they are the sole user.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

System hardware, like Serial Data Interface (SDI), Digitone Receiver (DTR), Tone and Digit Switch (TDS), and Conference, is shared among all the customers on the machine.

The Speed Call list parameter (8191) applies to the machine, not the customer. It is shared among all customers on the system.

Feature packaging

Multiple Customer Operation (CUST) package 2 has no feature package dependencies.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Multi-Site Mobility Networking

Contents

This section contains information on the following topics:

Feature description	1127
Operating parameters	1128
Feature interactions	1128
Feature packaging	1129
Feature implementation	1129
Feature operation	1135

Feature description

Multi-Site Mobility Networking (MSMN) allows a Nortel DECT Handset 4060 user to place and receive calls at any MCDN node. When the handset user visits a MCDN node, the MSMN feature automatically does the following:

- detects the visiting handset when the handset is on
- forwards calls to the visiting handset from the user's home node

The call forward dial tone gives an indication when MSMN activation is not successful. The user can turn the handset off and on again to reactivate the MSMN feature.

The MSMN feature requires concentrated DMCs. The DMCs must be 8D to support concentration. In a non-concentrated system, each handset is configured to a DMC TN. A non-concentrated DMC has 32 handset TNs assigned to 32 time slots, and is non-blocking. In a concentrated system, each handset is configured to a phantom TN on a phantom loop. Concentration allows up to 510 handsets to share the DMC's 32 time slots, (a potentially blocking system).

Separate Nortel Integrated DECT (DECT) systems on a Meridian circuit-switched network can be either concentrated or non-concentrated.

Operating parameters

The MSMN feature cannot support a mix of concentrated DMCs and non-concentrated DMCs within the same DECT system. All DMCs must have at least one handset configured.

When users visit a Companion DECT system, other than their home system, they lift the handset, wait to hear a dial tone, and hang up. This forces the registration process to finish successfully; the state of the telephone is fully synchronized with the state of the visited system.

Feature interactions

Call Forward All Calls from a MADN handset

A MADN handset at a remote node can activate Call Forward All Calls at the home node. When the handset shares a DN with another telephone, the lamp associated with the CFW key on the shared DN telephone lights up. If the handset is not the MARP, the shared DN MARP telephone user can cancel Call Forward All Calls. If the handset is the MARP, the handset user can override any call forwarding that is setup from other shared DN telephones.

Card audit

Card audit does not work with phantom TNs.

Network Message Service

The MSMN feature does not change the handling of unanswered network calls. The Meridian Mail or CallPilot network mail service does not change with multiple DNs configured against a single mailbox. The visiting DN receives the message waiting indication at the visited site.

Feature packaging

This feature requires the following packages:

- Multi-Site Mobility Networking (MSMIN) package 370
- Meridian 1 CT2 Mobility Option (MCMO) package 240
- Phantom loop (PHTN) package 254
- Meridian Companion MC32 (MC32) package 350
- Flexible Feature Code (FFC) package 139

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 10 – Add a new DCS handset .
- 2 LD 10 – Copy DCS handsets on DMC.
- 3 LD 10 – Remove DCS handsets.
- 4 LD 10 – Convert handset type 500 to DCS.
- 5 LD 20 – Print actual DMC TN and phantom DMC TN list.
- 6 LD 81 – Print DCS features.

The tasks required to set up visitor handsets are as follows:

- 1 Configure a phantom superloop using LD 97, if required.
- 2 Create the new DCS sets in LD 10.

- 3 Configure the RCFW data in LD 57 and LD 15 for handsets assigned as a visitor.
- 4 Use the DECT manager to configure handsets on the DMC.
- 5 Presubscribe the visiting handset one time at the MCDN node.

Note: Subscription includes both overlay configuration and DECT Manager configuration. For DECT Manager configuration, refer to *DECT: Description, Planning, Installation, and Operation (553-3001-370)*.

LD 10 – Add a new DCS handset (Part 1 of 3).

Prompt	Response	Description
REQ:	NEW	Add a Digital Cordless Set.
	NEW 1-255	The generation of new DCS units stops when the maximum Index of 509 is reached on a single DMC, or phantom TNs on the system run out, or the WRLS License limit is reached. All new DCSs must be on the same DMC.
	CHG	Allows the DCS configuration to change to another DMC. All new DCS must be on the same DMC.
	ECHG	This command can change either the VSIT response or the HMDN response.
TYPE:	DCS	Digital Cordless Set. Differentiates between analog sets and non-concentrated digital DECT Handsets 4060. If TYPE = DCS, the system allocates the next available VTN, WRLS defaults to YES, and WTYP defaults to DECT. If package 350 is included, MWUN defaults to 32. CLS defaults to ERCA, allowing the Enhanced RCFW feature.

LD 10 – Add a new DCS handset (Part 2 of 3).

TN		Terminal number.
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CDEN	(4D)	Card Density. Only valid value for IPE is 4D. Normal input is <CR>.
WRLS	YES	WiReLess analog Set. Entry defaults to YES with no user input. Value cannot be CHG'ed.
WTYP	DECT	Wireless TYPE. Entry defaults to DECT with no user input. Value cannot be CHG'ed.
MWUN	32	Maximum number of Wireless UNits. Entry defaults to 32 with no user input. Value cannot be CHG'ed. Note: If MWUN = 32, CDEN automatically changes to 8D, and prints as an 8D unit.
DMC		DECT Mobility Controller Location.
	l s c	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card.
	c	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card.
INDX	0 .. 509	DMC index to map the phantom TN to a DMC TN. Starting index on DMC, each unit increments to the next available unit.

LD 10 – Add a new DCS handset (Part 3 of 3).

VSIT	(NO)/YES	ViSiTing DECT set. Determines the difference between a local handset and a visiting handset. VSIT available if the MSMN Package is unrestricted. YES = visiting DECT set. NO = local DECT set.
HMDN	X...X	HoMe Directory Number. Sets the DN as a valid MCDN network DN. NMDN available if VSIT=YES.

LD 10 – Copy DCS handsets on DMC.

Prompt	Response	Description
REQ:	CPY 1-32	CPY n = The generation of new units stops when the maximum index of 509 is reached on a single DMC, phantom TNs on the system run out, or the WRLS License limit is reached. All DCSs must be on the same DMC.
DMC		DECT Mobility Controller Location.
	l s c	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card.
	c	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card.

LD 10 – Remove DCS handsets.

Prompt	Response	Description
REQ:	OUT 1-255	OUT X = Removing units stops when the maximum index of 509 is reached on a single DMC. All new DCS must be on the same DMC.
DMC		DECT Mobility Controller Location.
	l s c	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card.
	c	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card.

LD 10 – Convert handset type 500 to DCS.

Prompt	Response	Description
REQ:	CDCS	Convert Digital Cordless Set - convert from a non-concentrated to a concentrated system after software upgrade. The conversion routine converts the 500 units to DCS units and moves them from the actual TN to a virtual TN.

Note: To convert from concentrated to non-concentrated, OUT all DCS units and resubscribe the handsets.

Note: The CDCS command can also be used on MCMO type handsets.

The CDCS conversion routine prints each TN as the TN is moved, in the following format:

500 TN l s c 00 = DCS TN L' S' C' Index#.

where:

L' S' C' = Phantom TN

Index# = default of the unit number of the 500 type telephone

LD 20 – Print actual DMC TN and phantom DMC TN list.

Prompt	Response	Description
REQ	PRT	Request.
TYPE	DCS	Digital Cordless Set.
TN		Terminal Number for actual DMC.
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
		Phantom Terminal Number.
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

The print routine outputs the following format:

INDX Index # VTN lll s cc uu
 where:

Index # = Index number of phantom TN
 lll s cc uu = Phantom TN of unit

LD 81 – Print DCS features.

