# NORTEL

Nortel Communication Server 1000

# Features and Services Fundamentals — Book 3 of 6 (D to H)

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# New in this release

The following sections detail what's new in *Feature and Services Fundamentals - Book 3 of 6* (NN43001-106) for Communication Server 1000 Release 7.0:

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## Feature changes

There are no changes done to this NTP for this Release.

## Other

This section describes the changes which are not feature-related:

### Revision History

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|---|---|
| **June 2010** | Standard 04.01. This document is up-issued to support Communication Server 1000 Release 7.0. |
| **December 2009** | Standard 03.03. This document is up-issued to support Communication Server 1000 Release 6.0. |
| **June 2009** | Standard 03.02. This document is up-issued to support Communication Server 1000 Release 6.0. |
| **May 2009** | Standard 03.01. This document is up-issued to support Communication Server 1000 Release 6.0. |
| **July 2008** | Standard 02.06. This document has been up-issued to support Communication Server Release 5.5. |
| **January 2008** | Standard 02.05. This document has been up-issued to support Communication Server Release 5.5. |
| **December 2007** | Standard 02.04. This document has been up-issued to support Communication Server Release 5.5. |

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| **June 2007** | Standard 01.04. This document is up-issued to revise the 500 Telephone Features and Bandwidth Management Support for Network Wide Virtual Office chapters in Book 1 and the Conference Warning Tone Enhancement chapter in Book 2). |
| **June 2007** | Standard 01.03. This document is up-issued to revise the Software Licenses chapter in Book 6. |
| **June 2007** | Standard 01.02. This document is up-issued to revise the Network Music feature implementation in Book 5. |
| **May 2007** | Standard 01.01. This document is up-issued to support Communication Server 1000 Release 5.0. |
| **July 2006** | Standard 17.00.This document is up-issued to reflect changes in technical content for M3900 Full Icon Support feature, M3900 Set-to-Set Messaging feature and M3900 series digital telephone feature reference. |
| **April 2007** | Standard 16.00. This document is up-issued to add keycode commands for CP PIV, IPMG on CS1000E to the following : operating parameters; and LD 97, Call redirection by Day ; the CRDAY prompt ; and Call Direction by Time of Day, Flexible Feature Codes and to correct Message Intercept for Set Status Lockout and SECA001 alarm message. |
| **January 2006** | Standard 15.00. This document is up-issued to add Converged Office feature ; changes to interactions with Call Forward All Calls (Book 1) and (Book 2) and IP Phones to supported sets referenced in Selectable Conferee Display and Disconnect to (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. This document is 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 document is up-issued for Release 25.0x. to include removal of: redundant content; references to equipment types except Options 11C, 51C, 61C, and 81C; and references to previous software releases. |
| **June 1999** | Standard 8.00. This document is up-issued for Generic Release 24.2x. |

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|---|---|
| **October 1997** | Standard 7.00. This document is up-issued to remove certain application-specific features and to place them in their appropriate Nortel Networks technical publications (technical documents). |
| **August 1996** | Standard 6.00. This document is up-issued to incorporate the features Automatic Number Identification, Automatic Trunk Maintenance, Multi Tenant Service, Radio Paging and X08/11 Gateway. |
| **December 1995** | Standard 5.00. This document is up-issued for Release 21.1x. |
| **July 1995** | Standard 4.00.This document is up-issued for Release 21. |
| **October 1994** | Standard 2.0. This document is up-issued for Release 20.1x. |
| **July 1994** | Standard 1.0. This document is up-issued for Release 20.0x. |

# 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:

http://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:

http://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:

http://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.

# 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)

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **16-Button Digitone/Multifrequency Telephone** | 144 | ABCD | 14 |

- 16-Button Digitone/Multifrequency Operation

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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
- 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

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| — 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 | | | |
| **AC15 Recall** | 236 | ACRL | 20 |
| • AC15 Recall: Timed Reminder Recall | | | |
| • AC15 Recall: Transfer from Norstar | | | |
| • AC15 Recall: Transfer from Meridian 1 | | | |
| • Access Limitations | | | |
| **ACD/CDN Expansion** | 388 | ACDE | 25.40 |
| • ACD/CDN Expansion | | | |
| **Administration Set** | 256 | ADMINS ET | 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) | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| • 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 | | | |
| **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 | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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

| | | | |
|---|---|---|---|
| **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)

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| • 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 | | | |
| **Automatic Call Distribution, Package A** | 45 | ACDA | 1 |
| • Automatic Call Distribution | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **Automatic Redial** | 304 | ARDL | 22 |
| • Automatic Redial | | | |
| • Automatic Timed Reminders | | | |
| **Automatic Wake-Up** | 102 | AWU | 10 |
| • Automatic Wake Up | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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) | | | |
| • 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 | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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 | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 |
| **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 | | | |
| **Call Park Networkwide** | 306 | CPRKNET | 22 |
| • Call Park Network Wide | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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 | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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) | | | |
| **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 | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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 | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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) | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| • Loop Avoidance | | | |
| • Redirection | | | |
| • Route Optimization | | | |
| • Step Back on Congestion | | | |
| • Diversion | | | |
| • Night Service | | | |
| • Route Optimization/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

| | | | |
|---|---|---|---|
| **Do Not Disturb, Individual** | 9 | DNDI | 1 |

- Do Not Disturb
- Network Individual Do Not Disturb (see also packages 127, and 159)
- Electronic Brandlining

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **Emergency Services Access Calling Number Mapping** | 331 | ESA_CL MP | 23 |
| • Emergency Services Access (See also packages 329 and 330) | | | |
| **Emergency Services Access Supplementary** | 330 | ESA_SU PP | 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) | | | |
| **Enhanced Controlled Class of Service** | 173 | ECCS | 15 |
| **Enhanced DPNSS Services** | 288 | DPNSS_ ES | 21 |
| • DPNSS1 Executive Intrusion | | | |
| **Enhanced DPNSS1 Gateway** | 284 | DPNSS1 89I | 20 |
| • Enhanced DPNSS1 Gateway | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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) | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| • 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). | | | |
| • 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 | | | |

| Package Name | Number | Mnemonic | Release |
|---|---|---|---|
| **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 |
| **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)

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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_VT RK | 3.0 |

- IP Peer Networking Phase 2
- Branch Office

| | | | |
|---|---|---|---|
| **HiMail Fax Server** | 195 | FAXS | 18 |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **History File** | 55 | HIST | 1 |

- History File

| | | | |
|---|---|---|---|
| **Hold in Queue for IVR** | 218 | IVR | 18 |
| **Hospitality Management** | 166 | HOSP | 16 |
| **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 - Continued | 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 INT LSUP | 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 | | | |
| • Network Name Display (Meridian 1 to DMS-100/250) | | | |
| • Total Redirection Count | | | |
| • T309 Time | | | |
| • Integrated Voice and Data | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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) | | | |
| **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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| • 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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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 |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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 |
| **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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **Meridian Link Modular Server** | 209 | MLM | 16 |
| • Meridian Link Enhancements | | | |
| **Meridian SL-1 ST Package** | 96 | SLST | 9 |
| • Meridian SL-1 ST Package | | | |
| **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 |
| **Mobile Extensions** | 412 | MOBX | 5.50 |
| **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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| • 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 | | | |
| **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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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_U SER | 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) | | | |
| **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 |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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) | | | |
| **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

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| • 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) | | | |
| **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 | OVLP | 15 |
| • Overlap Signaling | | | |
| • Overlay 45 Limited Repeats | | | |
| • Overlay Cache Memory | | | |
| • Override | | | |
| • Paging | | | |
| • Partial Dial Timing | | | |
| • PBX (500/2500) Telephones | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| • 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 | | | |
| **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 |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **Property Management System Interface** | 103 | PMSI | 10 |
| • Property Management System Interface | | | |
| • Public Switched Data Service | | | |
| **Pulsed E&M (Indonesia, French Colise)** | 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 | | | |
| • 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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| • 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 | | | |
| **Resident Debug** | 82 | RSDB | 9 |
| • Restricted Call Transfer | | | |
| • Ring and Hold Lamp Status | | | |
| • Ringback Tone from Meridian 1 Enhancement | | | |
| **Ringing Change Key** | 193 | RCK | 15 |
| • Ringing Change Key | | | |
| **Room Status** | 100 | RMS | 10 |
| • Room Status | | | |
| **Scheduled Access Limitations** | 162 | SAR | 20 |
| • Scheduled Access Limitations | | | |
| • 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 | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **Series Call** | 191 | SECL | 15 |
| • Series Call | | | |
| **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 | SOFTSW ITCH | 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 | | | |
| **Station Activity Records** | 251 | SCDR | 20 |
| • Station Activity Records | | | |
| **Station Camp-On** | 121 | SCMP | 20 |
| • Station Camp-On | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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) | | | |
| • Telset Call Timer Enhancement | | | |
| **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 | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| **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 | | | |
| **United Kingdom** | 190 | UK | 16 |
| • Analog Private Network Signaling System (APNSS) (see also packages 122 123, and 124) | | | |
| • UK Analogue 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) | | | |

| Package Name - Continued | Number | Mnemonic | Release |
|---|---|---|---|
| • 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 | | | |
| **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

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 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. Table 1 "LD 15 - Enable the Departmental Listed Directory Number feature for a customer." (page 79)

   Enable the Departmental Listed Directory Number feature for a customer.

2. Table 2 "LD 10 - Configure Departmental Listed Directory Number for analog (500/2500 type) telephones." (page 80)

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

3. Table 3 "LD 11 - Configure Departmental Listed Directory Number for Meridian 1 proprietary telephones." (page 80)

   Configure Departmental Listed Directory Number for Meridian 1 proprietary telephones.

**Table 1**
**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 and Media Gateway 1000B. |
| - 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<br>xx LD1<br>xx LD2<br>xx LD3<br>xx LD4<br>xx LD5 | Incoming Call Indication for Listed Directory Numbers Zero to Five (xx = key number 00-19). |

**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.**

**Table 2**
**LD 10 - Configure Departmental Listed Directory Number 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 and Media Gateway 1000B 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. |

**Table 3**
**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 and Media Gateway 1000B 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, see *ISDN Primary Rate Interface Fundamentals* (NN43001-569).

# Dial Access to Group Calls

## Contents

This section contains information on the following topics:

## 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" (page 395) 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.

   Configure the Group Call List table for Group Call control.

2.

   Configure Flexible Feature Codes for Group Calls.

**Table 4**
**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). |

**Table 5**
**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

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 redisplays 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:

   Enable Dial Intercom for a customer.

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

   Configure Dial Intercom for Meridian 1 proprietary telephones.

   Configure Handsfree Voice Call for the system.

**Table 6**
**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 and Media Gateway 1000B. |
| - DGRP | 0-2046 | Maximum number of DIGs that can be defined for the customer. The maximum number of DIGs allowed is 2046. |

**Table 7**
**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 | | Terminal number |

**Table 7**
**LD 10 - Configure Dial Intercom for analog (500/2500 type) telephones. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| | 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 and Media Gateway 1000B where c = card and u = unit. |
| DES | a...x | ODAS set designator.<br>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).<br><br>yy = member number (0-99) within the group.<br><br>The maximum number of DIGs allowed is to 2046. |

**Table 8**
**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 and Media Gateway 1000B where c = card and u = unit. |
| KEY | xx DIG aaa bb c | Add a Dial Intercom key, where:<br><br>xx = key number<br>aaa = group number (0-2046)<br>bb = member number (0-99), and c = r (ring) or v (voice).<br><br>The maximum number of DIGs allowed is to 2046. |

**Table 9**
**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. |

**Table 9**
**LD 15 - Configure Handsfree Voice Call for the system. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
|  | 0-31 | Range for Small System and Media Gateway 1000B. |
| - 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:

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

**--End--**

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:

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

**--End--**

### 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

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.

# Dial Tone Detection

## Contents

This section contains information on the following topics:

## Feature description

The Dial Tone Detection (DTD) feature is needed because the first digit cannot be sent until the dial tone is detected on calls to a Public Switched Telephone Network (PSTN). This avoids the outpulsing of digits before the PSTN is ready to accept them, thus avoiding either the loss of digits or the misrouting of calls. The possibility of circumventing code dialing limitations is also minimized by the feature.

The feature is configurable on a route basis for all types of routes.

The time-out for the route is statistically averaged over the last eight times that Dial Tone Detection was involved. Either the running-average time or the pre-overlay programmed minimum time is used as the trunk time out, whichever is greater. Dial Tone Detection can be invoked every time an outgoing trunk route is selected, regardless of the selected feature.

## Operating parameters

There are no operating parameters associated with this feature.

## Feature interactions
### Digital Trunk Interface (DTI) - Commonwealth of Independent States (CIS)

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

### ISDN Semi Permanent Connections for Australia

To convey D-channel signaling over an ISPC link, the route associated to the link at the system configured as MASTER must detect a dialtone.

### Three Wire Analog Trunk - Commonwealth of Independent States (CIS)

Dial Tone detectors are supported with the limitations of the reliability of the tone provided by the Public Exchange.

## Feature packaging

Dial Tone Detector (DTD) package 138.

## Feature implementation

Gather data for each customer's number to be configured for the DTD feature.

### Task summary list

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

1.

   Create or modify data blocks for Digitone Receivers.

2.

   Create or modify data for trunk routes.

3.

   Modify the system hardware and software parameters.

**Table 10**
**LD 13 - Create or modify data blocks for Digitone Receivers.**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| TYPE | DTD | Dial Tone Detection. |

**Table 11**
**LD 16 - Create or modify data for trunk routes.**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| DTD | (NO) YES | Dial Tone Detection is (is not) to be performed on this route. |

**Table 12**
**LD 17 - Modify the system hardware and software parameters.**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| DTDT | NO | No Dial Tone Detection tests are required. |

# 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 more information about Dialed Number Identification Service, see *Automatic Call Distribution Fundamentals* (NN43001-551).

# Digit Display

## Contents

This section contains information on the following topics:

## 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 13 "LCD alphanumeric display information" (page 103).

**Table 13**
**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 off.

- 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 redisplays 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. Table 14 "LD 15 - Configure Digit Display for attendant consoles for each customer." (page 109)

   Configure Digit Display for attendant consoles for each customer.

2. Table 15 "LD 11 - Configure Digit Display for Meridian Modular Telephones." (page 109)

Configure Digit Display for Meridian Modular Telephones.

3.

Configure Digit Display for each attendant console.

**Table 14**
**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 and Media Gateway 1000B. |
| - OPT | (XDP) IDP | (Exclude) include Digit Display capability for attendant consoles of this customer. |

**Table 15**
**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 and Media Gateway 1000B where c = card and u = unit. |
| CLS | (NDD) DDS ADD | Telephone is not equipped with a Digit Display. Calling Party information is displayed after call is answered (delayed display source). 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. |

**Table 16**
**LD 12 - Configure Digit Display for each attendant console.**

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

**Table 16**
**LD 12 - Configure Digit Display for each attendant console. (cont'd.)**

| 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 and Media Gateway 1000B where c = card and u = unit. |
| KEY | xx DCW | Add display Call Waiting key. |
| | xx DDT | Add display Date key. |
| | xx DPD | Add display Destination key. |
| | xx DPS | Add display Source key. |
| | xx DTM | Add display Time key. |
| | xx MDT | Add display/change Date key. |
| | xx MTM | 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 Fundamentals (NN43001-572)*.

# Digital Trunk Interface - Commonwealth of Independent States

## Contents

This section contains information on the following topics:

## 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 Systembase 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 outpulsing 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 and 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 signalization and the CIS signalization (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. Table 17 "LD 17 - Change system configuration data." (page 118)

   Change system configuration data.

2. Table 18 "LD 73 - Define DTI2 data." (page 119)

   Define DTI2 data.

3. Table 19 "LD 73 - Define the SICA table for CDTI2/CSDTI2." (page 119)

   Define the SICA table for CDTI2/CSDTI2.

4. Table 20 "LD 97 - Define dial pulse make-break ratio." (page 122)

   Define dial pulse make-break ratio.

5. Table 21 "LD 15 - Define busy tone/overflow tone time out." (page 122)

   Define busy tone/overflow tone time out.

6. Table 22 "LD 16 - Add or change route data for CIS DTI2 trunks." (page 122)

   Add or change route data for CIS DTI2 trunks.

7.

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

8.

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

9.

   Specify ANI category for CIS DTI2 calls.

10.

    Specify ANI category for CIS DTI2 calls.

11.

    Specify ANI category for CIS DTI2 calls.

12.

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

13.

    Add or change the Authcode data block.

14.

    Configure the dial tone.

15.

    Configure Tone to Last Party.

16.

    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.

