
Meridian 1

X11 features and services

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X11 features and services

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June 1999

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October 1997

Standard, issue 14.00. This document is reissued to include updates for X11 Release 23. Certain features have been removed from this document and can be found in their appropriate Northern Telecom Publications (NTPs). Primary Rate Interface features can be found in *ISDN PRI Description and administration* 553-2901-100. Call Detail Recording features can be found in *Call Detail Recording Description and formats* 553-2631-100.

August 1996

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The *Automatic Number Identification*, *Automatic Trunk Maintenance* and *Multi-Tenant Service* features have been incorporated into this document. Accordingly, the following Northern Telecom Publications have been retired to reflect this change: 553-2611-200, 553-2751-104 and 553-2831-100.

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- Multiple Appearance DN Redirection Prime
- Off Hook Alarm Security
- Overlay Cache

December 1991

Standard, issue 4.0. Standard document is issued to include updates for X11 Release 17. Due to the extent of changes, revision bars are omitted.

December 1990

Standard, issue 3.0. Standard document is issued for updates and changes for X11 Release 16.

June 1990

Standard, issue 2.0. Standard document is issued for updates and changes for X11 Release 15.

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Introduction

The *X11 features and services* Northern Telecom Publication (NTP) describes the software features available with the Meridian 1 system. The features are described in feature modules that are arranged alphabetically by feature name. Each feature module contains some or all of the following information:

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

Release box

The Release box, located in the upper right hand corner of the first page of the feature module, identifies the X11 release in which the feature was introduced.

Feature description

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

Operating parameters

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

Feature interactions

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

Feature packaging

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

Feature implementation

The Feature implementation section provides Overlay (LD) tables for those overlays that must be used to activate the feature. The overlay tables list only the prompts required for the feature. Prompts in parenthesis are defaults. For a complete discussion of prompts, refer to the *X11 input/output guide*.

Feature operation

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

Additional information

For an alphabetical list of packages, refer to the Features and software options module in this document. This list provides the package name and the features available with the package, the package number, the package mnemonic, and the earliest X11 release for which the package is available.

For a complete list of features available on the Meridian 1 system, as well as where information on these features can be found, refer to the *North American Feature Listing* 553-3001-012.

Features and software options

Package Name	Number	Mnemonic	Release
2.0 MBit/s Digital Trunk Interface	129	DTI2	24
— Required for the 1.5/2.0 MBit/s Gateway feature.			
2.0 MBit/s Primary Rate Interface	154	PRI2	24
— Required for the 1.5/2.0 MBit/s Gateway feature.			
Administration Set	256	ADMINSET	21
— Set-based Administration Enhancements			
Advanced ISDN Network Services	148	NTWK	13
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			

Package Name	Number	Mnemonic	Release
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 Forward No Answer	134	AFNA	14
— Attendant Forward No Answer			
— Attendant Forward No Answer Expansion			
Attendant Overflow Position	56	AOP	1
— Attendant Overflow Position			
Attendant Remote Call Forward	253	ARFW	20
— Call Forward, Remote (Network and Attendant Wide)			
Autodial Tandem Transfer	258	ATX	20
— Autodial Tandem Transfer			
Automatic Answerback	47	AAB	1
— Automatic Answerback			
Automatic Call Distribution, Account Code	155	ACNT	13
— Automatic Call Distribution Activity Code			
Automatic Call Distribution Enhanced Overflow	178	EOVF	15
— Automatic Call Distribution Enhanced Overflow			

Package Name	Number	Mnemonic	Release
Automatic Call Distribution Load Management (C2)	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 A	45	ACDA	1
— Automatic Call Distribution			
Automatic Call Distribution, Package B	41	ACDB	1
— Automatic Call Distribution Call Waiting Thresholds (see also packages 40, and 131)			
— Automatic Call Distribution Least Call Queuing			
— Automatic Call Distribution Threshold Visual Indication (see also packages 40, and 131)			
Automatic Call Distribution Package C	42	ACDC	1
— Automatic Call Distribution Report Control (see also package 50)			
— 500/2500 Line Disconnect			
Automatic Call Distribution Package D	50	ACDD	2
— Automatic Call Distribution Report Control (see also package 42)			
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, Priority Agent	116	PAGT	12
— Automatic Call Distribution Priority Agent			

Package Name	Number	Mnemonic	Release
Automatic Call Distribution, Timed Overflow Queuing	111	TOF	10
— ACD Timed Overflow			
Automatic Line Selection	72	LSEL	4
— Automatic Line Selection			
Automatic Number Identification	12	ANI	1
— Automatic Number Identification			
— Automatic Number Identification on DTI			
Automatic Number Identification Route Selection	13	ANIR	1
— Automatic Number Identification Route Selection			
Automatic Trunk Maintenance	84	ATM	7
— Automatic Trunk Maintenance			
Automatic Wake-Up	102	AWU	10
— Automatic Wake Up			
Auxiliary Processor Link	109	APL	10
— Auxiliary Processor Link			
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			