Prompt	Response	Description
REQ	LST	Request.
FEAT	VSIT	Feature Request - DECT visitors.
HMDN	Xx / <cr>	HoMe Directory Number. Specify a single HMDN or print all HMDN on system.

The LD 81 output format as follows:

DCS Cust# Local DN TN Ill s cc uu HMDN Home DN Last Activity Date.

where:

Cust# = Customer Number

Local DN = Local Directory Number of user

Ill s cc uu = TN of unit

Home DN = Home directory number of user

Last Activity Date = Last date of service change activity for user

LD 83 – Prints DCS terminal numbers with a unit type of DCS instead of 500.

Feature operation

To activate the MSMN feature:

- 1 Turn on the handset within the coverage range of a visited Companion DECT system.
- 2 Enter the coverage range of a visited DECT system from another DECT system with the handset on.
- 3 Wait for the telephone to be registered within the coverage range of the visited Companion DECT system. Lift the handset, wait to hear a dial tone, and hang up to ensure that the registration process finishes successfully.

To deactivate the MSMN feature:

- 1 Turn off the handset within the coverage range of the visited Companion DECT system. (The handset must have the DECT Detach feature.)
- 2 Turn on the handset at the home Companion DECT system. (Any CFW related to the handset cancels.)
- 3 Enter the coverage range of the home Companion DECT system with the handset on. (Any CFW related to the handset cancels.)

Multi-Tenant Service

Contents

This section contains information on the following topics:

Feature description	1137
Operating parameters	1144
Feature interactions	1146
Feature packaging	1156
Feature implementation	1156
Feature operation	1161

Feature description

The Multi-Tenant Service feature enables customers to resell system features and services to other users. The stations belonging to the customer can be divided into customer sub-groups known as tenants. Tenants are separated by programming access restrictions on a tenant-by-tenant basis.

Administrators can configure access to other tenants, attendant consoles, and trunk routes so that tenants have private access to some services and shared access to others. Multi-Tenant Service can also be configured to deny access to certain services. Records of tenant activity are maintained through Call Detail Recording (CDR).

Telephones that are not assigned tenant status belong to one of the customers allowed. These customer resource telephones have access to all other telephones, attendant consoles, and outgoing trunk routes belonging to the same customer.

The number of tenants that can be configured on a per customer basis is dependant on the number of configured customers and the amount of available memory. The maximum number of tenants is 512 per customer.

Tenants receive all the features defined by the customer. Features that are handled at the tenant level include:

- Incoming Call Indicators
- Call Waiting Indicator
- Recorded Overflow Announcement
- Listed Directory Numbers
- Attendant Overflow Position
- Night Directory Number

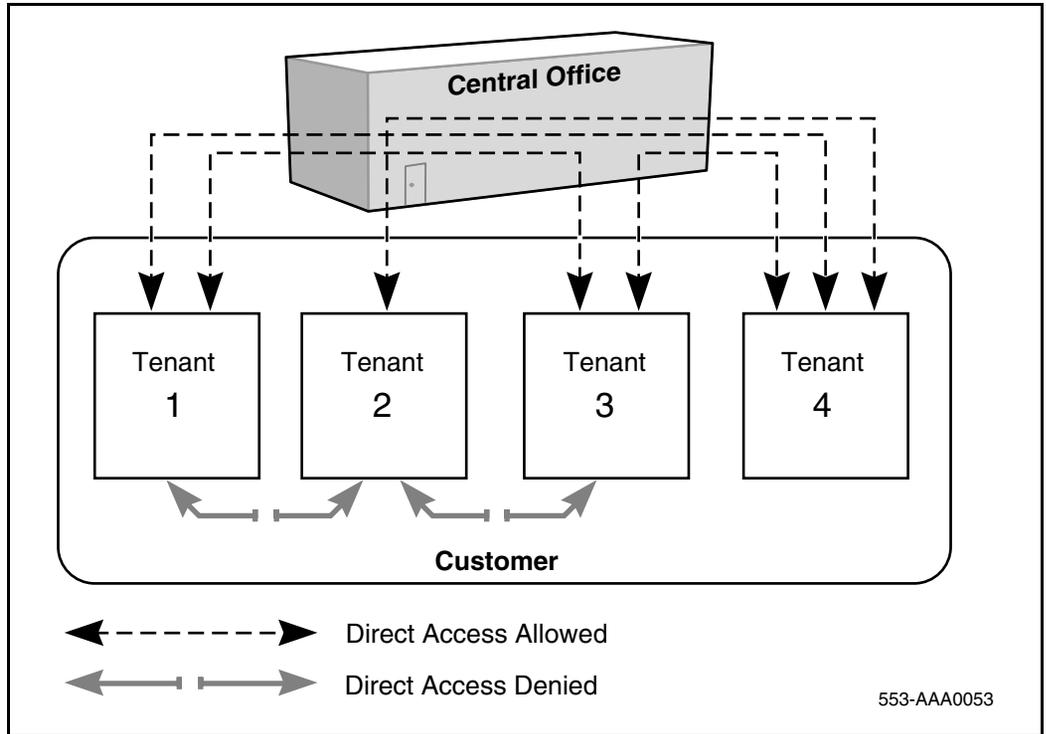
Tenants share the same numbering plan as their service provider. The following capabilities are defined on a tenant-by-tenant basis:

- Tenant-to-Tenant Access
- Tenant to Trunk Route Access
- Tenant to Attendant Console Grouping

Tenant-to-Tenant Access

Calls between tenant groups for the same customer are defined by Tenant-to-Tenant Access. As shown in Figure 72 on page 1139, a tenant is configured to allow or deny direct internal call access to some or all tenants of the same customer. To reach these tenants, the caller must dial the tenant's Listed Directory Number (LDN) through the Central Office. Access is always two-way. Therefore, if Tenant A has direct internal call access to Tenant B, Tenant B also has direct internal call access to Tenant A. Customer telephones not belonging to a tenant have two-way access to all tenant telephones in the customer group.

Figure 72
Tenant-to-Tenant access



As shown in Table 87, Tenant-to-Tenant Access allows or denies tenants of the customer:

Table 87
Tenant-to -Tenant Access allowed or denied

Tenant	Direct access allowed	Direct access denied
1	3 and 4	2
2	4	1 and 3
3	1 and 4	2
4	1, 2, and 3	

Outgoing Tenant-to-Trunk Route Access

Tenant-to-trunk route access applies only to outgoing calls. All tenants have access to incoming calls on any route. Customer telephones have access to all the customer's outgoing routes.

A tenant can have private outgoing trunk routes assigned. This is done by denying all other tenants access to the routes. Figure 73 on page 1141 shows a diagram of the following tables.