**Table 17**
**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 |

**Table 17**
**LD 17 - Change system configuration data. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| - DTI2 | <loop><br><loop>... | Define CDTI2/CSDTI2 loops exactly like existing DTI2/SDC2. |

**Table 18**
**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. |

**Table 19**
**LD 73 - Define the SICA table for CDTI2/CSDTI2.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | CHG | Change. |

**Table 19**
**LD 73 - Define the SICA table for CDTI2/CSDTI2. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| 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:<br><br>0101 = incoming trunks (local and toll), and<br>1101 = outgoing trunks. |
| IDLE(R) | 0101, 1101 | Idle on backward sent, where:<br><br>0101 = incoming trunks (local and toll), and<br>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:<br>NO = local trunk, and<br>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:<br>1001 = local trunk, and<br>1101 = incoming toll trunk. |

**Table 19**
**LD 73 - Define the SICA table for CDTI2/CSDTI2. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| CONN(R) | 1001 0001 | Connect received, where:<br>1001 = local trunk, and<br>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:<br>0001 = local trunk, and<br>1001 = incoming toll trunk. |
| CLRF(R) | 0001 NO | Clear Forward (A Ring Off), where:<br>0001 = local trunk (used only to start two-way release), and<br>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. |

**Table 20**
**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. |

**Table 21**
**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). |

**Table 22**
**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:<br>DID = incoming trunks route, and<br>COT = outgoing trunks route. |
| ... | | |
| DTRK | YES | Digital trunk. |
| DGTP | DTI2 | Digital trunk type for route. |
| ... | | |
| ICOG | ICT<br>OGT | Incoming trunk.<br>Outgoing trunk. |
| ... | | |
| CNTL | YES | Changes to controls or timers. |
| TIMR | DDL 0 | Delay Dial Timer not needed. |

**Table 22**
**LD 16 - Add or change route data for CIS DTI2 trunks. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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 reseized 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:<br>ORG = originating end disconnect control for incoming calls, and<br>ETH = either end control for outgoing calls. |
| FEDC | ORG ETH | Far end disconnect control, where:<br>ORG = originating end disconnect control for incoming calls, and<br>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. |

**Table 22**
**LD 16 - Add or change route data for CIS DTI2 trunks. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| 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. |

**Table 23**
**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<br>IAO | Incoming trunk.<br>Incoming and outgoing trunk. |
| ... | | |
| CAC | 0-(3)-9 | Route ANI category. |
| ANDN | 0-9999999 | Route ANI DN. |
| RDNL | 0-(4)-7 | Remote DN Length. |

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.

**Table 24**
**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. |
| | | 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 = outpulsing by firmware, digit collection – traditional, by software, and |
| | | DIPF = outpulsing and digit collection are performed by firmware. |
| | (P10) P12 | Make-break ratio for dial pulse dialing. |

**Table 25**
**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. |
| ... | | |

**Table 25**
**LD 10 - Specify ANI category for CIS DTI2 calls. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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. |

**Table 26**
**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. |

**Table 27**
**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). |

**Table 28**
**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. |

**Table 29**
**LD 88 - Add or change the Authcode data block.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | NEW CHG | New or change. |

**Table 29**
**LD 88 - Add or change the Authcode data block. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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. |

**Table 30**
**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). |

**Table 31**
**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> | |

**Table 31**
**LD 56 - Configure Tone to Last Party. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| 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. |

**Table 32**
**LD 18 - Add or change Speed Call lists**

| 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. |

**Table 32**
**LD 18 - Add or change Speed Call lists (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| TNDM | (NO) YES | Tandem mark. Send MFC "H" tandem signal. |
| SSUC | (NO) YES | Special Service Unanswered Call mark.<br><br>If the outgoing call is recognized as SSUC (first 1-4 digits outpulsed 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

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

**Table 33**
**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 and Media Gateway 1000B 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

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

**Table 34**
**LD 15 - Define the Number of Ring Cycles.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ: | NEW<br>CHG | Add.<br>Change. |
| TYPE: | RDR | Call Redirection |

**Table 34**
**LD 15 - Define the Number of Ring Cycles. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| ...  | | |
| - 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

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:

Set the Class of Service to FBD.

- Table 36 "LD 16 - Set DID Recall for this Rate." (page 139)

  Set DID Recall for this Rate.

- Table 37 "LD 73 - Configure the SICA table for the DID Offering feature." (page 139)

  Configure the SICA table for the DID Offering feature.

- Table 38 "LD 16 - Set DID Recall to Attendant for this rate." (page 140)

  Set DID Recall to Attendant for this rate.

- Table 39 "LD 73 - Configure the SICA table for the DID Recall feature." (page 140)

  Configure the SICA table for the DID Recall feature.

**Table 35**
**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 and Media Gateway 1000B where c = card and u = unit. |
| CLS | FBD | Forward Busy Denied. |

**Table 36**
**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. |

**Table 37**
**LD 73 - Configure the SICA table for the DID Offering feature.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | CHG | Change. |
| TYPE | DTI2 | 2 Mbit DTI. |

**Table 37**
**LD 73 - Configure the SICA table for the DID Offering feature. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| 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

**Table 38**
**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. |

**Table 39**
**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. |
| ... | | |
| INCOMING CALLS | | |
| CLRB(S) | ABCD | Clear Backward (send) signal. |

**Table 39**
**LD 73 - Configure the SICA table for the DID Recall feature. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| 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

This feature allows DID-to-TIE connections, subject to all trunk barring, Trunk Group Access Limitations (TGAR), Trunk Access Restriction Groups (TARG), and other Class of Service limitations. 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.

   Allow DID-to-TIE connections.

2.

   Define the Number of digits expected on DID rate.

**Table 40**
**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. |

**Table 41**
**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

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 Limitations (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 Limitations
Access limitations are assigned to the DISA DN as they are to any station within the system. Separate access limitations 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 Limitations

Direct Inward System Access (DISA) numbers are not assigned to Scheduled Access Limitations (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. Table 42 "LD 24 - Configure the Direct Inward System Access feature for a customer." (page 149)

   Configure the Direct Inward System Access feature for a customer.

2. Table 43 "LD 16 - Define an auto-terminate trunk route for Direct Inward System Access." (page 150)

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

3. Table 44 "LD 14 - Define Direct Inward System Access DNs for trunks in an auto-terminate trunk route." (page 150)

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

**Table 42**
**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. |

**Table 42**
**LD 24 - Configure the Direct Inward System Access feature for a customer. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| TGAR | xx | Trunk Group Access Restriction to be applied to calls made using DISA (0-15).<br><br>TGAR can be from 0 to 31. |
| NCOS | xx | Network Class of Service to be applied to DISA calls. |
| COS | | Class of Service to be applied to DISA calls. |
| | UNR | Unrestricted. |
| | CUN | Conditionally unrestricted. |
| | SRE | Semi-restricted. |
| | TLD | Toll restricted. |
| | CTD | Conditionally toll restricted. |
| | FRE | Fully restricted. |
| | FR1 | Fully restricted 1. |
| | FR2 | Fully restricted 2 |

**Table 43**
**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 and Media Gateway 1000B. |
| 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. |

**Table 44**
**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. |

**Table 44**
**LD 14 - Define Direct Inward System Access DNs for trunks in an auto-terminate trunk route. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| | c u | Format for Small System and Media Gateway 1000B 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 and Media Gateway 1000B. |
| 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:

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

**--End--**

# Direct Inward System Access on Unsupervised Trunks

## Contents

This section contains information on the following topics:

## 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

**Table 45**
**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. |

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:

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

**--End--**

# Direct Private Network Access

## Contents

This section contains information on the following topics:

## 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 reprompt 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 misdialed, 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. Table 46 "LD 24 - Modify the Direct Inward System Access data block." (page 159)

   Modify the Direct Inward System Access data block.

2. Table 47 "LD 88 - Modify the authorization code data block." (page 159)

   Modify the authorization code data block.

### DISA DN Data

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

**Table 46**
**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 | | RAN route number for "Authcode Last" prompt (NAUT) |
| | 0-511 | Range for Large System and CS 1000E system. |
| | 0-127 | Range for Small System and Media Gateway 1000B. |
| - 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.

**Table 47**
**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<br>0-127 | RAN Route number<br>For Large Systems<br>For Small Systems |
| RTRY | (NO) | Disable Authcode Last Retry. |
| | YES | Enable Authcode Last Retry. |

**Table 47**
**LD 88 - Modify the authorization code data block. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| - RAN2 | | Route number for Authcode - last Retry RAN |
| | 0-511 | Range for Large System and CS 1000E system. |
| | 0-127 | Range for Small System and Media Gateway 1000B. |
| | 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. | a) The caller listens to the RAN greeting; or | 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. |

| Step | User Action | Result |
|------|-------------|--------|
|      | b) begins dialing before the RAN is finished. | 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. |
| 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: | 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: |
|      | a) A valid Authcode. | a) The call is processed for call termination. |
|      | b) An invalid Authcode followed by "#". | 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.<br><br>If Authcode Last Retry is not defined, when the interdigit timer expires the existing invalid Authcode treatment is given. |
|      | c) An invalid Authcode. | c) If Authcode Last Retry is defined:<br><br>• 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.<br><br>• 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.<br><br>If Authcode Last Retry is not defined, when the interdigit timer times out the existing invalid Authcode treatment is given. |

| Step | User Action | Result |
|---|---|---|
| 3. | Dials one of the following: | 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: |
| | a) A valid Authcode | a) The call is processed for call termination. |
| | b) An invalid Authcode followed by "#". | b) When the interdigit timer times out, the existing invalid Authcode treatment is given. |
| | c) An invalid Authcode. | 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 "DPNA call using all three functions" (page 162)).

**Figure 1**
**DPNA call using all three functions**
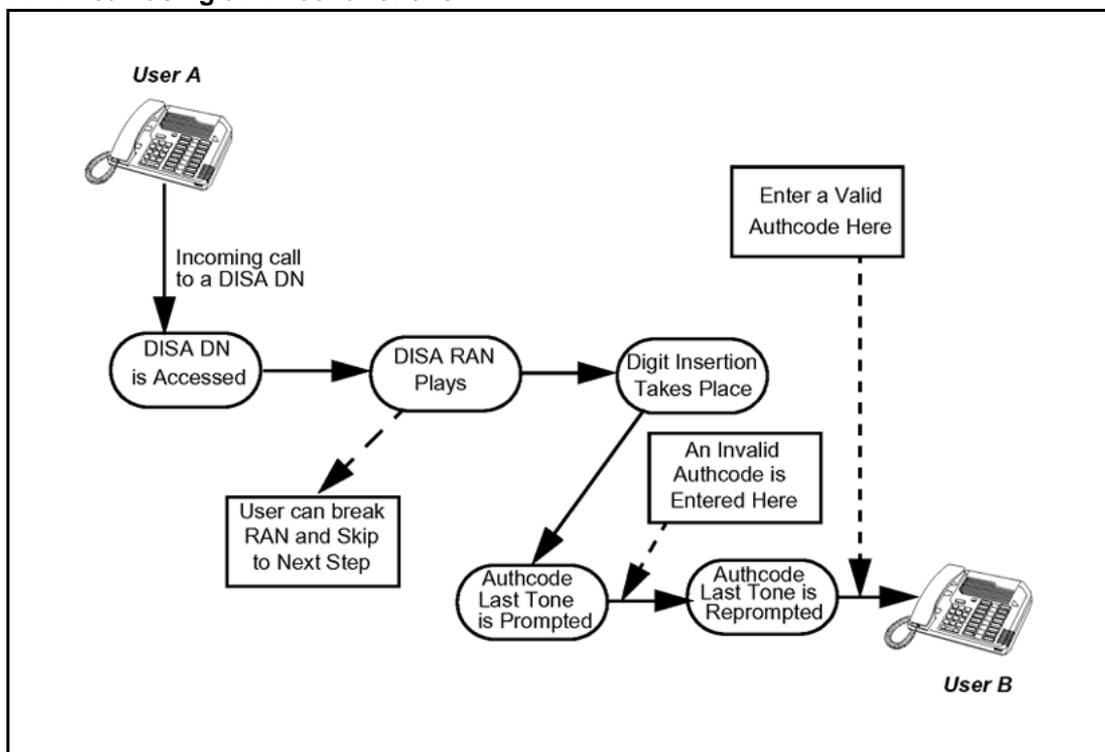
# Directory Number

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

-

-

-

- Listed Directory Numbers

- Multiple Appearance Directory Number

- Prime Directory Number in *Features and Services Fundamentals* (NN43001-106), Book 5

- Single Appearance Directory Number in *Features and Services Fundamentals* (NN43001-106), Book 6

For Network-Wide Listed Directory Number, see *ISDN Primary Rate Interface Fundamentals* (NN43001-569).

# Directory Number Delayed Ringing

## Contents

This section contains information on the following topics:

## 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 to 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.

## 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.

**Ringing 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

**Table 48**
**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 and Media Gateway 1000B where c = card and u = unit. |
| ... | | |

**Table 48**
**LD 11 - Configure the delay value (in seconds). (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| DNDR | (0)-120 | Delay value in seconds.<br>A DNDR value of zero disables the feature.<br>If the DNDR value is an odd number, it is rounded up to the next even number.<br><br>If REQ = NEW, the delay value is 0 (the default); otherwise the existing value appears. |
| ... | | |
| KEY | xx SCN yyyy<br>xx MCN yyyy | Key number, Single Call Non-Ringing, DN.<br>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

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 DNs 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 DNXP 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 DNXP package is equipped.

# Feature interactions
## ACD-C Reports
When the DNXP 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 DNXP, 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 DNXP, 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

See *ISDN Primary Rate Interface Fundamentals* (NN43001-569).

### 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/New Distinctive Ringing

## Contents

This section contains information on the following topics:

## 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. Table 49 "LD 15 - Enable or disable Distinctive Ringing for Dial Intercom calls and specify Call Forward No Answer timing for trunks with Distinctive Ringing." (page 180)

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

2. Table 50 "LD 17 - Specify Distinctive or New Distinctive Ringing." (page 181)

   Specify Distinctive or New Distinctive Ringing.

3. Table 51 "LD 16 - Enable or disable Distinctive Ringing for each incoming or incoming/outgoing trunk route." (page 181)

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

4. Table 52 "LD 11 - Specify Distinctive/New Distinctive Ringing Class of Service for Meridian 1 proprietary telephones." (page 181)

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

**Table 49**
**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 and Media Gateway 1000B. |

**Table 49**
**LD 15 - Enable or disable Distinctive Ringing for Dial Intercom calls and specify Call Forward No Answer timing for trunks with Distinctive Ringing. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| - 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). |

**Table 50**
**LD 17 - Specify Distinctive or New Distinctive Ringing.**

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

**Table 51**
**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 and Media Gateway 1000B. |
| DRNG | (NO) YES | (Disable) enable Distinctive Ringing for incoming calls. |

**Table 52**
**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. |

**Table 52**
**LD 11 - Specify Distinctive/New Distinctive Ringing Class of Service for Meridian 1 proprietary telephones. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| | c u | Format for Small System and Media Gateway 1000B where c = card and u = unit. |
| CLS | DRGX | Distinctive ring type (DRG1), DRG2, DRG3, DRG4, where:<br><br>DRG1 = high fast tone, frequency 667/500 Hz.<br>DRG2 = high slow tone, frequency 667/500 Hz.<br>DRG3 = low fast tone, frequency 250/333 Hz.<br>DRG4 = low slow tone, frequency 250/333 Hz.<br><br>The DRG3/4 distinctive ringing for M2006 and M2008 telephones are different:<br><br>DRG3 = low fast tone, frequency 1600/2000 Hz.<br>DRG4 = low slow tone, frequency 1600/2000 Hz. |

## 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

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. It 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 DNs. 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. Table 53 "LD 56 - Define the ringing cadence for analog (500/2500 type) sets, and the network and distinctive ringing tone for proprietary sets." (page 187)

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

2. Table 54 "LD 11 - Define the distinctive ringing cadence/tone to be used for Meridian 1 proprietary telephones and define Class of Service." (page 188)

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

**Table 53**
**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. |

**Table 53**
**LD 56 - Define the ringing cadence for analog (500/2500 type) sets, and the network and distinctive ringing tone for proprietary sets. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| 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. |

**Table 54**
**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<br>CHG | Add new data.<br>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. |

**Table 54**
**LD 11 - Define the distinctive ringing cadence/tone to be used for Meridian 1 proprietary telephones and define Class of Service. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| | c u | Format for Small System and Media Gateway 1000B 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 | Telephone function key assignments for this feature, where: <br><br> • xx = key number. <br><br> • 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. <br><br> • yyyy = Directory Number. <br><br> 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. <br><br> Any call originating from other than the above mentioned keys gives the default ring to the terminating sets. |
| - 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.

# Do Not Disturb

## Contents

This section contains information on the following topics:

## 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 55 "Do Not Disturb intercept

treatments" (page 192) 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 55**
**Do Not Disturb intercept treatments**

| 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 |
| 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 |
| **H = Follow Hunt Directory Number (DN)**<br>**A = Intercept to attendant**<br>**B = Busy tone**<br>**R = RAN treatment** | | | | | | | |

**Table 55**
**Do Not Disturb intercept treatments (cont'd.)**

| 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 | 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. Table 56 "LD 15 - Specify the treatment received by calls to a number in Do Not Disturb mode." (page 198)

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

2. Table 57 "LD 26 - Add or change a Group Do Not Disturb." (page 198)

   Add or change a Group Do Not Disturb.

3. Table 58 "LD 26 - Merge one or more defined Do Not Disturb groups into another DND group, retaining their status as groups." (page 199)

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

4. Table 59 "LD 26 - Print Do Not Disturb group data." (page 199)

   Print Do Not Disturb group data.

5. Table 60 "LD 12 - Add or change Individual or Group Do Not Disturb keys on an attendant console." (page 200)

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

6.

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

**Table 56**
**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 and Media Gateway 1000B. |
| - DNDL | (NO) YES | Do Not Disturb lamp for analog (500/2500 type) telephones. |
| TYPE | INT | Intercept Treatment Option. |
| - DNDT | (BST)<br>ATT<br>RAN | Busy tone treatment for Do Not Disturb (DND) numbers.<br>Attendant treatment for DND numbers.<br>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. |

**Table 57**
**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.<br>Prompted if REQ = REM. |

**Table 58**
**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<br>CHG<br>REM<br>OUT | Merge DND groups.<br>Add a DND group from a list of merged DND groups.<br>Remove DND group from a merged group.<br>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).<br><br>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).<br><br>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).<br><br>Prompted if REQ = MRG. |
| STOR | G0-G99 | Specify the number of the DND group to be added to a list of merged DND groups.<br><br>Prompted if REQ = CHG. |
| RMOV | G0-G99 | Specify the number of the DND group to be removed from a list of merged DND groups.<br><br>Prompted if REQ = REM. |

**Table 59**
**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<br><CR> | DND group to be printed.<br>Print all DND group data. |

**Table 60**
**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 | | 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 and Media Gateway 1000B 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. |

**Table 61**
**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 and Media Gateway 1000B where c = card and u = unit. |
| CLS | (LPD) LPA<br>(CCSD) CCSA | (Disable) enable lamp.<br>Controlled Class of Service (denied) allowed. |

# Feature operation
## Individual Do Not Disturb
To activate DNDI using the DNDI key (Attendant Console):

| Step | Action |
|------|--------|
| **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 **RIs**.

---
**--End--**

---

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):

| Step | Action |
|------|--------|
| **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 **RIs**. |

---
**--End--**

---

To deactivate DNDG:

- Press **DNDG**.

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

| Step | Action |
|------|--------|
| **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 **RIs**. |

---
**--End--**

---

# DTMF Handling using RFC2833

## Contents

This section contains information on the following topics:

## Feature description

Traditionally, on VoIP trunks (e.g. H.323), a key press on a set would result in either; 1) a tone being sent across the VoIP stream which could be distorted due to the compression characteristics of the codec or 2) a message would be sent to the Call Server which would provide an out of band signal to the far end indicating a DTMF tone. With RFC2833, a key press on a set is translated into a packet(or packets) that flow with the VoIP stream to the far end. This special packets are RFC2833 packets which contain the DTMF key that was pressed. The same idea applies to TDM devices that are involved in a VoIP call. The VGW TN that converts the TDM stream to VoIP also detects a tone on the TDM side and translates it to RFC2833 packets on the VoIP side. As well, the VGW TN can receive an RFC2833 packet on the VoIP side and generates a tone on the TDM side.

## Operating parameters

The system is always on.

# Feature interactions

### Media Security Phase 1

There is the interaction between RFC2833 and Media Security Phase 1 features in VGW TN selection agorithm. RFC2833 feature allocates RFC2833 capable VGW TNs if available, and the other ones if necessary. Media Security Phase 1 feature allocates SRTP capable VGW TNs if available, and the other ones if necessary. The search is optimized to be as fast as possible; that is, in one pass, both (RFC2833 capable and SRTP capable) are targeted first.

### Active Call Failover (ACF)

There is the interaction between RFC2833 and Active Call Failover (ACF) features. In Geographic Redundant systems, if IP Phase 2 set is in a call and primary Call Server and Signalling Server are out of service, the IP Phone will reregister to the Secondary Signalling Server. Since ACF feature provides that only local calls survives Primary Call Server failure, RFC2833 feature is not affected. In the Main Office/Branch Office setup with ACF, the Branch Office IP Phone (normal mode) to Branch Office TDM set call will survive the Main Office failure. This is now local Branch Office call and RFC2833 will not be supported.

# Feature packaging

The following table describes the total required X21 packaging for this feature to be operable.

**Table 62**
**Total required X21 packaging**

| Package Mnemonic | Package Number | Package Description | Package Type (New or Existing or Dependency) | Applicable Market |
|---|---|---|---|---|
| BASE | | | EXISTING | Global |
| SIP | 406 | SIP trunks can be configured | EXISTING | Global |

# Feature implementation

There will be no new provisioning for the RFC2833 feature.

DTMF detection can be enabled/disabled, on a per node basis, in Element Manager (Communication Server 1000 Release 4.5). It is applicable to VGW TNs only, not IP Phones. It is not RFC2833 configuration, but it does not affect the RFC2833.

If the RFC2833 is negotiated successfully (both sides advertised their RFC2833 Rx capability), then the RFC2833 will be used in both Tx and Rx directions no matter how the DTMF detection is provisioned.

If the RFC2833 is not negotiated successfully, then the RFC2833 will not be used for DTMF transport. DTMF digits will be transported either out-of-band or in-band (tone as audio) depending on the DTMF detection configuration. The behavior is the same as in CS 1000 4.5.

## Feature operation

The feature operates without user input.

# Dual Signaling on Analog Trunks

## Contents

This section contains information on the following topics:

## 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**
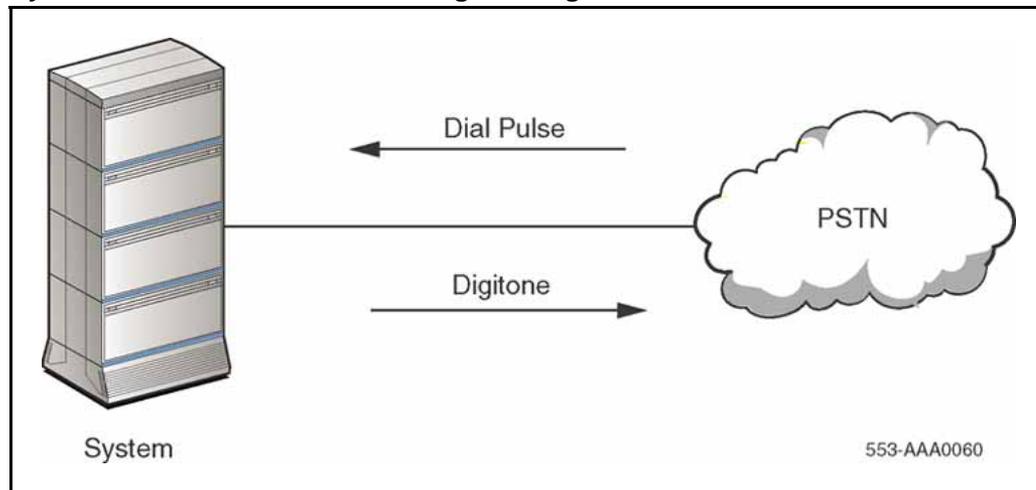


This feature enables a trunk to be configured in one of the following ways:

- 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

**Table 63**
**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 and Media Gateway 1000B where c = card and u = unit. |
| CLS | (DIP) | Dial Pulse. |
| | DPDT | Incoming Dial Pulse - outgoing Digitone. |
| | DTDP | Incoming Digitone - outgoing Dial Pulse. |

## Feature operation

No specific operating procedures are required to use this feature.

# Early Media for Universal Extensions

## Contents

This section contains information on the following topics:

## Feature description

The Early Media feature provides the ability for SIP trunk calls to determine a speech path before receiving the information from the call destination. Early media consists of audio and video media that is exchanged before a call session is accepted by the call destination.

Early media generated by a caller typically consists of voice commands or dual-tone multifrequency (DTMF) tones that drive interactive voice response (IVR) systems. Typical examples of early media generated by a call destination are ring tone and announcements.

Early media occurs from the moment the initial INVITE is sent until the User Agent Server (UAS) generates a final response. It can be unidirectional or bidirectional and generated by the call originator, the call recipient, or both.

## Operating parameters

*Note:* The Early Media class of service (CLS) is only available for Universal Extensions (UEXT).

The Early Media class of service can be enabled (ELMA) or denied (ELMD). The default value for the class of service depends on the type of UEXT.

The following UEXTs have a default value of ELMA (Early Media Allowed):

- TLSV

The following UEXTs have a default value of ELMD (Early Media Denied):

- MOBX
- SIPN
- SIP3
- FMCL
- SIPL

> *Note:* The SIPL class of service cannot be changed to ELMA.

UEXTs with a CLS of ELMA provide early media to incoming calls until the call is established. Examples of early media include in-band ringback tones, customized tones from mobile phones, and various greetings and announcements. UEXTs with a CLS of ELMD only provide local ringback to incoming calls until they are established. No early media is provided.

For each MADN (Multiple Appearance Directory Numbers) group, only one UEXT can render early media to a caller. For example, if a MADN group contains several UEXTs and if during a call to the DN several trunks begin to provide early media, only the early media of the trunk associated with the UEXT ELMA is played. However, the caller connects to the UEXT endpoint that establishes the call, regardless of whether or not the endpoint belongs to a trunk that provides early media.

## Feature interactions

There are no feature interactions associated with this feature.

## Feature packaging

This feature is included in base system software.

## Feature implementation

**Table 64**
**LD 11 - Early Media Class of Service configuration**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | aaa | NEW or CHG |

**Table 64**
**LD 11 - Early Media Class of Service configuration (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| TYPE | bbb | Terminal type. This can be any Universal Extension (UEXT). |
| CUST | xx | Customer number. |
| CLS | (ELMA) / ELMD | Class of Service option, where:<br>• ELMA = Early media allowed (default)<br>• ELMD = Early media denied |
| ... | | |

### Element Manager

You can select and configure the Early Media class of service using the Phones configuration page in Element Manager. For information about Phones configuration using Element Manager, see *Element Manager System Reference—Administration* (NN43001-632).

## 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

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

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.

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.

### 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 more information about keycode installation, see *CS 1000M and Meridian 1 Large System Upgrades Overview* (NN43021-458).

## Custom Displays

The Electronic Brandlining 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 Brandlining 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 Table 65 "Valid 7-bit ASCII Roman Characters" (page 218) and Table 66 "Valid 8-bit non-ASCII Roman Characters" (page 219)). Alphanumeric and punctuation characters are supported.The customized brandline is configured on a system basis (LD 17).

Figure 3 "An idle Meridian Modular display screen with a customized brandline displayed" (page 217) 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**
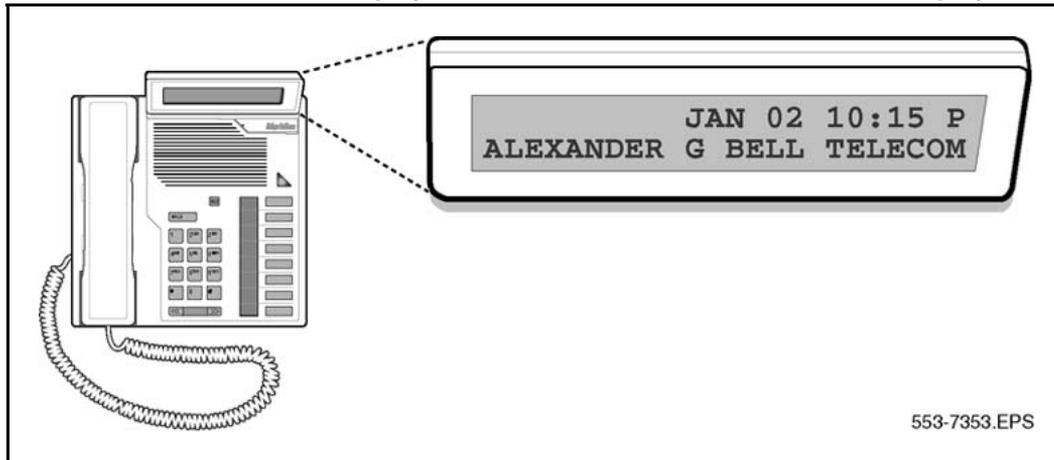


In addition to displaying a customized brandline, the Terminal Text Broadcast functionality can also be used to broadcast a customized text string on the idle display screen of a Meridian Modular set. The text string can have a maximum of 24 supported characters (See Tables Table 65 "Valid 7-bit ASCII Roman Characters" (page 218) and Table 66 "Valid 8-bit non-ASCII Roman Characters" (page 219)). 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 "An idle Meridian Modular display screen with a customized text string displayed" (page 218) 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**
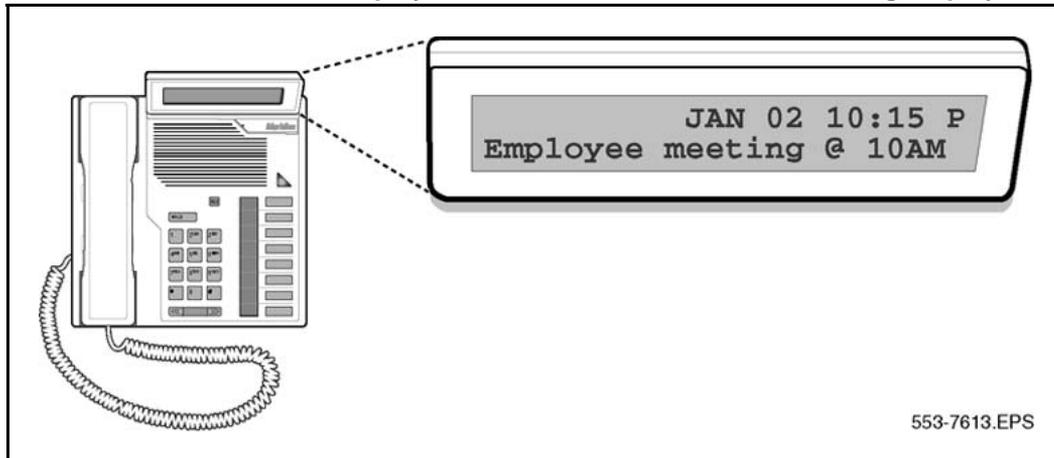


**Supported characters**   Table Table 65 "Valid 7-bit ASCII Roman Characters" (page 218) lists the 7-bit ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandlining feature.

**Table 65**
**Valid 7-bit ASCII Roman Characters**

**Table 65**
**Valid 7-bit ASCII Roman Characters (cont'd.)**

| 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 ¿ |

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Table 66 "Valid 8-bit non-ASCII Roman Characters" (page 219) lists the 8-bit non-ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandlining feature.

**Table 66**
**Valid 8-bit non-ASCII Roman Characters**

**Table 66**
**Valid 8-bit non-ASCII Roman Characters (cont'd.)**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A0 | \<NASP\> | A1 | Ľ | A2 | ¢ | A3 | £ | A4 | Ń | A5 | ¥ |
| A6 | Ś | A7 | Ď | A8 | ¨ | A9 | © | AA | Ň | AB | Ť |
| AC | Ź | AD | Ÿ | AE | ® | AF | Ż | B0 | ° | B1 | ± |
| B2 | Ą | B3 | Ł | B4 | Ř | B5 | Ľ | B6 | Ć | B7 | Č |
| B8 | Ě | B9 | Š | BA | º | BB | Ę | BC | Ŕ | BD | Ů |
| BE | Ž | BF | ¿ | C0 | À | C1 | Á | C2 | Â | C3 | Ã |
| C4 | Ä | C5 | Å | C6 | Æ | C7 | Ç | C8 | È | C9 | É |
| CA | Ê | CB | Ë | 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 | ð | 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 |

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Characters that are listed in Table 65 "Valid 7-bit ASCII Roman Characters" (page 218) and Table 66 "Valid 8-bit non-ASCII Roman Characters" (page 219) 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 Table 65 "Valid 7-bit ASCII Roman Characters" (page 218) and Table 66 "Valid 8-bit non-ASCII Roman Characters" (page 219).

### Default Electronic Brandlining Display

If the Terminal Text Broadcast custom display is not chosen, then the Electronic Brandlining 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.

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

**Figure 5**
**An idle Meridian Modular display screen with the Default Electronic Brandlining, NORTEL
displayed**
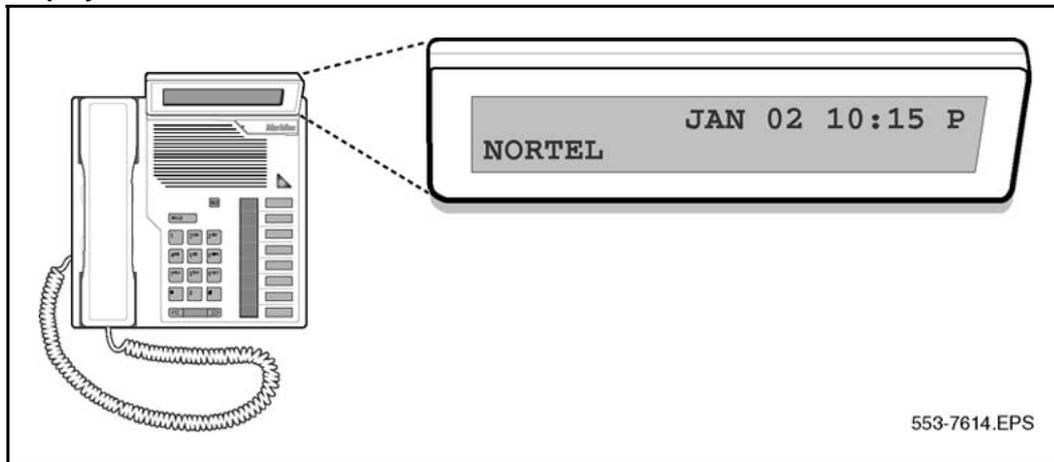


## Operating parameters

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.

   Configure the NORTEL Electronic Brandline.

2.

   Enter a customized text string.

3.

   Enable the display on a Meridian Modular set.