Table 88
Tenant Access to Private Routes

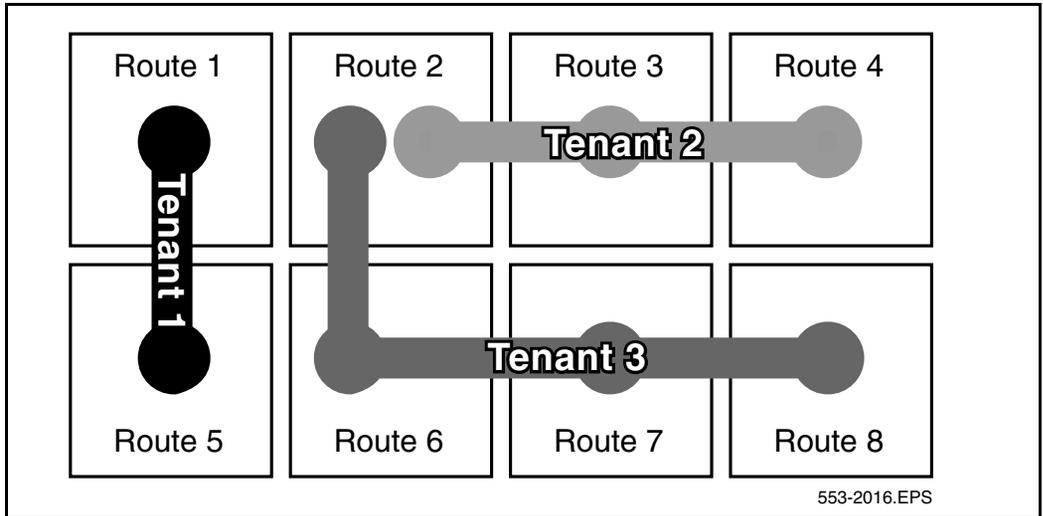
Tenant	Private Access Route
1	1 & 5
2	3 & 4
3	6, 7 & 8

A tenant can share outgoing trunk routes with other tenants of the same customer. As shown in Figure 73 on page 1141, Tenants 2 and 3 share access to route 2.

Table 89
Tenant Restrictions to Outgoing Routes

Tenant	Restricted Access to Trunk Routes
1	2, 3, 4, 6, 7 & 8
2	1, 5, 6, 7 & 8
3	1, 3, 4 & 5

Figure 73
Tenant-to-Trunk Route Access



Tenant to Attendant Console Grouping

With Multi-Tenant Service, all attendant consoles are placed into groups which are associated with specific tenants and specific incoming trunk routes. The Group Number range is 0 to 511. All attendant consoles configured for a customer are automatically members of group 0. The other groups are defined in the software to fit tenant requirements. For more information, refer to “Tenant to Attendant Console Grouping” on page 1141

Tenant-to-Attendant Access (Internal Calls)

Tenant-to-Attendant Access specifies which Attendant Console Group receives automatic presentation of a tenant's dial-zero calls.

Trunk Route-to-Attendant Access

Route-to-Attendant access specifies which Attendant Console Group receives automatic presentation of incoming calls from a particular route.

Console Presentation Groups

Console Presentation Groups (CPGs) are assigned to handle attendant calls from one tenant for a customer or for calls originating from certain trunks in a particular route.

Most attendant console features and parameters apply to CPGs. For more information, refer to “Attendant console features” on page 1142.

Attendant console features

Internal attendant-DN calls

When a tenant telephone dials the attendant DN, the call is presented to an idle attendant console. The call is routed to an Attendant Group associated with the tenant of the calling telephone, if Attendant Console Groups have been specified for the tenant. Otherwise, calls are presented to any idle attendant console belonging to the customer. For example, in Table 90 on page 1144, an attendant DN call from a Tenant 2 telephone is presented to an idle attendant in group 2 (console 1 or 2).

Incoming external calls

Incoming external calls are presented only to the Attendant Console Group specified to serve the trunk group. Also from Table 90, incoming calls on route 3 are presented to attendant consoles in group 6 (console 9 or 10).

Attendant Initiated Calls

All attendants have access to the customer’s numbering plan and can initiate a call to any customer tenant.

Attendant Overflow Position (AOP)

The Attendant Overflow Directory Number (AODN) should be accessible to all tenants. Attendant calls from tenants who do not have AODN access will not divert to AODN. They remain in the attendant queue.

Attendant Recall

When a tenant telephone recalls the attendant, the call is presented to an attendant in a group specified for the tenant of the calling telephone.

Attendant Extended Call

When an attendant extends a call from tenant A to tenant B, a 3-way conversation is set up only if tenant A and tenant B are allowed Tenant-to-Tenant Access.

Automatic Timed Recall (ATR)

When Automatic Timed Recall (ATR) alerts the attendant, the call is presented to an attendant within the Tenant group of the originally called number.

Console Presentation Group

A Console Presentation Group (CPG) is a subset of all consoles configured for a customer. A CPG is assigned to handle attendant calls from one tenant for a customer, or calls originated by trunks on a route.

CPG improves functions on the following CPG Level Services:

- **Attendant Overflow Positions** Each CPG can have its own AOP-DN and waiting time threshold.
- **Call Waiting Indication** The count thresholds, timers and buzz options for Call Waiting are defined for each CPG.
- **Incoming Call Identification** The ICI keys are defined for each CPG. Attendants see only those ICI key definitions for their own CPG.
- **Listed Directory Numbers** Each CPG allows four LDNs.
- **Night Service** Each CPG can go into Night Service mode regardless of the status of the other CPGs.

Access to incoming trunk routes

Any tenant can access an incoming call from any incoming trunk route. Attendant Console Groups can be specified to receive automatic presentation of incoming calls from specified routes. This includes calls that terminate at an attendant console and calls that intercept to an attendant console. For example, as seen in Table 90, incoming calls on route 2 are automatically presented to Attendant Console Group 5 (console 7 only).

Table 90
Typical attendant group arrangement

Attendant group number	Attendant consoles	Incoming Trunk routes	Tenant
0	1-10		
1	1		1
2	1, 2	1	2
3	1		3
4	3, 4	4	
5	7	2, 5	
6	9, 10	3	

Access to outgoing trunk routes

Tenants dial the appropriate trunk route Access Code to connect to a trunk route. Access Codes are assigned on a trunk route basis. Therefore, all tenants use the same Access Code to connect to a particular route. Customer telephones have access to all outgoing trunk routes belonging to their customer. Access to specific trunk routes is allowed or denied to individual tenants through service change. Tenants who attempt to access denied routes receive normal intercept treatment.

Operating parameters

Multi-Tenant Service is not supported by Meridian Mail applications.

Traffic data is collected on a per customer basis only.

Tenants can receive private or shared access to the Modem Trunk routes configured for their customer.

All tenants have access to their customer's Music trunks.

Tenants can receive private or shared access to the Paging routes configured for their customer.

All tenants can access their customer's recorded Announcement (RAN) trunks.

Individual tenants can be allowed or denied trunk access (private or shared) for the following trunk types:

- Add-on Data Module
- Centralized Automatic Message Accounting
- Common Controlled Switching Arrangement
- Central Office
- Direct Inward Dialing
- Dictation trunk
- Direct Outward Dialing
- Foreign Exchange
- Modem
- Paging trunk
- TIE
- Wide Area Telephone Service.

There are no restrictions on calls routed to the following trunk types:

- Automatic Identification of Outward Dialing
- Music trunk
- Recorded Announcement
- Release Link
- Main
- Release Link
- Remote Emergency Recorder

Feature interactions

Access Restrictions

Multi-Tenant Access Restrictions affect the way that tenants interact with other tenants, trunk routes, and attendant consoles.

In general, Multi-Tenant Access Restrictions take precedence over the system features with which they interact.

For example, when a direct Tenant-to-Tenant call has been made, the called party cannot transfer the call to a different tenant if the first and third tenants are denied access to each other.

In addition to Class of Service and Trunk Group Access Restrictions (TGAR) and Trunk Access Restriction Group (TARG) restrictions, Multi-Tenant Service can impose the following access restrictions:

- Tenant-to-Tenant
- Tenant-to-Trunk Group
- Tenant-to-Attendant Group
- Trunk Group-to-Attendant Group

Attendant Administration

An Attendant can dial the Access Code and activate the Administration Mode for that CPG group. In this mode, attendants can modify the configuration of any set for this customer.

Automatic Timed Recall

When Automatic Timed Recall (ATR) alerts the attendant and Multi-Tenant Services are in effect, the call is presented to an attendant in the same tenant group as the originally dialed DN.