**Table 67**
**LD 17 - Configure the NORTEL Electronic Brandline.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | CHG | Change existing data. |
| TYPE | PARM | System Parameters. |
| ... | | |

**Table 67**
**LD 17 - Configure the NORTEL Electronic Brandline. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| NORTEL_BRAND | (YES) | "NORTEL" Electronic Brandline is displayed (default). |
| | NO | "NORTEL" Electronic Brandline is not displayed.<br><br>NORTEL_BRAND is only prompted when parameter is set to the default value. |

**Table 68**
**LD 17 - Enter a customized text string.**

| 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 | | Gateway to new EBLN Terminal Text Broadcast configurations. |
| | (NO) | Enter NO to keep existing configuration (default). |
| | YES | Enter YES to prompt for further EBLN Terminal Text Broadcast configuration. |
| - - PWD2 | x...x | Password 2.<br>The second level administration password is needed to allow configuration of the Terminal Text Broadcast customized text string. |
| - - SUPPORTED_TEXT_ONLY | | Change customized text string by text string input. |
| | (YES) | Enter YES to input by text string, and the IDLE_DISP_STRING prompt is prompted. |
| | NO | Enter NO to input character by character, and the IDLE_DISP_CHAR nn prompt is prompted. |
| - - - IDLE_DISP_STRING | bbbb | Enter the customized text string. IDLE_DISP_STRING is prompted only if SUPPPORTED_TEXT_ONLY = YES.<br>A maximum of 24 supported characters are accepted and validated.<br>For a blank display, enter <CR> only. |

**Table 68**
**LD 17 - Enter a customized text string. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| IDLE_SET_DISPLAY bbbb | | 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. |
| - - OK | | Confirm the validated Terminal Text Broadcast customized text string (bbbb) entered at the IDLE_DISP_STRING prompt. |
| | (YES) | Enter YES to keep the new text string as "bbbb". |
| | NO | Enter NO to input a new Terminal Text Broadcast customized text string, and the Supported_TEXT_ONLY prompt is re-prompted. |
| ... | | |
| - - - IDLE_DISP_CHAR nn | | Enter the customized text string character by character. |
| | c | c = one supported character |
| | hh | hh = 2 hexadecimal digits (0-9, A-F, a-f), representing a supported character. nn (01-24) is the position of the character in the customized text string. The IDLE_DISP_CHAR prompt is only prompted if SUPPORTED_TEXT_ONLY = NO. It is reprompted until <CR> only is entered or until nn is the 24th character that has been entered. |
| IDLE_SET_DISPLAY cccc | | The customized text string (cccc) entered at the IDLE_DISP_CHAR prompt is shown. This information is displayed for confirmation only. It is confirmed at the following OK prompt. |
| - - OK | | Confirm the validated Terminal Text Broadcast customized text string (cccc) entered at the IDLE_DISP_CHAR nn prompts. |
| | (YES) | Enter YES to keep the new text string as "cccc". |
| | NO | Enter NO to input a new Terminal Text Broadcast customized text string, and the SUPPORTED_TEXT_ONLY prompt is re-prompted. |

**Table 69**
**LD 11 - Enable the display on a Meridian Modular set.**

| Prompt | Response | Description |
|---|---|---|
| REQ: | NEW CHG | Add new data. Change existing data. |

**Table 69**
**LD 11 - Enable the display on a Meridian Modular set. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| 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 and Media Gateway 1000B where c = card and u = unit. |
| ... | | |
| CLS | | Digit Display options<br>Automatic Digit Display (default). |
| | (ADD)<br>DDS | 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

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 limitations 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 Feature Fundamentals*.

### 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 *Basic Network Feature Fundamentals* (NN43001-579).

## 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 Feature Fundamentals* (NN43001-579).

## 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. See *Basic Network Feature Fundamentals* (NN43001-579) 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. See *Basic Network Feature Fundamentals* (NN43001-579) 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 Reference* (NN43001-283).

## 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 applies to all route types and network types supported by ESN. For information about the appropriate prompts and responses in Service Change (LD 90), see *Software Input Output Reference — Administration* (NN43001-611).

### 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 Feature Fundamentals* (NN43001-579).

### BARS/NARSIncoming 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 Feature Fundamentals* (NN43001-579).

### 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 Feature Fundamentals* (NN43001-579).

## BARS/NARS11-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 Feature Fundamentals* (NN43001-579).

### 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 Feature Fundamentals* (NN43001-579).

### 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), see *Basic Network Feature Fundamentals* (NN43001-579). 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, see *Basic Network Feature Fundamentals* (NN43001-579).

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 Outputs Reference* (NN43001-750).

## 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 limitations 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 Feature Fundamentals* (NN43001-579).

## 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 Feature Fundamentals* (NN43001-579).

## Operating parameters

See the appropriate Nortel technical publication for each ESN feature.

## Feature interactions

See *Electronic Switched Network: Signaling and Transmission* (NN43001-280) 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

See *Electronic Switched Network: Signaling and Transmission* (NN43001-280) for ESN implementation.

## Feature operation

See *Electronic Switched Network: Signaling and Transmission* (NN43001-280) 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).

See *Emergency Services Access Fundamentals* (NN43001-613) for complete information.

# End of Selection

## Contents

This section contains information on the following topics:

## 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

**Table 70**
**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

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

**Table 71**
**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

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

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 outpulsed. 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 tandemed 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.

   Enable End-to-End Signaling tone feedback.

2.

   Add End-to-End Signaling key to attendant console.

3.

   Specify the cadence for the EES feedback tone.

**Table 72**
**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 and Media Gateway 1000B. |
| - EEST | (NO) YES | NO = No EES feedback tone is given to the telephone.<br>YES = EES feedback tone is given; the type is defined by the DTMF prompt.<br>For Small Systems, DTMF should be set to NO. |
| - DTMF | (NO) YES | NO = Use EES for single feedback tone.<br>YES = Use EES for DTMF feedback tone.<br>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.<br>YES = Capture EES digits in the CDR record. |

**Table 73**
**LD 12 - Add End-to-End Signaling key to 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,<br>where l = loop, s = shelf, c = card, u = unit. |
| | c u | Format for Small System and Media Gateway 1000B<br>where c = card and u = unit. |
| KEY | xx EES | Add EES key (xx = key number) (cannot be key 0 or 1). |

**Table 74**
**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. |

**Table 74**
**LD 56 - Specify the cadence for the EES feedback tone. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| - 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

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

**Table 75**
**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 and Media Gateway 1000B. |
| .... | .... | |
| EEST | | EES Tone to originating party. |
| | (NO) | Do not send feedback to the originator. |
| | YES | Send feedback tone to the originator. |
| | | Enhanced EES signaling is provided when EEST=YES and DTMF=NO. |
| - DTMF | | EES feedback tone. |
| | (YES) | EES for DTMF feedback tone. |
| | NO | EES for single tone feedback (only prompted if EEST=YES). |
| EESD | | EES digit display. |
| | (NO) | Do not display the EES digits. |
| | YES | Display all EES digits. |
| TTBL | (0)–31 | Tone Table number. |
| .... | .... | |

## 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

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 limitations 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 limitations do not affect attendant calls.

Calls blocked by Equal Access are not directed to alternate routes.

### BARS/NARS routing

Equal Access determines limitations 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.

   Set OCAC as appropriate.

2.

   Set the route list index to Route 10.

3.

   Establish an SPN for the Equal Access code.

4.

   Configure a NCOS for Equal Access.

5.

   Assign a NCOS to an Analog Telephone.

6.

   Assign a NCOS to a Digital Telephone.

7.

   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 limitations 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.

**Table 76**
**LD 17 - Set OCAC as appropriate.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | CHG | Change existing route data. |
| TYPE | CFN<br>PARM | Configuration Record.<br>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). |

**Table 77**
**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. |

**Table 78**
**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. |

**Table 79**
**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. |

**Table 80**
**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 and Media Gateway 1000B where c = card and u = unit. |
| NCOS | 4 | Network Class of Service group number. |

**Table 81**
**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 |

**Table 81**
**LD 11 - Assign a NCOS to a Digital Telephone. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| | 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 and Media Gateway 1000B where c = card and u = unit. |
| NCOS | 4 | Network Class of Service group number. |

**Table 82**
**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) ALOW | Specify that Equal Access North American calls billed to originating telephone are to be denied. |
| - ITOL | (DENY) ALOW | 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

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.

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### 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 limitations

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 limitations.

### 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.

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. Table 83 "LD 15 - In the Customer Data Block, allow DID to TIE connections." (page 273)

   In the Customer Data Block, allow DID to TIE connections.

2. Table 84 "LD 16 - Define a DID/DOD trunk route for Germany and Switzerland." (page 273)

   Define a DID/DOD trunk route for Germany and Switzerland.

3. Table 85 "LD 14 - Define an XDID card unit." (page 274)

   Define an XDID card unit.

**Table 83**
**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. |

**Table 84**
**LD 16 - Define a DID/DOD trunk route for Germany and Switzerland.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | NEW<br>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 and Media Gateway 1000B. |
| TKTP | | Trunk Type |
| | DID | Direct Inward Dial |
| ICOG | | Incoming Outgoing trunk |
| | IAO | 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 | | Near End Disconnect Control |
| | ETH | Either end control |
| FEDC | | Far End Disconnect Control |
| | ETH | Either end control |
| ... | | |

**Table 84**
**LD 16 - Define a DID/DOD trunk route for Germany and Switzerland. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| MR | PPM<br>XLD | Message Registration<br>Buffered PPM signals to be counted on this route<br>M&MM Lead non-buffered is used. |
| PRDL | BSY | Partial Dial timing Busy signal<br>is sent on timeout |
| EOS | BSY | End Of Selection signal<br>EOS and busy signals are enabled |
| ACKW | (NO) YES | Acknowledgement seizure signal |
| BTT | 100 | Busy Tone Time |

**Table 85**
**LD 14 - Define an XDID card unit.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | NEW<br>CHG | Create a New Data Block.<br>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.<br>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.<br>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

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 86**
**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 |

**Table 86**
**Downloaded configurations for XFCOT cards (cont'd.)**

| XFCOT card | Hardware I.D. supported | Signaling supported | Downloaded SUPN supported | Periodic Pulse Metering (PPM) |
|---|---|---|---|---|
| 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 limitations 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

**Table 87**
**LD 14 - Configure the trunk parameters for the new XFCOT cards.**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| CDEN | 4D 8D | Card Density, where: |
| | | 4D = Quad density, and<br>8D = Octal density. |
| ... | | |
| SIGL | ALS | ALS signaling on COT trunk with ground start (applies to the NTAG04AA unit only). |
| BIMP | (3COM)<br>600 | Three-component complex impedance. 600 ohms. |
| ... | | |
| SEIZ | (NO) YES | Automatic Guard Detection for outgoing trunk. |
| PPID | (0)-15 | PPM country ID. |
| | | 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. |
| | | Choose from one of the following PPM IDs, according to country: |
| | | (0) – UK (50 Hz).<br>1 – France (50 Hz).<br>2 – France (12 Hz). |
| **SHL/LOL, BARA/BARD remain appropriate responses for the CLS prompt.** | | |

**Table 87**
**LD 14 - Configure the trunk parameters for the new XFCOT cards. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| | | 3 – Germany (16 kHz).<br>4 – Switzerland (12 kHz).<br>5 – Denmark (12 kHz).<br>6 – Norway (16 kHz).<br>7 – Belgium (16 kHz).<br>8 – Spain (12 kHz).<br>9 – Portugal (12 kHz).<br>10 – Holland (50 Hz).<br>11-15 – Reserved for future use. |
| BTID | (0)-15 | Busy Tone Country ID.<br><br>Must be configured for BTS supervised XCOT trunk.<br><br>One BTID type per card. Trunks must be removed from card to change BTID.<br><br>Choose from one of the following Busy Tone IDs, according to country:<br><br>(0) – CCITT.<br>1-2 – Reserved fro future use.<br>3 – Germany.<br>4 – Switzerland.<br>5 – Denmark.<br>6 – Norway.<br>7-9 – Reserved for future use.<br>10 – Holland.<br>11-15 – Reserved for future use. |
| CLS | | Class of Service options. |
| | (SHL) LOL | Enter SHL for short line (LOL for long line) static loss pad selection. |
| | (XBAT) BAT | Enter BAT for battery supervised COT; (XBAT) for no battery supervision. |
| | (XARF) ARF | Enter ARF for ARF supervised COT; (XARF) for no ARF supervision. |
| | (XLBS) LBS | Enter LBS for loop break supervised COT; (XLBS) for no loop break supervision. |
| | (XBTS) BTS | Enter BTS for tone supervised COT; (XBTS) for no tone supervision. |
| **SHL/LOL, BARA/BARD remain appropriate responses for the CLS prompt.** | | |

**Table 87**
**LD 14 - Configure the trunk parameters for the new XFCOT cards. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| | (BARD) BARA | Enter BARA to allow barring; (BARD) to deny barring. |
| SUPN | (NO) YES | Enter SUPN = NO or the appropriate supervision type. |
| STVP | | Entering any of the following prompts will now override the previously configured type. |
| | BAT | Enter BAT for battery supervised COT. |
| | ARF | Enter ARF for ARF supervised COT. |
| | LBS | Enter LBS for loop break supervised COT. |
| | BTS | Enter BTS for tone supervised COT. |
| | | The XBAT, XARF, XLBS, and XBTS prompts are no longer applicable. |
| **SHL/LOL, BARA/BARD remain appropriate responses for the CLS prompt.** | | |

## 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

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, Mμ-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.

## 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. Table 88 "LD 97 - Download the system parameters, and define the Multifrequency Minimum Receiver Level (MFRL)." (page 290)

   Download the system parameters, and define the Multifrequency Minimum Receiver Level (MFRL).

2. Table 89 "LD 14 Create the trunk data block and define the range of Multifrequency Digit Level " (page 290)

   Create the trunk data block and define the range of Multifrequency Digit Level

**Table 88**
**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. |

**Table 89**
**LD 14 Create the trunk data block and define the range of Multifrequency Digit Level**

| Prompt | Response | Description |
|---|---|---|
| ... | | |
| MFL | (0)-15 | 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). |
| | | Superloop codes and values: |
| | | 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. |
| | | Levels 0-7 are already defined. |

## 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

An Extended Tone Detector (XTD) card is capable of performing both Dual-tone Multifrequency (DTMF) and Dialtone (DT) detection. It is possible to download parameters onto the card so that it may be customized for a particular environment. On the current UK Extended Tone Detector (XTD) cards, the NT5K20AA and the NT5K20AB, it is possible to download two parameters onto these cards. These parameters are the A-law/Mµ-law for the Extended DTMF (XDTR) portion of the card, and the first stage dialtone detection (DT).

This feature allows several new parameters and a new message to be downloaded onto the new global XTD pack, the NT5K48AA. The new parameters, grouped under the categories of first stage dialtone detection, second stage dialtone detection, and XDTR minimum accept level, are:

- 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

The new message is the Detect Second Stage Dialtone. It allows the NT5K48AA to distinguish between using the first stage dialtone detection parameters and the second stage dialtone detect parameters for detecting dialtone.

To configure the first and second stage dialtone detection parameters, a new type, DTD, and associated prompts have been introduced in LD 97. This prompt allows a craftsperson to create up to eight different XTD tables containing the 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, a new type, DTR, and associated prompt MINL (that defines the minimum accept level, on a per-system basis) have been introduced in LD 97. This parameter is downloaded onto each XTD card and DTR card.

## Operating parameters

The global NT5K48AA card supports the first stage dialtone detection of the NT5K20AA and the NT5K20AB cards. Although the NT5K20AA and the NT5K20AB can be used with the NT5K48AA, these UK cards do not support second-stage dialtone detection because they cannot interpret the new 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. The NT5K48AA has to be modified to provide second stage configuration, if it is to be introduced to a country that has an undefined configuration.

The default values for all parameters are for the Swiss standards. However, if the UK Program (UK) package 190 is equipped, 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.

   Configure all the first- and second- stage dial tone detection parameters (TYPE = DTD).

2.

   Configure the flexible XDTR minimum accept level parameter (TYPE = DTR).

3.

   Define the protected data block of the XTD card.

4.

   Define the route protected data block of the XTD card.

**Table 90**
**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. |
| | | XDTD 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. |

**Table 90**
**LD 97 - Configure all the first- and second- stage dial tone detection parameters (TYPE = DTD). (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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.<br>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.<br>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. |

**Table 91**
**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.<br><br>With United Kingdom (UK) package 190 the default value for MINL = 45 (-45 dBm). |

Refer to Table 92 "Recommended parameters according to country" (page 294) for recommended configuration values for each country. The default values given in parenthesis are for non-UK countries.

**Table 92**
**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 |

**Table 92**
**Recommended parameters according to country (cont'd.)**

| Country | DFQ | MDL | MVT | BRK | CAD | SSC | MINL |
|---------|-----|-----|-----|-----|-----|-----|------|
| 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 |

**Table 93**
**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. |

**Table 94**
**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

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

**Table 95**
**LD 17 - Change the duration of Digitone burst.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | CHG | Change. |
| TYPE | CFN<br>PARM | Configuration Record.<br>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

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 96**
**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 |
| 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.

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 and 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

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 97**
**FCC compliant dialing plans.**

| Dialing Format | Destination |
|---|---|
| **Allow:**<br>10XXX+0<br><br><br>10XXX+0+(NPA)+NXX+XXXX<br><br><br>10XXX+0+SAC+NXX+XXX<br><br>10XXX+01+CC+NN | Operator of carrier specified by XXX.<br>Operator function of carrier specified by XXX.<br>Subscribed carrier specified by XXX.<br>Operator function of carrier specified by XXX. |
| **Allow/Deny:**<br>10XXX+1+(NPA)+NXX+XXXX<br>10XXX+011+CC+NN | Carrier specified by XXX.<br>Carrier specified by XXX. |
| where:<br>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 limitations, 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. Table 98 "LD 16 - Apply Equal Access call restriction to this route." (page 308)

   Apply Equal Access call restriction to this route.

2. Table 99 "LD 87 - Specify whether Equal Access with a NCOS group is to be associated or not." (page 308)

   Specify whether Equal Access with a NCOS group is to be associated or not.

**Table 98**
**LD 16 - Apply Equal Access call restriction to this route.**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| EQAR | (NO) YES | Enable Equal Access limitations. |
| | | 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) ALOW | North American toll calls (that is, 1+ calls). |
| - - ITOL | (DENY) ALOW | 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 ALOW. |

**Table 99**
**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).

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

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

**Table 100**
**LD 15 - At the OPT prompt, deny or 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

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.

   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.

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. Table 103 "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." (page 316)

As for the Customer Data Block, the CWCL threshold usage is changed with the selection of a FAC option in the Customer Data Block.

**Table 101**
**LD 15 - The Customer Data Block**

| 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 and Media Gateway 1000B. |
| ... | | |
| - OPT | (FACD) FACA | Options for customer: (Flexible Attendant Call Waiting Thresholds Denied), Flexible Attendant Call Waiting Thresholds Allowed.<br>(Denies), Allows the attendant Call Waiting thresholds to be defined as a percentage of active attendants. |
| ... | | |
| - CWCL | xxxyyy | Call Waiting Lamp thresholds<br>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. |

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.

**Table 102**
**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 |

**Table 103**
**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.**

| 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 | Call Waiting Lamp thresholds<br>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 set in response to OPT in LD 15. |
| | (0)-1000(0)-1000 | 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 104**
**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 105**
**CWL state versus number of active attendants**

| Number of active attendants | Number of calls in queue | | | | | | | | | | | | |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| | 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 | |
| 2 | D | L | L | L | F | F | F | F | F | L | L | D | CWL state |
| 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

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

**Table 106**
**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

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

**Table 107**
**LD 16 - Set data for Flexible busy or 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

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 outpulsed 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 outpulsing 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) outpulsing 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. Table 108 "LD 16 - Set data for Flexible busy or overflow time." (page 324)

   Set data for Flexible busy/overflow time.

2. Table 109 "LD 56 - Create tone and ringing parameters for one or more customers." (page 324)

   Create tone and ringing parameters for one or more customers.

**Table 108**
**LD 16 - Set data for Flexible busy or 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. |

**Table 109**
**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).

For more information, see *Hospitality Features: Description and Operation* (NN43001-553).

# Flexible Feature Codes

## Contents

This section contains information on the following topics:

## 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, see *Software Input Output Reference — Administration* (NN43001-611).

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 affect 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 and 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. Table 110 "LD 15 - Set parameters for Flexible Feature Code." (page 335)

   Set parameters for Flexible Feature Code.

2. Table 111 "LD 10 - Set Station Control Password Length for analog (500 and 2500 type) telephones." (page 335)

   Set Station Control Password Length for analog (500/2500 type) telephones.

3. Table 112 "LD 11 - Set Station Control Password Length for Meridian 1 proprietary telephones." (page 336)

   Set Station Control Password Length for Meridian 1 proprietary telephones.

4. Table 113 "LD 57 - Define numbers for Flexible Feature Code." (page 336)

Define numbers for Flexible Feature Code.

**Table 110**
**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 and Media Gateway 1000B. |
| - CCRS | aaa | Controlled Class of Service (CCOS) (assigned when Electronic Lock (ELK) is activated), where:<br><br>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.<br><br>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). |

**Table 111**
**LD 10 - Set Station Control Password Length for analog (500 and 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 and Media Gateway 1000B 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). |

**Table 112**
**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 | | 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 and Media Gateway 1000B where c = card and u = unit. |
| SCPW | xx...xx X | Station Control Password.<br><br>Must be the same length as SCPL in LD 15.<br><br>Enter X to delete the password.<br><br>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). |

**Table 113**
**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 | Single-character replacement for * and # in CEPT defaults. |
| | <CR> | Create defaults only. |
| ALL | (NO) YES | (Do not) remove all FFCs (prompted only if REQ = OUT). |

**Table 113**
**LD 57 - Define numbers for Flexible Feature Code. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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 | Priority Precedence code. |
| - ATVP | xxxx | DSN Flash Override Precedence code. |
| - AUTH | xxxx | Authorization code. |
| - AVNR | xxxx | DSN Routine Call code. |
| - AUTH | xxxx | Authorization 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. |

**Table 113**
**LD 57 - Define numbers for Flexible Feature Code. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| - 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 xxx | xxxx | Group Hunt Pilot DN |
| -- CFBA | (NO) YES | Call Forward Busy Activate |
| -- USE | (GPHT) | Initiate Group Hunting. |
| -- LSN | nnn | List number. |
| -- HTYP | aaa | Hunting type. |
| - 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. |

**Table 113**
**LD 57 - Define numbers for Flexible Feature Code. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| - IMS | xxxx | Integrated Message System access code. |
| - ITXX | xxxx | For â œ1xxâ Special Services (up to four digits) CO route. |
| -- RTXX | xxxx | CO route number for the âœ1xxâ 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 | Login, Logoff 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. |

**Table 113**
**LD 57 - Define numbers for Flexible Feature Code. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| -- 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. |

**Table 113**
**LD 57 - Define numbers for Flexible Feature Code. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| - TRMD | xxxx | Terminal Diagnostics code. |
| - TRVS | xxxx | Trunk Verification code. |
| - USCR | xxxx | User Selectable Call Redirection. |
| - USER | xxxx | Set-based Administration User code. |
| - USTA | xxxx | User Status code. |
| - VTLF | xxxx | Virtual Office Terminal Logoff. - VTLN xxxx Virtual Terminal Login |
| - 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:

| Step | Action |
|------|--------|
| **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. |

**--End--**

To return the telephone to the originally defined Class of Service:

| Step | Action |
| --- | --- |
| **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. |

**--End--**

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:

| Step | Action |
| --- | --- |
| **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**. |

**--End--**

# Flexible Feature Code Boss Secretarial Filtering

## Contents

This section contains information on the following topics:

## 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.

The above functions, however, can only be performed by the secretary set while it is in an unattended state, since BFS and FFCSF cannot be active simultaneously.

### 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.

    Respond to the Secretarial Filtering (SFLT) prompt.

2.

    Define the Secretarial Filtering Access Code.

**Table 114**
**LD 10 or LD 11 - Respond to the Secretarial Filtering (SFLT) prompt.**

| Prompt | Response | Description |
|---|---|---|
| ... | | |
| SFLT | (NO) BOSS SEC | Secretarial Filtering, prompted with Boss Secretarial Filtering (FFCSF) package 198. |
| | | Designate a telephone by entering either BOSS for boss set, SEC for secretary set, or NO for no designation. |
| | | SEC, (NO), and <CR> take you to the next prompt. |
| - SFDN | xxxx | Secretarial Forwarding DN of secretary set to which filtered calls should be forwarded, prompted if response to SFLT = BOSS. |

**Table 115**
**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 Orbiting Prevention Timer

## Contents

This section contains information on the following topics:

## 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

**Table 116**
**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. <br><br> The number of seconds in two-second intervals that CFW should be suspended on a set that has just forwarded a call off node. <br><br> 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

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

- telset messaging alert tone

- telset messaging OK tone

- telset 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 Reference — Administration* (NN43001-611) 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. Table 117 "LD 17 - Modify the system hardware and software parameters." (page 353)

   Modify the system hardware and software parameters.

2. Table 118 "LD 56 - Modify or change customer tone and ringing parameters." (page 354)

   Modify or change customer tone and ringing parameters.

**Table 117**
**LD 17 - Modify the system hardware and software parameters.**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| PARM | (NO) YES | Change system parameters. |
| ABCD | (NO) YES | 16-Button DTMF operation is (is not) enabled. |
| | <CR> | Original value is left unchanged. |

**Table 117**
**LD 17 - Modify the system hardware and software parameters. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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. |
| NASA | YES | |

**Table 118**
**LD 56 - Modify or change customer 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

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 limitations can be added to the existing Customer level Trunk Barring.

- The limitations 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 "Functionality of Flexible Trunk to Trunk Connections without
Trunk Barring configured" (page 357) illustrates the functionality of Flexible
Trunk to Trunk Connections without Trunk Barring configured.

In Figure 6 "Functionality of Flexible Trunk to Trunk Connections without
Trunk Barring configured" (page 357), 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 "Functionality of Flexible Trunk to Trunk Connections
without Trunk Barring configured" (page 357), 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 limitations 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 limitations apply.

**Figure 6**
**Functionality of Flexible Trunk to Trunk Connections without Trunk Barring
configured**
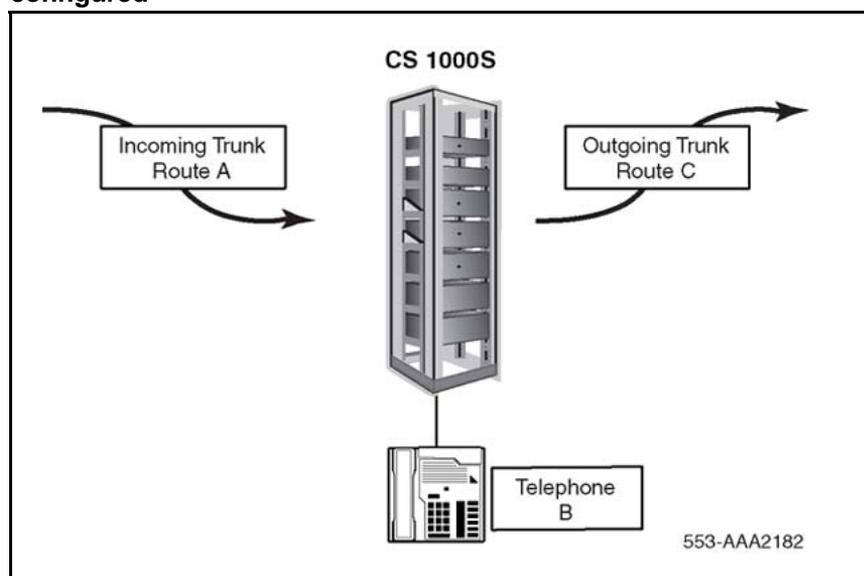
When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the following is true:

- 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 "Functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured" (page 357), 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 limitations apply. If Set B drops out of this conference, Trunk Routes A and C are disconnected.

Table 119 "CLS and FTOP Matrix for Flexible Trunk to Trunk Connections without Trunk Barring configured" (page 358) 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 119**
**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 limitations still apply. | Allows trunk to trunk connections for both Transfer and Conference. |

**Table 119**
**CLS and FTOP Matrix for Flexible Trunk to Trunk Connections without Trunk Barring configured (cont'd.)**

| Station Classes of Service (LDs 10 and 11) | Customer Level Options (LD 15) | |
|---|---|---|
| CLS = FTTR | No effect on Class of Service. Existing limitations 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 limitations 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.

illustrates the functionality of Flexible Trunk to Trunk Connections for Supervised Conference.

**Figure 7**
**Flexible Trunk to Trunk Connections for Supervised Conference**
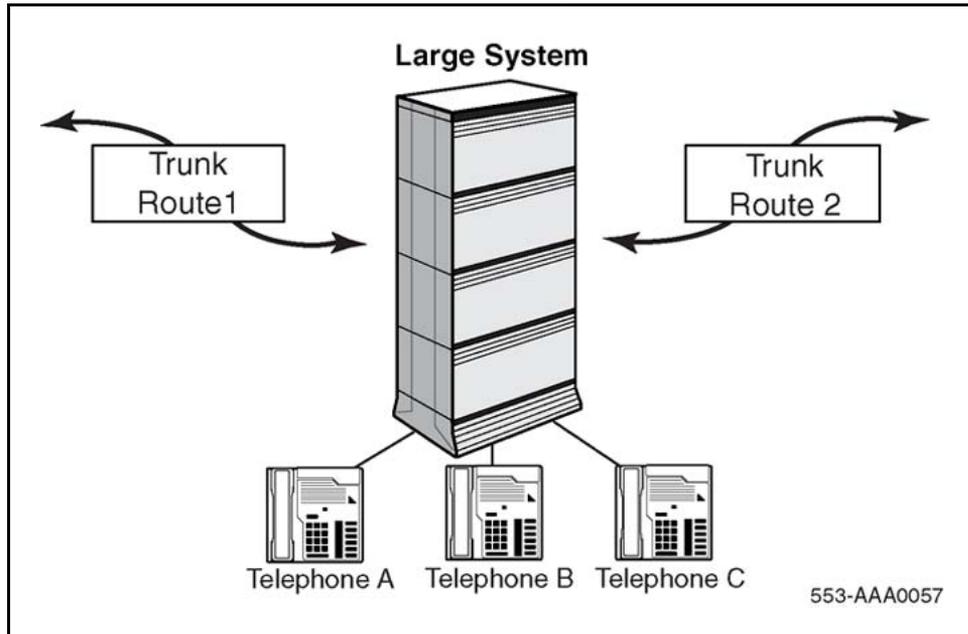


Referring to Figure 7 "Flexible Trunk to Trunk Connections for Supervised Conference" (page 360), Telephones A, B, and C have Class of Service set to Flexible Trunk to Trunk Connections Unrestricted (FTTU), Flexible Trunk to Trunk Connections Restricted (FTTR), and Flexible Trunk to Trunk Connections 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 limitations, 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 limitations 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 limitations for routes barred by TBAR, based upon the set's Class of Service. Flexible Trunk to Trunk Connections does not apply any new limitations 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 "Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = TBFT" (page 362) illustrates Flexible Trunk to Trunk Connections functionality with Trunk Barring configured and FTOP set to TBFT in LD 15.

In Figure 8 "Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = TBFT" (page 362), 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 , 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 , 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 "Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = TBFT" (page 362), 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 "Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB" (page 363) 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**
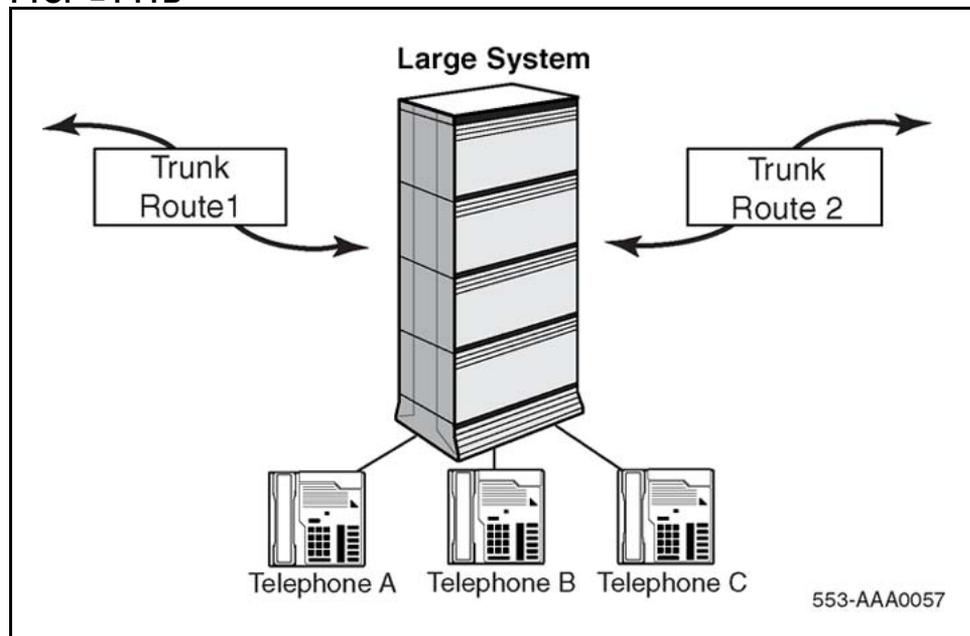
In Figure 9 "Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB" (page 363), Routes 1, 2, 3, and 4 are both incoming and outgoing. Access to different trunks is given as follows:

- 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 "Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB" (page 363), 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 limitations 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 "Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB" (page 363), 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 "Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB" (page 363), 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 limitations for Supervised Conference are lifted. TBAR limitations 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 limitations 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.

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 120**
**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 limitations for Transfer and Conference. | Allows Transfer and Conference, irrespective of whether or not TBAR is activated, unless other limitations 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 | Lifts TBAR limitations for Supervised Conference only. Maintains TBAR limitations for unsupervised Conference and Transfer. | Blocks trunk to trunk connections for Transfer and unsupervised Conference. Allows trunk to trunk connections for Supervised Conference. |

**Table 120**
**CLS and FTOP Matrix for Flexible Trunk to Trunk Connections with TBAR configured (cont'd.)**

| Station Classes of Service (LDs 10 and 11) | Customer Level Options (LD 15) | | | |
|---|---|---|---|---|
| | | connections not blocked by TBAR. | | |

## 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 limitations 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.