Basic Authorization Codes

All tenants share their customer's Authorization Code tables. However, Tenant-to-Tenant and Tenant-to-Trunk Route specifications override Basic Authorization Codes (BAUT).

Call Detail Recording

With Multi-Tenant Service, all tenants are included in CDR records. The tenant numbers of the originating and terminating parties are added to the CDR records as shown in Table 91.

Table 91
CDR record types and descriptions

CDR record type	Description
A	Authorization Code
C	Charge Account
E	End
L	Internal Record
M	Charge Conference
N	Normal
P	Calling Party Number
Q	Connect Record
S	Start

Tenant and customer numbers are included by the system in the CDR output to provide the customer with data for call billing and chargeback activities.

Call Forward All Calls

Originating Party COS

If the calling party (CFO) option is defined in the Customer Data Block (LD 15), inter-tenant Call Forward is allowed if the calling party's tenant has access to the Call Forward DN tenant and the dialed DN tenant. If the Call Forward DN is in a tenant group that the caller cannot access, the DN is treated as invalid, and the caller receives an overflow tone. The software performs an access check.

Forwarding Party COS

If the forwarding party (CFF) option is defined in the Customer Data Block (LD 15), inter-tenant Call Forward is allowed if the Call Forwarding party's tenant has access to the tenant of the Call Forward DN. The local Telephone Company decides whether the option is available.

Call Forward Busy

DID calls to a busy telephone are forwarded to an idle attendant console specified for the tenant of the dialed telephone.

Hunting and Call Waiting take precedence over Call Forward Busy.

Call Forward No Answer

Attendant option

After a customer-defined number of rings, an unanswered call forwards to an idle attendant console specified for the tenant of the dialed telephone.

Any DN option

If the tenant of the calling party has access to the tenant of the Call Forward DN, the unanswered call forwards to the Call Forward DN. If Tenant-to-Tenant Access is denied, the call is processed as if no CFNA-DN exists.

Secretarial Filtering

Calls receive Secretarial Filtering only if the tenant of the Call Forward DN is accessible by the tenant of the caller.

Call Forward No Answer, Second Level

All of the same operations apply to the forwarded DN when Second Level CFNA is allowed.

Call Forward by Call Type

The originally dialed DN must have access to the tenant of the forwarding DN. This allows external calls to easily forward to the programmed DN.

To forward an internal call by CFCT, the originator must have access to the tenant of the programmed forwarding DN.

Call Park

Parked calls recall back to the Attendant who parked them. If that attendant goes into Position Busy mode, then the Parked call recalls to an attendant in the same CPG as the original. Recalls to Attendants going into Night Service mode return to the attendant queue until the caller abandons the call.

Tenant access checking between set (A) who picks up a parked call, and party (B), who parked the call, is enforced as follows:

- If B is a set, tenant-to-tenant access must be allowed between A and B.
- If B is an attendant, A and B must belong to the same CPG for tenant-to-tenant access.
- If access is denied, set A (who intends to pick up the access-denied parked call) receives a blocking tone.

Call Transfer

A telephone user can transfer its original party to a third party only if the transferred parties can access each other. Software prevents joining tenants who are denied access to each other.

Calls Waiting Indication

The Calls Waiting Indication displays the calls waiting count for the customer. It is not tenant related, but because routes and tenants specify the consoles to which calls are automatically presented, a non-zero call waiting count can be displayed. This occurs even though no calls are presented to the console.

Centralized Attendant Service

Specific attendant consoles can be assigned to receive automatic presentation of incoming calls from Release Link-Main (RLM) trunks.

All tenants have access to Release Link-Remote (RLR) trunks.

Code restriction

The code restriction data configured for a customer, applies to all tenants belonging to that customer.

Conference

All members of a conference must have access to each other. Large System software runs an access check which prevents the addition of access denied tenants.

Controlled Class of Service

The tenant of the Controlled Class of Service Controlling Station must have access to the tenant of the controlled telephone to activate CCOS.

Departmental Listed DN

The Departmental Listed Directory Number (DLDN) takes precedence over Multi-Tenant Service. For either Dial-Zero or Recall, initiated from a tenant telephone, two events may occur. First, the call is presented to the DLDN attendant when the telephone has specified DLDN. Second, the call is presented to the console specified by the telephone's tenant when the telephone does not have DLDN specified.

Dial Intercom Group

The tenant of the dialing telephone must have access to the tenant of each telephone reached by Dial Intercom Group (DIG) dialing.

Electronic Switched Network

All tenants have access to the Electronic Switched Network (ESN) features specified at the customer level. Except for Tenant-to-Route access, all ESN features are identical for each tenant belonging to the same customer.

Coordinated Dialing Plan

All tenants can access the complete Coordinated Dialing Plan (CDP) if they are configured for access to TIE trunk routes that are a part of the CDP.

Flexible Call Back Queuing

The originating tenant must have access to an eligible route in the Call Back Queue (CBQ) route list.

Free Calling Area Screening

Free Calling Area Screening checks occur normally if the originating tenant has access to the selected route.

Basic Alternate Route Selection

Network Alternate Route Selection

All tenants have access to the BARS/NARS Access Codes of their customer. Tenants that do not share access to the selected route are denied access to that route.

Network Authorization Code

Network Authorization Code (NAUT) does not override Tenant-to-Route Access restrictions within the call originator's Large System.

Network Speed Call (NSC)

All tenants have access to their customer's NSC lists. Any route selected by NSC must have Tenant-to-Route Access allowed.

Off-Hook Queuing (OHQ)

OHQ is allowed if the tenant has access to a route in the initial route list of their customer that is eligible for OHQ.

Flexible Hot Line

Flexible Hot Line allows designated telephones to place calls to a predetermined destination by going off-hook. If the Hot Line telephone's tenant does not have access to the tenant of the Hot Line DN, standard intercept treatment is provided.

Group Call

Group Call allows a Meridian 1 proprietary set user to place a call to a maximum of 10 (maximum of 6 for Small Systems) predefined DNs simultaneously by pressing a Group Call key. The tenant of the telephone initiating the Group Call must have access to the tenant of each member in the group. Restricted members are excluded from the group. The system undertakes access checks comparing the originator against each group member.

Hunting

Circular, Linear, Secretarial or Short Hunting routes call from a busy DN to the next idle DN in a prearranged group. If the hunted DN being hunted is not accessible to the dialing telephone, it is handled as an invalid member in the hunting chain. Short Hunting requires that all DNs configured on a QSU telephone belong to the same tenant.

Hunting Route

One step Route Hunting takes place between routes of the same trunk type. Tenants share their customer's route hunting specification and can use the stepped to route if they have Tenant-to-Route Access allowed for the route.

Integrated Messaging System (IMS)

Tenants can share or be denied access to their customer's IMS.

Integrated Voice Messaging System (IVMS)

Tenants can share or be denied access to their customer's Integrated Voice Messaging Service (IVMS). Tenants who do not have direct access to each other can use the IVMS Broadcast capability to leave messages for each other.

Intercept Treatment

All tenants share the customer's intercept specification.

When Tenant-to-Route Access restricts a Basic Alternate Route Selection (BARS)/Network Alternate Route Selection (NARS) call, intercept treatment is the same as any invalid BARS/NARS call.

When an internal call intercepts to an attendant because of defined restrictions or dialing irregularities, it automatically presents the call to one of the attendant consoles specified for the calling tenant.

When intercept treatment includes a Recorded Announcement (RN) and Tenant-to-Tenant Access restricts a call, an Access Denied RAN plays.