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 Limitations

Access Limitations 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 Limitations (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 limitations apply with the exception of Trunk
Barring limitations.

### Call Transfer

If Flexible Trunk to Trunk Connections allows a telephone to transfer
to an outgoing trunk, Access Limitations 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 Limitations.

For a transfer to be completed, both Access Limitations 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 limitations. If a telephone disconnects from a
conference, Flexible Trunk to Trunk Connections limitations 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 limitations.

### 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 limitations 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 limitations 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 limitations 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 Limitations

With the Flexible Trunk to Trunk Connections feature configured, existing limitations are not avoided. Additional limitations imposed by Flexible Trunk to Trunk Connections Classes of Service are introduced when Scheduled Access Limitations 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 limitations 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. Table 121 "LD 15 - Configure Flexible Trunk to Trunk Connections options." (page 372)

   Configure Flexible Trunk to Trunk Connections options.

2. Table 122 "LD 10 - Configure Flexible Trunk to Trunk Connections for analog (500 and 2500 type) sets." (page 373)

   Configure Flexible Trunk to Trunk Connections for analog (500/2500 type) sets.

3. Table 123 "LD 11 - Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets." (page 373)

   Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets.

**Table 121**
**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 and Media Gateway 1000B. |
| ... | | |
| FTOP | | Flexible Trunk to Trunk Connections Options. |

**Table 121**
**LD 15 - Configure Flexible Trunk to Trunk Connections options. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| | (FRES) | FTT feature is inactive. |
| | TBFT | FTT adds new limitations on connections not barred by TBAR. |
| | FTTB | FTT lifts TBAR limitations for routes barred by TBAR. FTT cannot add any new limitations for non-barred routes. |
| | FTLY | All set based trunk to trunk connections for Transfer and Conference are controlled by FTT only. |
| ... | | |

**Table 122**
**LD 10 - Configure Flexible Trunk to Trunk Connections for analog (500 and 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 and Media Gateway 1000B 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. |
| ... | | |

**Table 123**
**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 and Media Gateway 1000B where c = card and u = unit. |

**Table 123**
**LD 11 - Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| 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 and Data Terminal Number

## Contents

This section contains information on the following topics:

## 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 limitations 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 DNs (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.

   Assign the Static Voice Terminal Number.

2.

Assign the Static Data Terminal Number

Assign the Dynamic Terminal Number.

**Table 124**
**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 | | 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 and Media Gateway 1000B 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). |

**Table 125**
**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 and Media Gateway 1000B 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). |

**Table 126**
**LD 11 - Assign the Dynamic 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 and Media Gateway 1000B where c = card and u = unit. |
| CLS | FLXA<br>VCE | Flexible voice/data allowed.<br>(FLXD) = Flexible voice/data denied.<br>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.<br>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<br>xx SCN yyyy | Single Call Ringing<br>Single Call Non Ringing<br>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

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. Table 127 "LD 10, LD 11 - Respond to CLS prompt " (page 383)

   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. Table 128 "LD 11 - Respond to the KEY prompt with a key number " (page 384)

   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. Table 129 "LD 14 - Trunks to be involved " (page 384)

   Trunks to be involved in such Camp-On override calls must have Warning Tone Allowed (WTA) Class of Service allowed

4. Table 130 "LD 15 - AFCO prompt" (page 384)

   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. Table 131 "LD 16 - At the PLEV prompt, specify priority levels for trunk routes." (page 384)

   At the PLEV prompt, specify priority levels for trunk routes.

6. Table 132 "LD 57 - The Enhanced Override flexible feature code" (page 384)

   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.

**Table 127**
**LD 10, LD 11 - Respond to CLS prompt**

| 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.<br>2 = set can override sets of level 1 and 2, and can be overridden by sets of level 2-7. |

**Table 128**
**LD 11 - Respond to the KEY prompt with a key number**

| Prompt | Response | Description |
|---|---|---|
| ... | | |
| KEY | xx EVOR | Key number; Enhanced Override. |

**Table 129**
**LD 14 - Trunks to be involved**

| Prompt | Response | Description |
|---|---|---|
| ... | | |
| CLS | (WTA) WTD | Warning Tone (allowed) denied. |

**Table 130**
**LD 15 - AFCO prompt**

| Prompt | Response | Description |
|---|---|---|
| ... | | |
| AFCO | (NO) YES | (Manual) Automatic Forced Camp-On, prompted with Priority Override/Forced Camp-On (POVR) package 186. |

**Table 131**
**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.<br>2 = set can override sets of level 1 and 2, and can be overridden by sets of level 2-7 |

**Table 132**
**LD 57 - The Enhanced Override flexible feature code**

| 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

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

**Table 133**
**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.<br><br>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

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:

Choose the North American Transmission Plan by answering YES to the NATP prompt.

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.

**Table 134**
**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 |

**Table 135**
**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.**

| 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 and Media Gateway 1000B where c = card and u = unit. |
| XTRK | XCOT | Type is IPE COT. |
| CDEN | (8D) | Card density is 8D. |
| SIGL | LOP | Loop start signaling. |

**Table 135**
**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. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| PPID | xx | Where xx is one of the following:<br>0 – United Kingdom (50 Hz)<br>1 – France (12 Khz)<br>2 – France (50 Hz)<br>3 – Germany, Egypt, Turkey, Venezuela, Indonesia, Finland (16 Khz)<br>4 – Switzerland, Ireland, Portugal, Italy, Spain, Lebanon, Turkey (12 Khz)<br>5 – Denmark (12 Khz)<br>6 – Norway, Belgium (16 Khz)<br>7 – Holland (50 Hz)<br>8 – Australia (two different packs) (12Khz/50 Hz)<br>9-15 – Reserved for future use. |
| BTID | xx | Enter the country busy tone ID as follows:<br>0-2 – Reserved for future use<br>3 – Germany, Ireland<br>4 – Switzerland<br>5 – Denmark<br>6 – Norway, Kuwait, Chile, Venezuela, Indonesia, Thailand, Korea<br>7 – Holland<br>8 – Australia, Mexico<br>9 – Ireland<br>10 – Taiwan, Brazil, Tortola, Mexico<br>11 – Singapore<br>12 – Argentina, Italy<br>13 – Lebanon, Italy<br>14 – Turkey<br>15 – Reserved for future use. |
| SUPN | YES (NO) | Trunk Supervision required (not required) |
| STYP | BTS<br>BAT | Busy tone supervision enabled<br>Loop break supervision enabled |
| CLS | (LOL) SHL<br>(DIP) DTN<br>(P10) P20 P12 | Attenuation pads in (out).<br>Digitone signaling (digipulse).<br>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

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 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.

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 the maximum number of members per group is six.

> *Note:* CS1000E with SSC Media Gateways also have a maximum of six members per group. For CS1000E with MGC media gateways, the maximum members per group is 20.

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 and 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 and 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. Table 136 "LD 18 - Add or change a Group Call list." (page 399)

   Add or change a Group Call list.

2. Table 137 "LD 11 - Add or change Group Call for Meridian 1 proprietary telephones." (page 400)

   Add or change Group Call for Meridian 1 proprietary telephones.

3. Table 138 "LD 20 - Print Group Call data." (page 400)

   Print Group Call data.

**Table 136**
**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 |

**Table 136**
**LD 18 - Add or change a Group Call list. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| GRNO | 0-63 | Number of the Group Call list. |
| STOR | xx yyy...y<br><CR> | Group member number (xx) and associated DN (yyy...y).<br>End input of stored Group Call entries |

**Table 137**
**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 | | 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 and Media Gateway 1000B where c = card and u = unit. |
| KEY | xx GRC yy | Add a Group Call key, where:<br><br>xx = key number, and<br>yy = Group Call list number (0-63). |

**Table 138**
**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<br><CR> | Number of the Group Call group.<br>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" (page 83) of this document.

# Group Hunt

## Contents

This section contains information on the following topics:

## 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 DNs 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 DNs 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 DNs 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) DNs 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 DNs 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" (page 402) 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" (page 402) 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

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. describes the Group Hunt cycle for Type I Group Hunt lists.

**Figure 10**
**Group Hunt cycle for Type 1 Group Hunt lists**
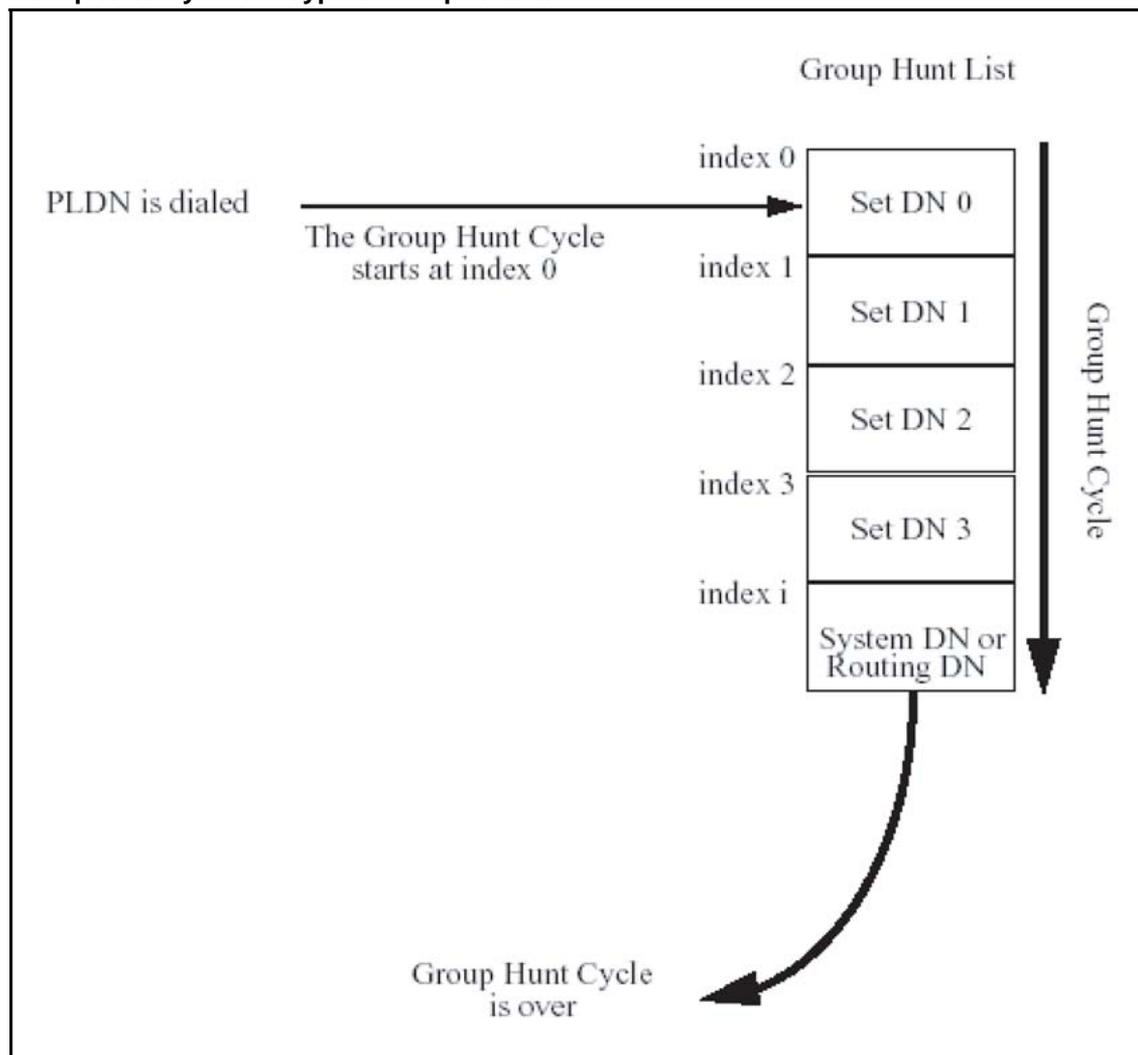


- Type II Group Hunt lists set-associated DNs — These use Round Robin Hunt type. When the user dials the PLDN, the Group Hunt Cycle offers the call to the index next to the last index that was hunted to in the previous cycle. If this member is not eligible, the next DN member is tried. This process continues until one is found, or until the whole list is searched. Figure 11 "Group Hunt cycle for Type II Group Hunt lists" (page 407) describes the Group Hunt cycle for Type II Group Hunt lists.

**Figure 11**
**Group Hunt cycle for Type II Group Hunt lists**
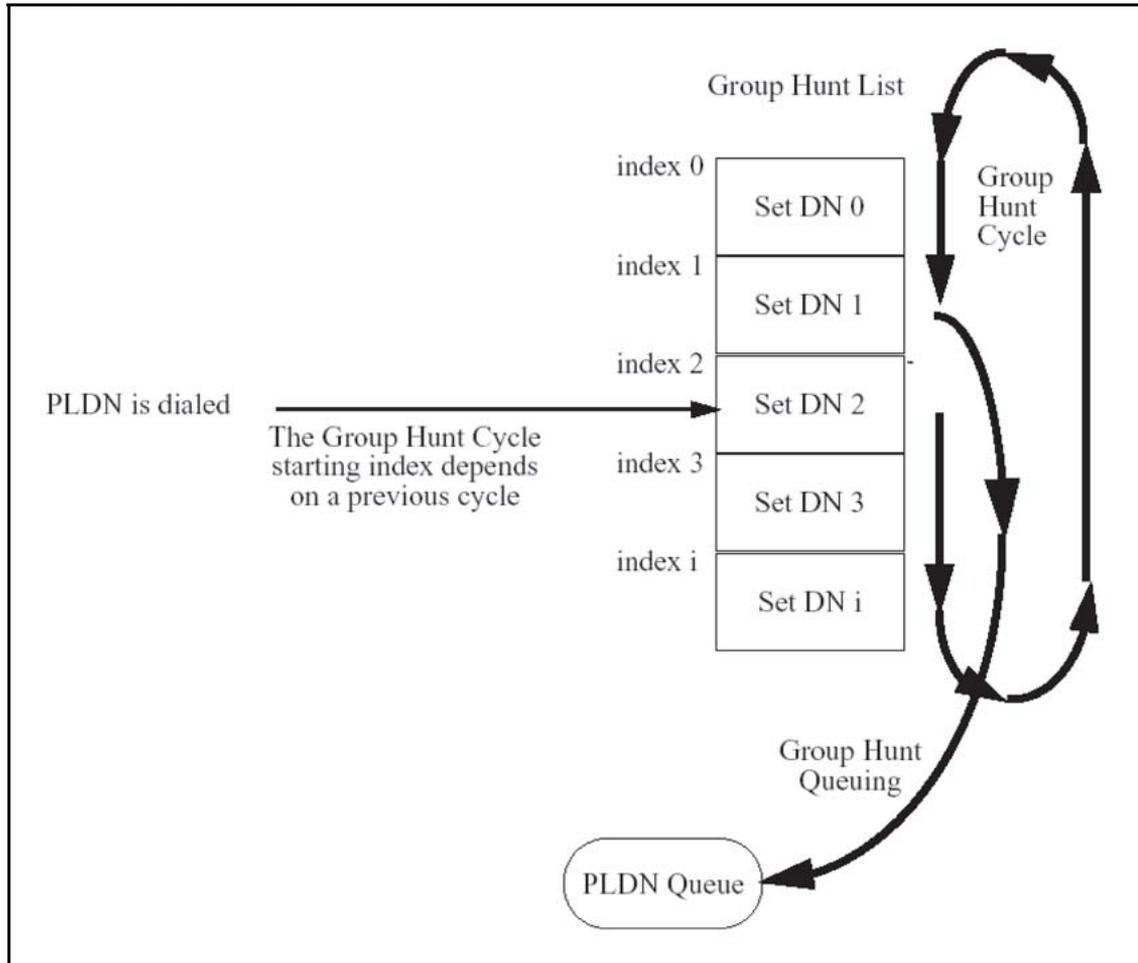


- Type III Group Hunt lists set-associated DNs except for the highest index position, which is filled with a system- or routing-associated DN — These use Linear hunt type. When the user dials the PLDN, the Group Hunt Cycle offers the call to the first list member. If this member is not eligible, the 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 12 "Group Hunt cycle for Type III Group Hunt lists" (page 408) describes the Group Hunt cycle for Type III Group Hunt lists.

**Figure 12**
**Group Hunt cycle for Type III Group Hunt lists**
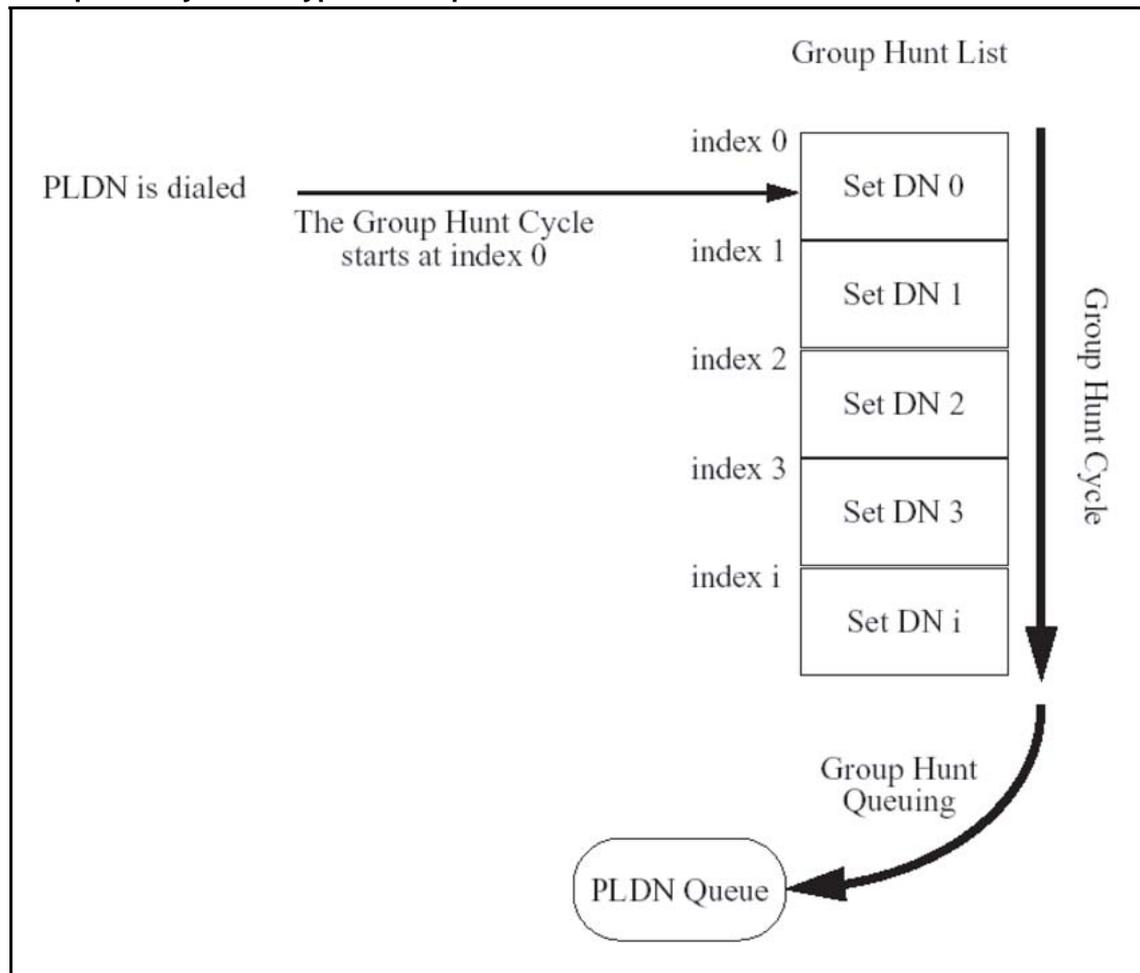


- Type IV Group Hunt lists system- or routing-associated DNs of the same DN type — These use Round Robin hunt type. Once the PLDN has been dialed, the Group Hunt Cycle offers the call to the index next to the last index that was hunted to during the previous cycle. There is no further search in the list nor is there any queuing. Figure 13 "Group Hunt cycle for Type IV Group Hunt lists" (page 409) describes the Group Hunt cycle for Type IV Group Hunt lists.

**Figure 13**
**Group Hunt cycle for Type IV Group Hunt lists**



---
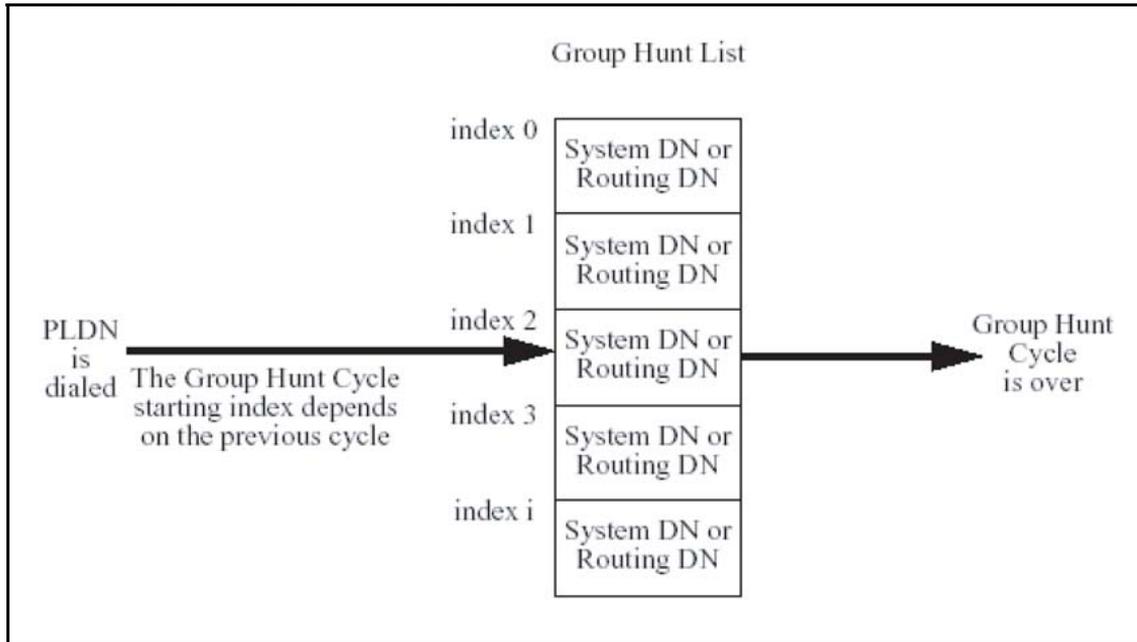
**ATTENTION**
The user must define the Group Hunt list to match one of the four list types.

---

## 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.

| Step | Action |
|------|--------|
| **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.

**--End--**

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.

| Step | Action |
|------|--------|
| **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.

**--End--**

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 DNs 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 DNs 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 Limitations
If a routing-associated DN is programmed in a Group Hunt list, access limitations 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 and 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 (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) and 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 and 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 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 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 and 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. Table 139 "LD 22 - Verify that software package 120 is equipped." (page 420)

   Verify that software package 120 is equipped.

2. Table 140 "LD 17 - Enter the number of Group Hunt lists allowed in the system." (page 420)

   Enter the number of Group Hunt lists allowed in the system.

3. Table 141 "LD 15 - Enter a Group Hunt PLDN." (page 421)

   Enter a Group Hunt PLDN.

4. Table 142 "LD 10 - Enter a Group Hunt Pilot DN (PLDN)." (page 421)

   Enter a Group Hunt Pilot DN (PLDN).

5. Table 143 "LD 11 - Enter a Group Hunting Denied (GHD) key and enter a Group Hunt PLDN." (page 422)

   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.

6. Table 144 "LD 12 - Enter a Group Hunt PLDN." (page 422)

   Enter a Group Hunt PLDN.

Enter a Group Hunt PLDN.

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.

Print the Group Hunt list. This includes PLDN entries.

Define, change, or print data associated with FFC.

Configure Flexible Feature Codes data block for Group Hunt Termination.

Count or list all stations equipped with the GHD key.

Display the GHD key data.

**Table 139**
**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. |

**Table 140**
**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. |

**Table 141**
**LD 15 - Enter a Group Hunt PLDN.**

| 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**. |
| - 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. |

**Table 142**
**LD 10 - Enter a Group Hunt Pilot DN (PLDN).**

| 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. |
| | 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. |

**Table 143**
**LD 11 - Enter a Group Hunting Denied (GHD) key and enter a Group Hunt PLDN.**

| 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. |
| 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. |

**Table 144**
**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. |

**Table 145**
**LD 14 - Enter a Group Hunt PLDN.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | NEW CHG | Add new data, or change existing data |
| ... | | |
| NGRP | (0)-9 | Night Service Group number |
| 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. |

**Table 146**
**LD 18 - Create or modify Group Hunt lists.**

| 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 | | Size of list Maximum DNs in Group Hunt list |
| | 1-96 1-1000 | 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. |
| 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: |

**Table 146**
**LD 18 - Create or modify Group Hunt lists. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| | x...x<br>y...y<br><CR> | x...x = GHT entry number from 0 to 95<br>y...y = digits stored<br>Stop STOR prompt<br>In Group Hunting the member number must conform with the SIZE; the number of digits must conform with DNSZ. |
| | xx<space><CR> | Remove entry |
| WRT | (YES) NO | Write<br>Write information to data store. |

**Table 147**
**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<br><CR> | Group Hunt lists.<br>Print all lists |
| SIZE 1-96 | | The list size is printed if a Group Hunt list number is entered against the LSNO prompt.<br>SIZE is not printed if <CR> is entered against the LSNO prompt. |

**Table 148**
**LD 57 - Define, change, or print data associated with FFC.**

| Prompt | Response | Description |
|---|---|---|
| REQ | CHG NEW | Add new data, or change existing data. |
| TYPE | FFC | Flexible Feature Codes data block. |
| CUST | 0-99<br>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<br><CR> | Pilot DN: enter Pilot DN to be modified or created.<br>Enter a carriage return to proceed to next prompt. |
| -- USE | GPHT | USE: enter USE for Pilot DN<br>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. |

**Table 148**
**LD 57 - Define, change, or print data associated with FFC. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| -- CFWI | (NO) YES | Call Forward All Calls Idle:<br><br>Where:<br>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 | | Maximum Queue (maximum number of calls allowed to queue against the Pilot DN.<br>Where: |
| | 0 | Enter 0 to deny all calls from queuing |
| | 1 | Enter 1 to allow only one no call to queue |
| | (ALL) ACTM | 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. |

**Table 149**
**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<br>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. |

**Table 150**
**LD 81 - Count or list all stations equipped with the GHD key.**

| 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. |

**Table 150**
**LD 81 - Count or list all stations equipped with the GHD key. (cont'd.)**

| Prompt | Response | Description |
|---|---|---|
| | LST | List telephones equipped with the features specified in response to the FEAT prompt. |
| ... | ... | |
| FEAT | GHD | Group Hunt Deactivation key |
| FEAT | <CR> | <CR> enters the default |

**Table 151**
**LD 83 - Display the GHD key data.**

| Prompt | Response | Description |
|---|---|---|
| REQ | TNB | Print the TN blocks in Designation order. |
| ... | ... | |
| ...<br>KEY xx<br>GHD<br>... | | 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

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

**Table 152**
**LD 57 - Modify, create, or print Flexible Feature Codes**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | CHG NEW PRT | Request: Modify, create, or print data block. |
| TYPE | FFC | Flexible Feature Codes. |

**Table 152**
**LD 57 - Modify, create, or print Flexible Feature Codes (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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)<br>0<br>1<br><cr> | All calls may be queued (default).<br>No calls can be queued.<br>One call may be queued.<br>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

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) DNs, Integrated Voice Messaging Service (VMS) DNs, Listed Directory Numbers (LDNs), Route access codes, Electronic Switched Network (ESN) access codes, and other Pilot DNs 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

**Table 153**
**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<br><CR> | Enter Pilot DN to be modified or created.<br>Enter a carriage return to proceed to next prompt |
| USE | <br>GPHT | Enter use for Pilot DN.<br>Group Hunting. |
| LSNO | xxxx | Enter group hunt list number. Group hunt list must exist in LD 18. |

**Table 153**
**LD 57 - For the Group Hunt Queuing Limitation Enhancement, responses to the following prompts are required. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| 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:<br>enter NO if Group Hunting is to skip idle stations with Call Forward All Calls active, or<br>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

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

**Table 154**
**LD 17 - Define the Handset Volume Reset setting.**

| Prompt | Response | Description |
|--------|----------|-------------|
| REQ | CHG | Change. |
| TYPE | CFN<br>ATRN | Configuration Record.<br>Aries Transmission. |
| ... | | |
| ATRN | 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

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. Table 155 "LD 11 - Modify the system hardware and software parameters." (page 438)

   Modify the system hardware and software parameters.

2. Table 156 "LD 17 - Create or modify the digital telephone data blocks." (page 438)

   Create or modify the digital telephone data blocks.

3. Table 157 "LD 22 - Print Handsfree transmission parameter download settings." (page 439)

   Print Handsfree transmission parameter download settings.

**Table 155**
**LD 11 - Modify the system hardware and software parameters.**

| Prompt | Response | Description |
|---|---|---|
| ... | | |
| CLS | (HFD) HFA | Digital Telephone Handsfree (denied) allowed. |
| | | 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. |

**Table 156**
**LD 17 - Create or modify the digital telephone data blocks.**

| Prompt | Response | Description |
|---|---|---|
| REQ | CHG | Change. |
| TYPE | CFN<br>ATRN | Configuration Record.<br>Aries Transmission. |
| ATRN | YES | Meridian Modular telephone transmission parameters.<br>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. |

**Table 157**
**LD 22 - Print Handsfree transmission parameter download settings.**

| Prompt | Response | Description |
|---|---|---|
| REQ | PRT | Print. |
| TYPE | CFN ATRN | Configuration. Meridian Modular telephone transmission parameters. 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) | | Input value | HRLR (dB) | HTLR (dB) |
|---|---|---|---|---|---|---|
| 0 | +42.00 | -44.00 | | 21 | N.A. | N.A. |
| 1 | +42.85 | -43.50 | | 22 | N.A. | N.A. |
| 2 | +43.70 | -43.50 | | 23 | N.A. | N.A. |
| 3 | +44.55 | -43.00 | | 24 | N.A. | N.A. |
| 4 | +45.40 | -42.50 | | 25 | N.A. | N.A. |
| 5 | +46.25 | -42.00 | | 26 | N.A. | N.A. |
| 6 | +47.10 | -42.00 | | 27 | N.A. | N.A. |
| 7 | +47.95 | -41.50 | | 28 | N.A. | N.A. |
| 8 | +48.80 | -41.00 | | 29 | N.A. | N.A. |
| 9 | N.A. | -40.50 | | 30 | N.A. | N.A. |
| 10 | N.A. | -40.50 | | 31 | N.A. | N.A. |
| 11 | N.A. | -40.00 | | 32 | +42.00 | -44.00 |
| 12 | N.A. | N.A. | | 33 | +41.15 | -44.50 |
| 13 | N.A. | N.A. | | 34 | +40.30 | -45.00 |
| 14 | N.A. | N.A. | | 35 | +39.45 | -45.00 |
| 15 | N.A. | N.A. | | 36 | +38.60 | -45.50 |
| 16 | N.A. | N.A. | | 37 | +37.75 | -46.00 |
| 17 | N.A. | N.A. | | 38 | +36.90 | -46.50 |
| 18 | N.A. | N.A. | | 39 | +36.05 | -46.50 |
| 19 | N.A. | N.A. | | 40 | +35.20 | -47.00 |
| 20 | N.A. | N.A. | | 41 | N.A. | -47.50 |
| 42 | N.A. | -48.00 | | 53 | N.A. | -52.00 |

| Input value | HRLR (dB) | HTLR (dB) | | Input value | HRLR (dB) | HTLR (dB) |
|---|---|---|---|---|---|---|
| 43 | N.A. | -48.00 | | 54 | N.A. | -52.50 |
| 44 | N.A. | -48.50 | | 55 | N.A. | N.A. |
| 45 | N.A. | -49.00 | | 56 | N.A. | N.A. |
| 46 | N.A. | -49.50 | | 57 | N.A. | N.A. |
| 47 | N.A. | -49.50 | | 58 | N.A. | N.A. |
| 48 | N.A. | -50.00 | | 59 | N.A. | N.A. |
| 49 | N.A. | -50.50 | | 60 | N.A. | N.A. |
| 50 | N.A. | -51.00 | | 61 | N.A. | N.A. |
| 51 | N.A. | -51.00 | | 62 | N.A. | N.A. |
| 52 | N.A. | -51.50 | | 63 | N.A. | N.A. |

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

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

**Table 158**
**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.

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, see *System Management Reference* (NN43001-600).

# Hong Kong Digital Trunk Interface

## Contents

This section contains information on the following topics:

## 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 Mbits 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.

   Respond to the CLS prompt by entering HKA to allow the Hong Kong feature modification.

2.

   Enter a dialing pause for the Dial Delay Timer at the Time prompt:

**Table 159**
**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. |

**Table 160**
**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

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.

> **ATTENTION**
> 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.

   Assign the number of Speed Call lists, including Hot Line lists.

2.

   Add or change Enhanced Hot Line for a customer.

3.

   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.

   Add or change a Hot Line Speed Call list.

5.

   Add Enhanced Hot Line for analog (500/2500 type) telephones.

6.

   Allow or deny Enhanced Hot Line for Meridian 1 proprietary telephones.