Field Lamp Array

The Lamp Field Array, located on either an attendant console or a QSU telephone, indicates the busy/idle status of 150 consecutive DNs. These DNs display regardless of Tenant-to-Tenant Access specifications of the array equipped tenant telephone. For this reason, the DNs assigned in the array should be accessible by the tenant of the array associated telephone.

Maintenance telephone

QSU telephones with maintenance allowed COS must receive access to all tenants, all trunk routes, and all attendant consoles.

Manual service

When a manual telephone goes off-hook, the call is presented to an idle attendant console belonging to a group specified for its tenant.

Manual Trunk service

When an incoming trunk terminates on a DN, there is no access check. Incoming trunks terminate on an attendant console only if the console is specified for that manual trunk route.

Tenant-to-Route access checking is completed for outgoing manual trunk calls.

Multiple Appearance DNs

All appearances of a DN should reside on telephones belonging to the same tenant. When a multiple appearance DN is called, the last non-fully restricted Terminal Number (TN) in its TN list determines the terminating tenant number for Tenant-to-Tenant Access checking.

Multiple Listed Directory Numbers (MLDN)

Route-to-Attendant Console Access determines which Attendant Console Group receives automatic presentation of calls from a specific Direct Inward Dialing (DID) trunk route. Each of the four DID LDNs are configured to have its calls presented at the loop key of specific attendant consoles by using DLDN.

Night Service

Automatic Call Distribution (ACD) allows special functionality for the system under certain conditions, such as Night Service.

The Night DN should be assigned as a customer resource so all tenants have access to the Night DN for internal calls when Night Service is in effect. Otherwise the call is treated as if no Night DN exists.

Position Busy

When all attendant consoles designated to receive incoming trunk calls from a particular trunk route are in Position Busy, incoming trunk calls from those routes are directed to the Trunk Night Service DN.

Office Data Administration System

Office Data Administration System (ODAS) does not contain tenant information.

Ring Again

Ring Again is permitted when the originating tenant has access to the destination tenant.

Ringling Number Pickup

Ringling Number Pickup (RNPU) enables a telephone to answer calls to other telephones in the same RNPU Group. All tenants have access to their customer's RNPU Access Code. Members of an RNPU group can only answer calls for other members if their tenant has access to the tenant of the calling party. For this reason, members of an RNPU group are selected from telephones belonging to the same tenant. The calling party's access is checked against the called party by the system.

Route Selection-Automatic Number Identification

All tenants can dial the Route Selection - Automatic Number Identification (RS-ANI) DN. The ANI route selected from the RS-ANI list is used only if the tenant of the originating telephone has access to the route.

Secrecy

The Secrecy option, specified for a customer, applies to all CPG attendants for that customer.

Speed Call

Speed Call allows a telephone user to place calls to specified DN's by dialing a two-digit code. A user of a Speed Call List receives normal intercept treatment if the tenant does not have access to the listed destination tenant.

Supervisory consoles

Supervisory consoles specified for a customer belong to one Console Presentation Group (CPG). In the Supervisory mode, ICI lamps show only the information for ICIs in that CPG. The thresholds specified in the Customer Data Block apply only to the CPG where that console resides, and they do not affect any other CPG.

System Speed Call

All tenants share their customer's System Speed Call (SSC) lists. When a System Speed Call DN is used Tenant-to-Trunk Route access restrictions apply.

Trunk Group Access Restrictions

All tenants share their customer's Trunk Group Access Restrictions (TGAR), but Tenant Service Access restrictions take precedence, even though the telephone COS and TGAR do not restrict access to a route. Normal intercept treatment is provided when Tenant Service Access is denied.

Trunk routes Voice Call

Tenant-to-Tenant Access must be allowed between the Voice Call originating telephone and terminating telephone.

Feature packaging

The following packages are required for Multi-Tenant Service:

- Multi-Tenant Service (TENS) is package 86, which requires:
 - Console Presentation Groups (CPGS) package 17.

Other features expected in a Console Presentation Group environment must be packaged for complete functionality. They are as follows:

- Centralized Attendant Service-Remote (CASR) package 26
- Centralized Attendant Service-Main (CASM) package 27
- Recorded Overflow Announcement (ROA) package 36
- Attendant Overflow Position (AOP) package 56

The maximum number of route list entries for BARS/NARS is always 64.

CPG services are mutually exclusive with Departmentally Listed DNS (DLDN).

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 93 – Enable, disable, or print Multi-Tenant Service for a specified customer.
- 2 LD 93 – Allow, deny, or print Tenant-to-Tenant Access for a specified tenant.
- 3 LD 93 – Allow, deny, or print Tenant-to-Route Access for a specified trunk route.
- 4 LD 93 – Add Console Presentation Group.
- 5 LD 93 – Assign Tenant-to-Attendant Console access.
- 6 LD 93 – Assign Attendant Console group number.

- 7 LD 10 – Add Multi-Tenant Service assignments on analog (500/2500) telephones.
- 8 LD 11 – Add Multi-Tenant Service assignments on proprietary telephones.

LD 93 – Enable, disable, or print Multi-Tenant Service for a specified customer.

Prompt	Response	Description
REQ	NEW OUT PRT	Add, remove, or print.
TYPE	TENS	Tenant service data block.
CUST	xx	Customer number, as defined in LD 15
TEN	1-511	Tenant Number.

LD 93 – Allow, deny, or print Tenant-to-Tenant Access for a specified tenant.

Prompt	Response	Description
REQ	CHG PRT	Change or print.
TYPE	TACC	Tenant-to-Tenant Access Data Block.
CUST	xx	Customer number, as defined in LD 15
TEN	1-511	Tenant number. Tenant 0 is reserved for telephones with a TEND Class of Service.
ACC	DENY ALLOW	Tenants denied access are to be entered. Tenants allowed access are to be entered.
DENY	1-511 1-511 ALL	Tenant numbers denied access to and from this tenant (prompted if ACC = DENY). All tenant numbers denied access to and from this tenant (tenant can only access itself).
ALLOW	1-511 1-511 ALL	Tenant numbers allowed access to and from this tenant (prompted if ACC = ALLOW). All tenant numbers allowed access to and from this tenant.

LD 93 – Allow, deny, or print Tenant-to-Route Access for a specified trunk route.

Prompt	Response	Description
REQ	CHG PRT	Change, or print.
TYPE	RACC	Tenant-to-Route Access Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
ACC	DENY ALLOW	Tenants denied access to the route are to be entered. Tenants allowed access to the route are to be entered.
DENY	1-511 1-511 ALL	Tenant numbers denied access to this route (prompted if ACC = DENY). All tenant numbers denied access to this route.
ALLOW	1-511 1-511 ALL	Tenant numbers allowed access to this route (prompted if ACC = ALLOW). All tenant numbers allowed access to this route

LD 93 – Add Console Presentation Group.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	CPG	Console Presentation Group data block.
CUST	xx	Customer number, as defined in LD 15
AGNO	1-63	Attendant Console Group number. Attendant Console Group 0 (AGNO 0) always exists and contains all attendant consoles configured for the customer.
ANUM	1-63 1-63	Add attendant console numbers.

LD 93 – Assign Tenant-to-Attendant Console access.

Prompt	Response	Description
REQ	CHG PRT	Change, or print.
TYPE	TCPG	Tenant -to-Attendant Console Group data block.
CUST	xx	Customer number, as defined in LD 15
TEN	1-511	Tenant number. Tenant 0 is reserved for telephones with a TEND Class of Service.
AGNO	0-63	Attendant Console group number.

LD 93 – Assign Attendant Console group number.

Prompt	Response	Description
REQ	CHG, PRT	Change, or print.
TYPE	RCPG	Route-to-Attendant Presentation Group data block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
AGNO	0-63	Attendant Console group number.

LD 10 – Add Multi-Tenant Service assignments on analog (500/2500) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CLS	(TEND)	Tenant service (denied) (station shares customer resources and is a non-tenant).
	TENA	Tenant service allowed.
TEN	1-511	Tenant number (prompted if CLS = TENA). Tenant 0 is reserved for telephones with a TEND Class of Service.

LD 11 – Add Multi-Tenant Service assignments on proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.

CLS	(TEND) TENA	Tenant service (denied) (station shares customer resources and is a non-tenant). Tenant service allowed.
TEN	1-511	Tenant number. Tenant 0 is reserved for telephones with a TEND Class of Service. Prompted if CLS = TENA.

Feature operation

No specific operating procedures are required to use this feature.

Music

Contents

This section contains information on the following topics:

Feature description	1163
Operating parameters	1164
Feature interactions	1165
Feature packaging	1166
Feature implementation	1167
Feature operation	1170

Feature description

The Music package supports Music on Hold and Automatic Call Distribution (ACD) Music on Delay. One or more music sources can be connected to one or more music trunks on Intelligent Peripheral Equipment (IPE). Each music trunk is assigned to a music route and to a conference loop. Incoming callers are bridged into a listen-only conference and provided with music when on hold or when waiting for an ACD call to be answered.

Music on Delay

Music on Delay presents a listen-only path to a music source for calls waiting in ACD queues. Music on Delay sources are identified separately for each Automatic Call Distribution Directory Number (ACD DN). Complete details are described in *Automatic Call Distribution: Description* (553-3001-351).

Music on Hold

This feature allows incoming calls over a CO, FX, WATS, DID, or TIE trunk to receive music if placed on hold. Music is provided only if the trunk route is defined to receive music. The trunks selected to receive music are provided with a listen-only path to a music conference connection.

Music is provided by a dedicated music trunk by means of the conference circuit. To minimize blocking of the music conference, at least two conference loops must be assigned in each network group requiring music. The loop with the higher number should not be assigned to music trunks.

To activate the Music on Hold feature on virtual trunks, the following are required:

- Install package 328 (MUSBRD).
- Set the BDCT prompt in LD 16 to YES.

Operating parameters

Music is provided by a Recorded Announcement (RAN) or universal trunk circuit card.

Only trunks assigned to a route specified by service change receive Music on Hold.

When a call is held, the system looks for a network path to provide the music. If a path is not found, no music is heard.

When a Universal trunk card is used, Music and RAN trunks can be assigned to the same card.

Connections blocked once are not automatically attempted again.

Simple source-only connections on the Attendant Console receive music; all others do not.

Main Release Link Trunks do not receive music.

Calls to special trunks (such as Paging or Dictation) do not receive music if placed on hold.

The music trunk Terminal Number (TN) must be within the same network group as the conference circuit to which it is assigned.

One music trunk per customer must be located in each network group requiring music.

Music is not supplied across groups. For example, if group 4 does not have a music trunk and groups 0-3 have music trunks, an incoming call to group 4 placed on hold will not receive music.

A single conference loop with one music trunk assigned can support up to 29 simultaneous listeners.

If more than one music trunk is assigned to one conference loop, they must use different routes. The total number of possible listeners is 30 minus the number of assigned trunks. Additional music trunks and conference loops can be configured if required.

The music source must be compatible with the music trunk circuit pack.

Feature interactions

AC15 Recall: Transfer from Norstar

A party put on hold by an AC15 trunk will hear music if it is configured.

Attendant Trunk Group Busy Indication

A music route that appears on a Trunk Group Busy key on the attendant console cannot be controlled by activation of the Trunk Group Busy key. In addition, the associated lamp will not reflect the status of the music trunks.

Break In with Secrecy

During secrecy, if there is only one undesired party in the conference, music is not provided to this party when excluded. However, intrusion tone is given to this party.

Call Park

When a call is parked, music is not heard. When a trunk is parked, music plays if music is enabled for the route.

Conference

With basic Music on Hold, when a call is placed on consultation hold while a Conference is being established, music does not play. Enhanced Music (EMUS) package 119 is required for music on consultation hold (see “Music, Enhanced” on page 1171).

Group Hunting Queuing Limitation

No music is provided for Group Hunting Queuing Limitation.

On Hold on Loudspeaker

Music on Hold is not be heard by either party during a loudspeaker call.

Recovery on Misoperation of Attendant Console

Music on Hold is applied to calls put on hold due to AUTOHOLD.

Source Included when Attendant Dials

The source is included in a conference involving the attendant, the source, and Recorded Announcement or music treatment. Intrusion tone is not provided in this case.

Trunk Traffic Reporting Enhancement

The Trunk Seizure Option is not supported on a music trunk.

Feature packaging

The Music feature requires the following packages:

- Music (MUS) package 44
- Recorded Announcement (RAN) package 7

To configure Music on Delay for an ACD environment, the following packages are also required:

- Base Automatic Call Distribution (BACD) package 40
- Automatic Call Distribution, Package A (ACDA) package 45
- Automatic Call Distribution, Package B (ACDB) package 41

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Enable conference loops for Music on Hold.
- 2 LD 16 – Enable a music route.
- 3 LD 14 – Enable a music trunk.
- 4 LD 16 – Enable Music on Hold for trunk routes.
- 5 LD 23 – Enable Music for an Automatic Call Distribution Directory Number.

LD 17 – Enable conference loops for Music on Hold.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN CEQU	Configuration Record. Gate opener.
CEQU	(NO) YES	Change to CE parameters.
- XCT	0-158	Loop number for NT8D17 Conference/TDS/MFS card. Enter an even network loop number for TDS/MFS functions. The conference function is automatically assigned the next higher (odd) loop number.
- CONF	0-158	Loop number for conference card.

LD 16 – Enable a music route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
TKTP	MUS	Music route.
ICOG	OGT	Outgoing route only.
ACOD	xxxx	Trunk route access code.

Note: All other prompts can be set to default values.

LD 14 – Enable a music trunk.

Prompt	Response	Description
REQ	NEW	New.
TYPE	MUS	Music trunk.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
CUST	xx	Customer number, as defined in LD 15
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.

	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
CFLP	0-158	Conference loop assigned to music in LD 17.

LD 16 – Enable Music on Hold for trunk routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	COT DID FEX TIE WAT	Route type.
MUS	(NO) YES	Music on Hold (is not) or is to be provided for this trunk route.
MRT	xxx	Music route number.

LD 23 – Enable Music for an Automatic Call Distribution Directory Number.

Prompt	Response	Description
REQ	NEW	Add.
TYPE	ACD	Update the ACD data block.
CUST	xx	Customer number, as defined in LD 15

ACDN	xxx...x	ACD DN.
MURT	X 0-511	Music route number. X = remove route.

Feature operation

No specific operating procedures are required to use this feature.

Music, Enhanced

Contents

This section contains information on the following topics:

Feature description	1171
Operating parameters	1172
Feature interactions	1172
Feature packaging	1173
Feature implementation	1174
Feature operation	1176

Feature description

Enhanced Music (EMUS) provides music for internal and external calls. Music is provided when telephones are placed on Hold, Consultation Hold, and Camp-On and when calls at the attendant console are split using the “Exclude Source/Destination” keys.

Enhanced Music (EMUS) provides music in situations described in Table 92.