**Table 161**
**LD 17 - Assign the number of Speed Call lists, including Hot Line lists.**

| Prompt | Response | Description |
| --- | --- | --- |
| REQ | CHG | Change. |
| TYPE | CFN<br>PARM | Configuration Record.<br>System Parameters. |
| MSCL | 0-8191 | Maximum number of Speed Call lists. |

**Table 162**
**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. |

**Table 162**
**LD 15 - Add or change Enhanced Hot Line for a customer. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| | 0-31 | Range for Small System and Media Gateway 1000B. |
| OPT | (HTU) HTR | Hot Line (unrestricted) or restricted.<br>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. |

**Table 163**
**LD 18 - Prompt sequence**

| 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. |

**Table 164**
**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.<br><br>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. |

**Table 164**
**LD 18 - Add or change a Hot Line Speed Call list. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| | | 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). |

**Table 165**
**LD 10 - Add Enhanced Hot Line for analog (500 and 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 and Media Gateway 1000B where c = card and u = unit. |
| CLS | DTN DIP | Digitone or dial pulse service (manual service is not allowed). |
| | EHTA<br>(LDN) LNA<br>(XFD) XFA<br>(CWD) CWA<br>(XRD) XRA | Enhanced Hot Line allowed.<br>Last Number Redial (denied) allowed – optional.<br>Call Transfer (denied) allowed – optional.<br>Call Waiting (denied) allowed – optional.<br>Ring Again (denied) allowed – optional. |
| FTR | HOT D nn x...x | Direct Hot Line DN.<br><br>nn = number of digits (1-31) for target DN x...x. |
| | HOT L 0-999 | Hot Line List entry number defined in LD 18. |

**Table 166**
**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. |

**Table 166**
**LD 11 - Allow or deny Enhanced Hot Line for Meridian 1 proprietary telephones. (cont'd.)**

| 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 and Media Gateway 1000B where c = card and u = unit. |
| KEY | nn HOT D cc x...x | One-way Hot Line key. |
| | nn HOT L aaa | One-way Hot Line List key. |
| | nn HOT D cc x...x xxxx | Two-way Hot Line key. |
| | nn HOT L aaa xxx...x | Two-way Hot Line List key. |
| | nn CH D cc x...x | Combined No Hold Conference and Direct Hot Line feature |
| | nn CH L aaa | Combined No Hold Conference and Hot Line List feature |
| | | nn = key number. |
| | | cc = number of digits for target DN (1-31). |
| | | x...x = target DN (up to 31 digits). |
| | | aaa = Hot Line List entry defined in LD 18. |
| | | xxx...x = DN for Hot Line key. |

## Feature operation

To make an EHOT call on an analog (500/2500 type) telephone:

- Lift the handset. The Hot Line number is automatically dialed.

- To transfer or conference an EHOT call on analog (500/2500 type) telephones:

- Flash the switchhook (or press **Link**) and dial the third-party extension.

- To make an EHOT call on a Meridian 1 proprietary telephone:

- Press **Hotline**.

- To answer an incoming Hot Line call on a Meridian 1 proprietary telephone:

- Press the flashing **Hotline** key.

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

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 and 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.

> **ATTENTION**
> 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

**Table 167**
**LD 10 - Add or change Flexible Hot Line for analog (500 and 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 and Media Gateway 1000B 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. <br><br> 1-31 = maximum digits for Hot Line DNs. <br> xxx...x = Flexible Hot Line DN. <br> yyy...y = Phantom DN for a two-way Hot Line. |

## Feature operation

To make a Flexible Hot Line Call, follow these steps:

| Step | Action |
|------|--------|
| **1** | Lift the handset. The Hot Line number is automatically dialed. |
| **2** | To end the call, hang up. |

**--End--**

# Hunting

## Contents

This section contains information on the following topics:

## 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 14 "Example of Circular Hunting" (page 464) shows an example of circular hunting.
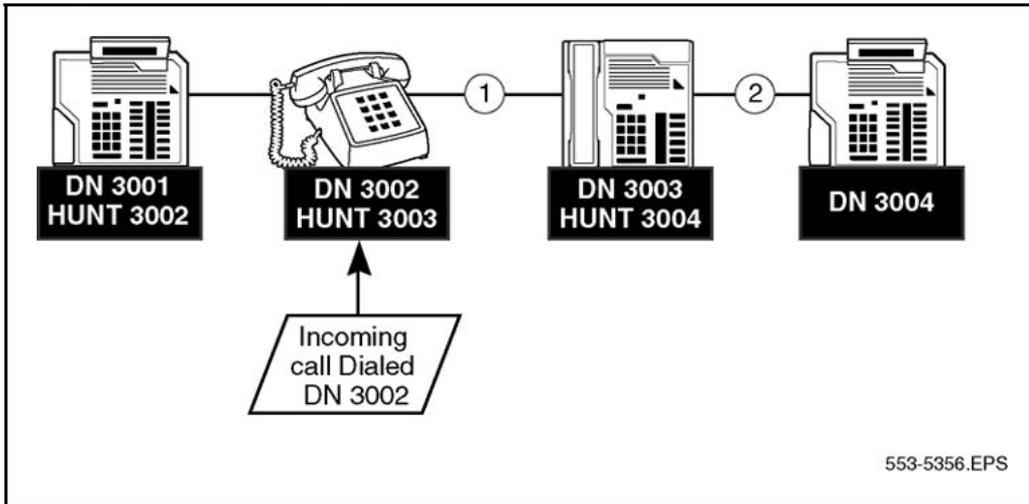
**Figure 14**
**Example of Circular Hunting**
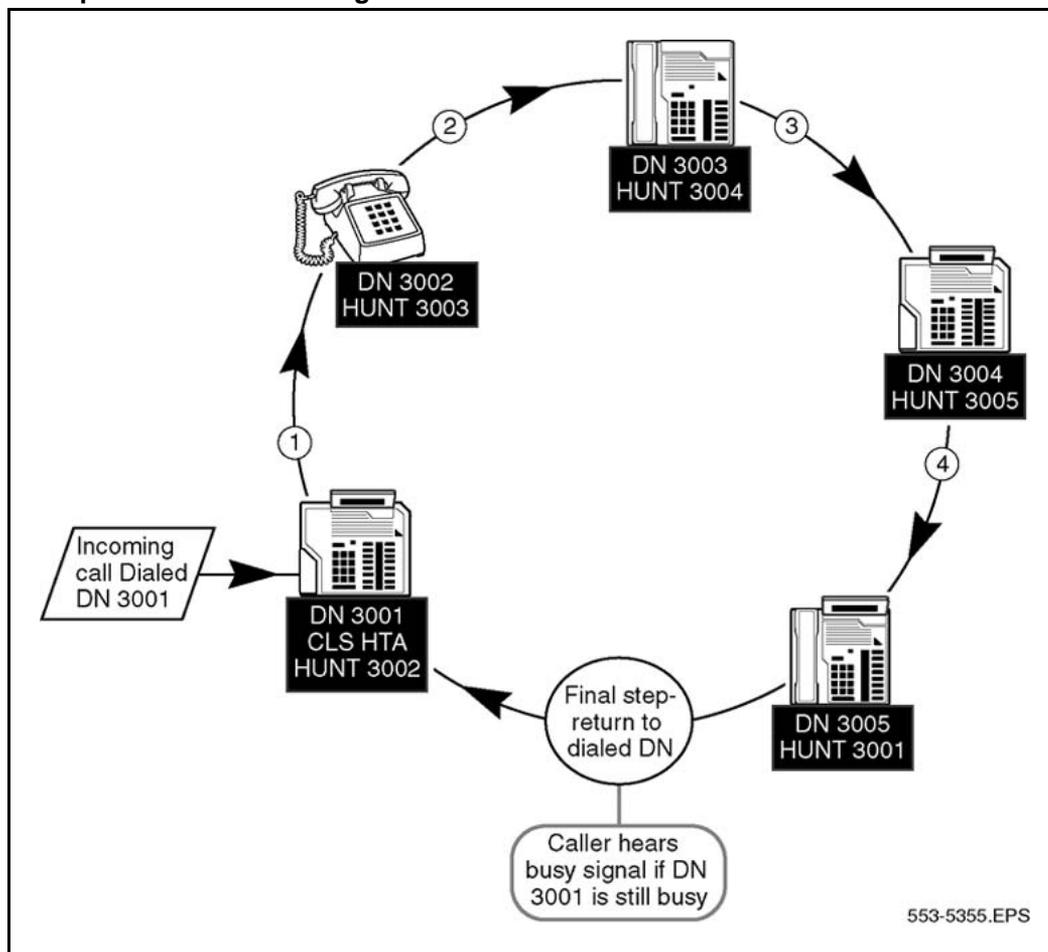


## Linear Hunting

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 15 "Example of Linear Hunting" (page 465) shows an example of Linear Hunting.
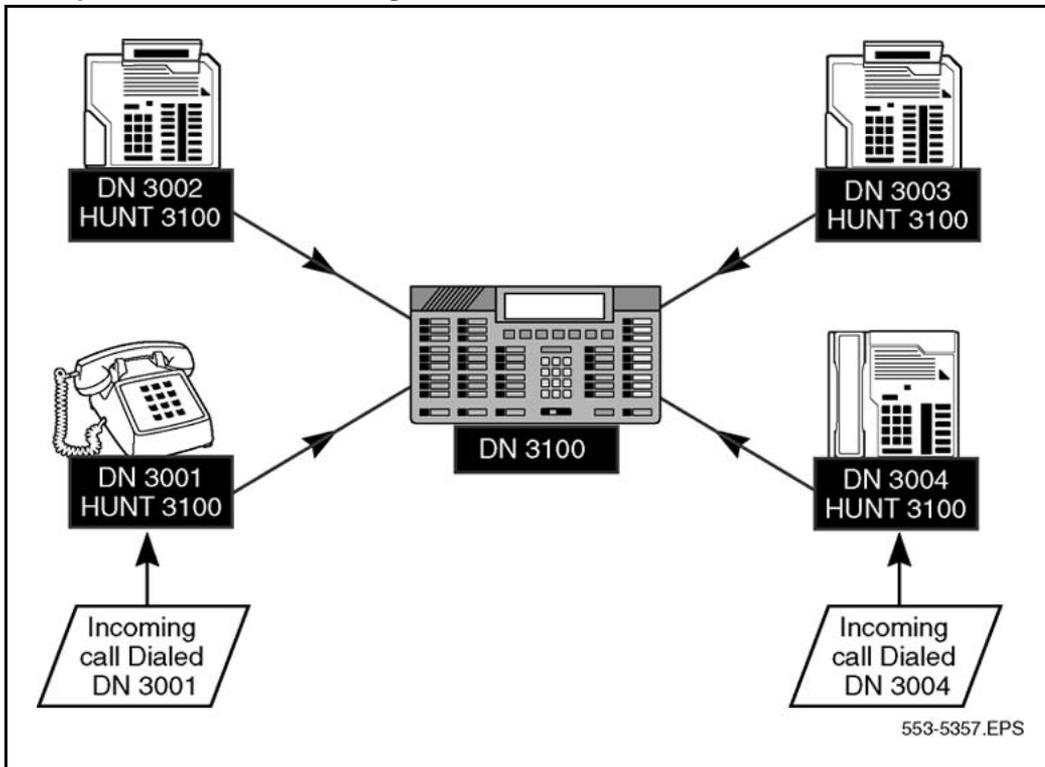
**Figure 15**
**Example of Linear Hunting**



**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 16 "Example of Secretarial Hunting" (page 465) shows an example of Secretarial Hunting.

**Figure 16**
**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.

shows an example of Short Hunting.

**Figure 17**
**Example of Short Hunting**
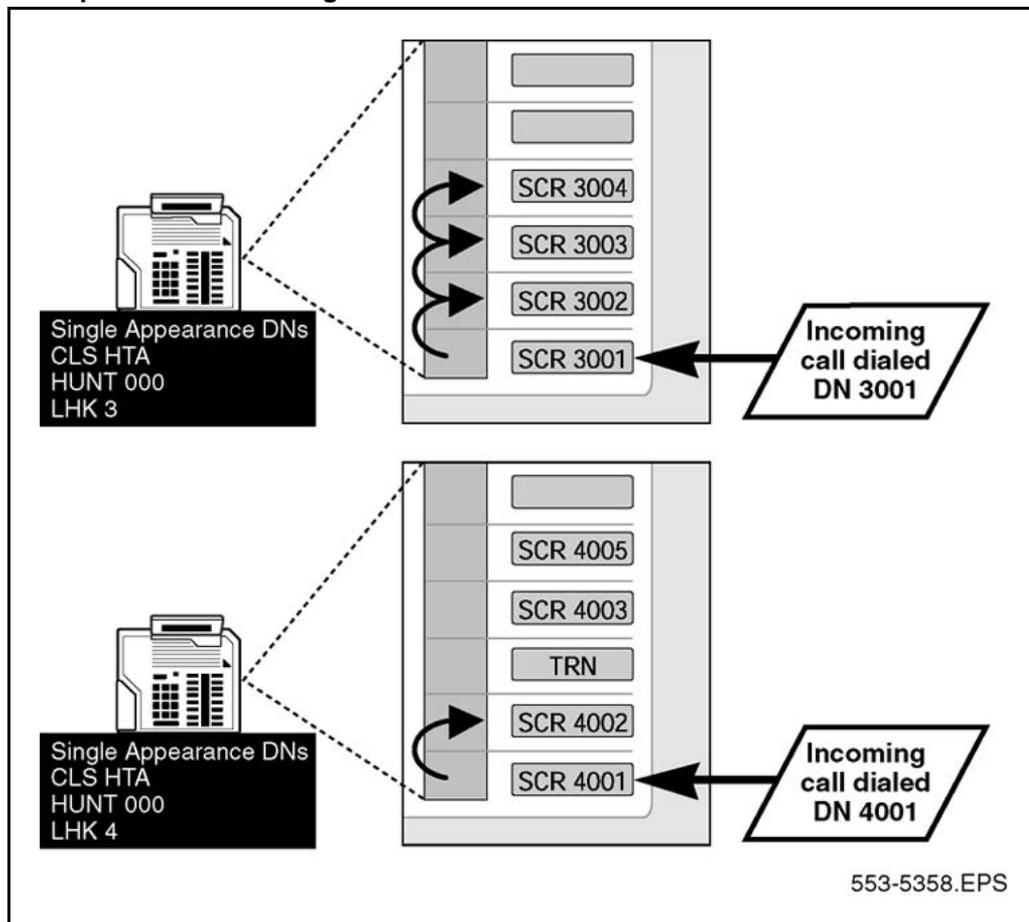
## Operating parameters

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.

### Basic Rate Interface

Uses ISDN BRI Special Hunting. For information on the implementation of the Special Hunting feature, refer to the ISDN BRI Special Hunting feature description in *ISDN Basic Rate Interface Feature Fundamentals* (NN43001-580).

### 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 and 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 tandemed 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 tandemed 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 DNs 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.

   Add or change Hunting for analog (500/2500 type) telephones.

2.

   Add or change Hunting for Meridian 1 proprietary telephones.

**Table 168**
**LD 10 - Add or change Hunting for analog (500 and 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 and Media Gateway 1000B where c = card and u = unit. |
| HUNT | xxx...x | Hunt DN.<br>xxx...x removes the DN from the hunt chain. |
| CLS | (HTD) HTA | (Deny) allow hunting. |

**Table 169**
**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. |

**Table 169**
**LD 11 - Add or change Hunting for Meridian 1 proprietary telephones. (cont'd.)**

| 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 and Media Gateway 1000B where c = card and u = unit. |
| HUNT | xxx...x<br>000 | Hunt DN.<br>xxxx...x removes the DN from the hunting chain. 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

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 DNs. 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. Table 170 "LD 10 - Create or modify the analog (500 and 2500 type) telephone data blocks to allow or deny Hunt by Call Type." (page 476)

   Create or modify the analog (500 and 2500 type) telephone data blocks to allow or deny Hunt by Call Type.

2. Table 171 "LD 11 - Create or modify the Meridian 1 proprietary telephone data blocks to allow or deny Hunt by Call Type." (page 477)

   Create or modify the Meridian 1 proprietary telephone data blocks to allow or deny Hunt by Call Type.

**Table 170**
**LD 10 - Create or modify the analog (500 and 2500 type) telephone data blocks to allow or deny Hunt by Call Type.**

| Prompt | Response | Description |
|--------|----------|-------------|
| ... | | |
| CLS | (HBTD) HBTA | Hunt by Call Type (denied) allowed. |

**Table 171**
**LD 11 - Create or modify the Meridian 1 proprietary telephone data blocks to allow or 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

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 limitations (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 limitations do not apply to data port trunks.

Ring Again, Basic/Network Alternate Route Selection (BARS/NARS), and trunk access limitations (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.

   Add or change a data port trunk route.

2.

   Add or change a data port trunk.

**Table 172**
**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 and Media Gateway 1000B. |
| 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<br>1 = 15 minutes<br>2 = 30 minutes<br>3 = 60 minutes |
| - PSEL | (DMDM) TLNK | Protocol selection. T-Link or DM-DM protocol. Prompt offered to MCU (TKTP = MMPM). |

**Table 172**
**LD 16 - Add or change a data port trunk route. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
| - 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 | (SPAC) EVEN ODD MARK | Parity type, where:<br><br>SPAC = space parity<br>EVEN = even parity<br>ODD = odd parity<br>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.<br>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.<br><br>DCE or DTE mode. Prompt offered to R232. |
| - - PBDO | (OFF) ON | Port Busy upon DTR off.<br><br>Presented when DCE, Dynamic DTR. Prompt offered to R232.<br><br>ON = enabled<br>(OFF) = disabled |

**Table 173**
**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 |
| 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 and Media Gateway 1000B where c = card and u = unit. |

# 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

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.

**Note for 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.

## 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

**Table 174**
**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 |

**Table 174**
**LD 16 - Implement Linear or Round Robin Trunk Hunting for a trunk route. (cont'd.)**

| Prompt | Response | Description |
|--------|----------|-------------|
|        | 0-511    | Range for Large System and CS 1000E system. |
|        | 0-127    | Range for Small System and Media Gateway 1000B. |
| SRCH   | (LIN) RRB | Linear or Round Robin Hunting. |

## Feature operation

No specific operating procedures are required to use this feature.

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