Table 92
Features vs. no Music, Music, and Enhanced Music

	Without Music		Music		Enhanced Music	
	Sets	Trunks	Sets	Trunks	Sets	Trunks
ROA Waiting	No	No	Yes	Yes	Yes	Yes
Call Park	No	No	Yes	Yes	Yes	Yes
ACD Music	No	No	Yes	Yes	Yes	Yes
Hold Key	No	No	No	Yes	Yes	Yes
Permanent Hold	No	No	No	Yes	Yes	Yes
Consultation Hold	No	No	No	No	Yes	Yes
Splitting	No	No	No	Yes	Yes	Yes
Camp-On	No	No	N/A	Yes	N/A	Yes

Operating parameters

The requirements for Enhanced Music on Hold are the same as for Music on Hold. See “Music” on page 1163.

Trunks receive Music on a route basis. Telephones receive Music on a customer basis.

Feature interactions

Enhanced Music on Hold has the same feature interactions as Music on Hold. In addition, it has interactions with the following features:

Attendant Busy Verify

When the attendant attempts to Busy Verify a telephone receiving Music, the Music is removed. When the attendant releases, Music is returned.

Call Hold, Deluxe

A caller placed on Hold by a member of a multiple appearance group receives Music regardless of whether the call is on Hold or Exclusive Hold.

Call Transfer

The held party receives Music when the other party presses the Call Transfer key. The Music connection remains until the Call Transfer key or the DN key is pressed, ending the Consultation Hold state.

Charge Account and Calling Party Number

The Charge Account (CHG) and Calling Party Number (CPN) keys place the far end party on Hold while a charge number is entered. The held party receives Music during this period.

Conference

The held party receives Music when the Conference key is pressed, while the conference is being established, and whenever the conference is reduced to two parties with one party on Hold. Once the conference is established, Music is no longer provided.

A Six-party Conference operates the same as a Three-party Conference.

Privacy Release

When using Privacy Release to add one or more members to a call already receiving Music, the Music is removed.

Feature packaging

Enhanced Music (EMUS) package 119 requires:

- Music (MUS) package 44, and
- Recorded Announcement (RAN) package 7.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Add or change Conference loops for Music on Hold.
- 2 LD 15 – Enable Music Customer Data Block.
- 3 LD 16 – Enable a Music route.
- 4 LD 14 – Enable a Music trunk. At least one Music trunk per network group is required for each customer requiring Music.
- 5 LD 16 – Enable Music on Hold for trunk routes.

LD 17 – Add or change Conference loops for Music on Hold.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN CEQU	Configuration Record.
CEQU	(NO) YES	Change to CE parameters.
- XCT	0-158	Loop number for NT8D17 Conference/TDS/MFS card. Enter an even network loop number for TDS/MFS functions. The conference function is automatically assigned the next higher (odd) loop number.
- CONF	0-158	Loop number for conference card (must be an even numbered loop).

LD 15 – Enable Music Customer Data Block.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB FTR	Customer Data Block Features and options

CUST		Customer number
	0-99	Range for Large System and CS 1000E system.
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
- MUS	(NO) YES	Enhanced music for telephones.
- MUSR	0-511	Music route for telephones.

LD 16 – Enable a Music route.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
TKTP	MUS	Music route.
ICOG	OGT	Outgoing route only.
ACOD	xxxx	Trunk route access code.

Note: All other prompts can be set to default values.

LD 14 – Enable a Music trunk. At least one Music trunk per network group is required for each customer requiring Music.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	MUS	Music trunk.

TN	l s c u	Terminal number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
CFLP	0-158	Conference loop assigned to music in LD 17.

LD 16 – Enable Music on Hold for trunk routes.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
TKTP	COT DID FEX TIE WAT	Trunk type.
MUS	(NO) YES	Music on Hold (is not) is to be provided for this trunk route.
MRT	0-511	Music route number.

Feature operation

No specific operating procedures are required to use this feature.

Music Broadcast

Contents

This section contains information on the following topics:

Feature description	1177
Operating parameters	1181
Feature interactions	1183
Feature packaging	1184
Feature implementation	1184
Feature operation	1187

Feature description

The Music Broadcast feature expands existing Music functionality. This feature provides the following enhancements:

- Broadcast Capabilities
- Incremental Software Management limit
- Traffic Study Option

Broadcast Capabilities

Existing Conference-based Music features require that each Music trunk be assigned to a Music route and to a Conference loop. Incoming callers are bridged into a listen-only conference and provided with music while on call hold or call waiting in an Automatic Call Distribution (ACD) environment. The existing Conference-based Music features support intra-group music only. Therefore, each network group must be provided with its own Music trunk.

The Music Broadcast feature allows the system to broadcast music to several parties at one time using a single Music Broadcast trunk port. This feature supports Music on Hold (MOH). Music is now delivered using system software; hence, Conference hardware is not required. It is no longer necessary to share Conference resources with Conference features, such as Conference and Group Call. Music Broadcast supports both intra-group and inter-group music. Therefore, a Music trunk in each network group is not required.

A Music Broadcast call consists of several one-way connections from the Music trunk to each caller. The Music Broadcast feature reduces the number of timeslots required for callers to listen to music while on call hold or call waiting in an Automatic Call Distribution (ACD) environment. One timeslot is required to enable Music trunk broadcasts. In addition, each party listening to music through the broadcasting music trunk requires one broadcast connection. The extra speech path resources that are needed for the existing Conference-based Music are unnecessary for Music Broadcast.

Incremental Software Management

A License limit is introduced for the Music Broadcast feature. This limits the total number of Music Broadcast connections allowed on a system. The License limit can be allocated over different Music routes and trunks. A License allows a total of 64 Music Broadcast connections on one trunk at one time. If one trunk is configured with 64 connections, when the limit is reached, the 65th caller hears silence. The Music trunk is no longer available until a call disconnects. When a call disconnects, the next caller receives one of the Music Broadcast connections and receives music. However, the 65th caller still hears silence, even though a connection has become available.

If a customer has 64 connections configured on one trunk but requires more connections, additional trunks can be added to their system and additional connections can be purchased incrementally to a maximum of 9,999 connections. For example, should this customer require a total of 124 connections, an additional trunk and an additional 60 connections can be added to their original configuration. This provides the customer with a total of 124 connections (64 connections + 60 connections). LD 22 is modified to print the new Incremental Software Management information for Music Broadcast connections. The existing SLT command prints the License information for the system.

The License header in LD 14 indicates the number of Music Broadcast connections allowed for the system. The LD 14 header contains the following information:

- The USED parameter represents the maximum number of simultaneously used music connections since the last system load.
- The TOT parameter is the License limit for Music Broadcast connections.
- AVAIL is the difference between the TOT value and the USED value (AVAIL = TOT - USED).

The existing TN information shown in the License header in LD 14 is not modified by the Music Broadcast feature, as the amount of Music Broadcast trunk TNs is not checked against the License limit at SYSLOAD. The Music Broadcast License limit pertains to Music Broadcast connections only and not to TNs. Figure 74 is an example of the updated header:

Figure 74
License header in LD 14

TNS	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
MUS CON	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

Customers can modify License parameters via keycode. A keycode is a machine-generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects License parameters.

To expand License limits, customers must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in LD 143. For further information on keycode installation, please refer to *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures (553-3021-258)*.

For further information on Incremental Software Management, refer to the “Incremental Software Management” on page 585 in this book.

Traffic Study Option

The Traffic Period Option (TPO) allows a customer to enhance their TFC002 reports to accumulate trunk usage data after every traffic period instead of accumulating usage only after a call disconnects. With this option enabled in LD 17, the Common Channel Signaling (CCS) associated with lengthy calls is reported in each traffic report interval throughout the duration of the call.

Previously, this feature did not apply to RAN and Music trunks. With the introduction of Music Broadcast, however, a Music call may last for an extended period of time. Therefore, changes are made to the Trunk Traffic Reporting Enhancement with the introduction of the TFC111 traffic report.

The TFC111 report provides information on the usage of broadcasting routes. For the TFC111 report to be output, customer report number 11 must be selected using the SOPC command in LD 2. For example, for Customer 0, SOPC 0 11 is entered. To print the TFC111 report, the TOPC command in LD 2 is used. For example, for Customer 0, TOPC 0 11 is entered. The TFC 111 report is also printed when automatic traffic reports are scheduled in LD 2.

The System Traffic message, TFS 0503, is output each time a music request cannot be completed because the total number of active Music Broadcast connections is equal to the system’s License limit. Figure 75 is an example of the customer report, TFC111, for Music Broadcast routes.

Figure 75
TFC111 Report for a broadcasting music route

0200 (System ID)	TFC111
---------------------	--------

Figure 75
TFC111 Report for a broadcasting music route

000 (Customer number)		
030 (Route number)	MUS (Trunk type)	
001132 (Successful broadcast connections peg count)	00016 (Average call duration)	00000 (Unsuccessful broadcast connections peg count)
00000 (Broadcast connections peg count for lowest usage trunk)	00000 (Broadcast connections peg count for second lowest usage trunk)	00002 (Broadcast connections peg count for third lowest usage trunk)

Operating parameters

Music Broadcast requires any Music trunk and an external music source **or** a Nortel Networks Integrated Recorded Announcer card (NTAG36). Integrated Recorded Announcer has the capability to provide audio input for external music.

A Conference loop is not required for Music Broadcast.

With the Music Broadcast package configured, both existing Conference-based Music and Music Broadcast can co-exist on the same system. The type of Music is dependant upon the BDCT prompt in the Route Data Block.

The Music Broadcast feature is applicable to Music routes only.

To upgrade an existing non-broadcasting Music route to a broadcasting Music route, the REQ prompt must be set to CHG and the BDCT prompt must be set to YES in LD 16.

A broadcasting Music route may only be changed to a non-broadcasting Music route if it is first removed in LD 16 and then added back into the system as a non-broadcasting Music route by setting the BDCT prompt to NO. In this case, the CFLP prompt in LD 14 must be defined, and the Conference loop number for the non-broadcasting Music route must match the loop number that was set previously in LD 17.

If more than 64 Music Broadcast connections are required due to high traffic, additional trunks, each with up to 64 Music Broadcast connections, can be added. This same Music source can be cross-connected to all Music trunk TNs within a particular Music Route.

When more than one Music trunk is attached to a broadcasting Music route, a trunk is first sought within the caller's own group. An already active trunk is chosen initially in order to give music to the requesting party. If there is not a Music trunk that is already active or if all active Music trunks already have the maximum number of callers connected, an idle trunk is sought. If an idle trunk is found, the call is connected. If there are no trunks available within the caller's group, trunks in other groups are sought.

Although Music Broadcast supports inter-group music, it is advisable that for multi-group systems with high inter-group traffic, a Music trunk be provisioned in each network group to reduce junctor traffic.

Several routes can be supported using Music Broadcast; hence, different types of Music are also supported. On multi-group systems, however, network group junctor traffic limitations may cause difficulty in supporting several types of music on one system. In this case, additional trunks and additional connections can be added to the system.

If blocking occurs, silence or ringback tone is given by the features requesting music.

When the actual number of Music Broadcast connections in use is equal to the License limit, another connection is not allowed. In this case, the Blocking operation is retained. Therefore, silence or ringback tone is given by the features requesting music. This information is output in the Traffic report (TFS 0503).

The total number of Music Broadcast trunks multiplied by the maximum number of Music Broadcast connections per trunk may be greater than the License limit. The License limit of Music Broadcast connections is shared between different types of Music routes.

When a Music Broadcast trunk port is forced to disconnect through maintenance, all connected callers hear silence but remain on hold.

Only those calls receiving music in an ACD queue are restored by the INIT ACD Queue Call Restore feature following a system initialization. Any other calls receiving music are dropped, and the callers hear silence.

Feature interactions

Call Detail Recording

Due to the number of callers that can be connected to a broadcasting Music trunk at one time, Call Detail Recording (CDR) is not supported on broadcasting Music routes.

Note: CDR is prompted for Music routes in LD 16. However, even if CDR is set to YES, a CDR record will not be output for Broadcasting Music routes.

Integrated Call Center Management

The Integrated Call Center Management (ICCM) broadcast capability on a system is independent of the Music Broadcast capability which is applicable only to Music routes. This ICCM broadcast capability applies only to Interactive Voice Response (IVR) voice ports.

The script command GIVE MUSIC <music route number> connects a call to the specified Music route. The Music Broadcast feature is applied if appropriate.

The script command GIVE BROADCAST ANNOUNCEMENT {NOT INTERRUPTIBLE} <acd_dn> {WITH TREATMENT <treatment>} applies to IVR ports only, and the ICCM broadcast capability is applied in this case.

Meridian Interactive Voice Response

Interactive Voice Response (IVR) interacts with the Music Broadcast feature, using the existing functionality of a non-broadcasting Music Route.

Recorded Announcement Broadcast

The Recorded Announcement (RAN) Broadcast feature is applicable to RAN only, and the Music Broadcast feature is applicable to Music only.

Feature packaging

Music Broadcast (MUSBRD) is package 328. The following packages are also required to provide Music Broadcast capability:

- Music (MUS) package 44
- Recorded Announcement (RAN) package 7

To provide Music Broadcast capability to Enhanced Music (EMUS) features, the Enhanced Music (EMUS) package 119 is also required.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 16 – Change an existing non-broadcasting Music route to a broadcasting Music route.
- 2 LD 16 – Enable Conference-based Music route.
- 3 LD 14 – Configure Conference-based Music trunks.

Music Broadcast

LD 16 – Change an existing non-broadcasting Music route to a broadcasting Music route.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.
TKTP	MUS	Music Trunk Data Block.
ICOG	OGT	Outgoing only Trunk.
...		
BDCT	YES	Allow Broadcast capability. NO = Deny Broadcast capability (default), except for CS 1000E where default is YES. If BDCT = YES, no conference loop is required. Each Music trunk has 64 broadcast connections.

Conference-based Music

LD 16 – Enable Conference-based Music route.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.

ROUT	0-511 0-127	Route number For Large Systems For Small Systems and CS 1000S systems
TKTP	MUS	Music Trunk Data Block.
ICOG	OGT	Outgoing only Trunk.
...		
BDCT	NO	Deny Broadcast capability. YES = Allow Broadcast capability. If BDCT = YES, no conference loop is required. Each Music trunk has 64 broadcast connections.

LD 14 – Configure Conference-based Music trunks.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	MUS	Music trunk.
TN		Terminal number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
...		
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system.
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T.

...		
CFLP	0 - 158	Music Conference Loop. Prompted only for non-broadcasting Music routes.

Feature operation

No specific operating procedures are required to use this feature.

Nortel Communication Server 1000

Features and Services

Book 2 of 3 (D to M)

Copyright © 1994–2008 Nortel Networks. All Rights Reserved.

The information in this document is subject to change without notice. The statements, configurations, technical data, and recommendations in this document are believed to be accurate and reliable, but are presented without express or implied warranty. Users must take full responsibility for their applications of any products specified in this document. The information in this document is proprietary to Nortel Networks.

Nortel, the Nortel Logo, the Globemark, SL-1, Meridian 1, and Succession are trademarks of Nortel Networks.

All other trademarks are the property of their respective owners.

Publication number: 553-3001-306

Document release: Standard 18.01

Date: March 2008

Sourced in Canada

To provide feedback or report a problem in this document, go to www.nortel.com/documentfeedback.