Package Name	Number	Mnemonic	Release
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
— Access Restrictions			
— Attendant Barge-In			
— Attendant Busy Verify			
— Attendant Call Selection			
— Attendant Calls Waiting Indication			
— Attendant Consoles			
— Attendant Incoming Call Indicators			
— Attendant Interpositional Transfer			
— Attendant Lockout			

Package Name	Number	Mnemonic	Release
— Attendant Position Busy			
— Attendant Recal			
— Attendant Secrecy			
— Attendant Splitting			
— Attendant Trunk Group Busy Indication			
— Audible Reminder of Held Calls			
— Automatic Gain Control Inhibit			
— Automatic Preselection of Prime Directory Number			
— Automatic Timed Reminders			
— Auxiliary Signaling			
— Bridging			
— Busy Lamp Field Array			
— Call Forward and Busy Status			
— Call Forward Busy			
— Call Forward by Call Type			
— Call Forward External Deny			
— Call Forward No Answer/Flexible Call Forward No Answer			
— Call Forward, Internal Calls			
— Call Forward No Answer, Second Level			
— Call Forward Save on SYSLOAD			
— Call Pickup			
— Call Redirection by Time of Day			

Package Name	Number	Mnemonic	Release
— Call Transfer			
— Call Waiting/Internal Call Waiting			
— Called Party Disconnect Control			
— Camp-On			
— Capacity Expansion			
— Conference			
— Conference Warning Tone Enhancement for Italy			
— CP3			
— Dial Pulse/Dual-tone Multifrequency Conversion			
— Digital Trunk Interface Enhancements			
— Directory Number			
• Flexible Attendant Directory Number			
• Listed Directory Numbers			
• Single Appearance Directory Number			
• Multiple Appearance Directory Number			
• Prime Directory Number			
— Directory Number Delayed Ringing			
— Diskette Overflow Warning			
— Electronic Brandlining			
— Equal Access Compliance			
— Flexible Orbiting Prevention Timer			
— Handset Volume Reset			
— Handsfree Download (Meridian Digital Telephones			

Package Name	Number	Mnemonic	Release
— Hunting			
• Circular Hunting			
• Linear Hunting			
• Secretarial Hunting			
• Short Hunting			
• Data Port Hunting			
• Trunk Hunting			
— Incremental Software Management			
— Integrated Voice and Data			
— IODU/C			
— Line Lockout			
— Make Set Busy and Voice Call Override			
— Manual Line Service			
— Manual Signaling (Buzz)			
— Manual Trunk Service			
— Meridian 1 Attendant Console Enhancements (see also package 76)			
— Meridian 1 Initialization Prevention and Recovery			
— Multiple Appearance DN Redirection Prime			
— Multiple Console Operation			
— Night Service			
— North American Numbering Plan			
— Off-Hook Alarm Security			
— Off-Premise Extension			
— On-Hook Dialing			

Package Name	Number	Mnemonic	Release
— Overlay Cache Memory			
— Override			
— Paging			
— Predictive Dialing			
— Privacy			
— Privacy Override			
— Privacy Release			
— Private Line Service			
— Public Switched Data Service			
— Recall to Same Attendant			
— Recorded Telephone Dictation			
— Recovery on Misoperation of Attendant Console			
— Ring Again on No Answer (see also package 148)PBX (500/2500) Telephones			
— 500/2500 Line Disconnect			
— Secretarial Filtering			
— Selectable Conferee Display and Disconnect			
— Short Buzz for Digital Telephones			
— Speed Call on Private Lines (see also package 1)			
— Station-to-Station Calling			
— Telephones (PBX and SL-1)			
— Tones, Flexible Incoming			
— Trunk to Trunk Connections			

Package Name	Number	Mnemonic	Release
— Trunk Traffic Reporting Enhancement			
— Uninterrupted Line Connection			
— Voice Call			
— 16 Concurrent Ringers			
— PBX (500/2500) Telephones			
— 500/2500 Line Disconnect			
Basic Queuing	28	BQUE	1
— Basic Queuing			
Basic Rate Interface	216	BRI	18
— Integrated Services Digital Network Basic Rate Interface (see also packages 216, and 235)			
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			
Basic Routing	14	BRTE	1
— Basic Routing			
Call-by-Call Service	117	CBC	13
— Call-by-Call Service			

Package Name	Number	Mnemonic	Release
Call Detail Recording	4	CDR	1
— Call Detail Recording			
— Call Detail Recording Enhancement			
— Call Detail Recording on Redirected Incoming Calls			
— Call Detail Recording with Optional Digit Suppression			
— Call Detail Recording 100 Hour Call			
— NPI and TON in CDR Tickets			
Call Detail Recording Expansion (7 digit)	151	CDRE	13
— Call Detail Recording Expansion			
Call Detail Recording on Teletype Terminal	5	CTY	1
— CDR on TTY			
Call Detail Recording Queue Record	83	CDRQ	3
— ACD CDR Queue Record			
Call ID (for AML applications)	247	CALL ID	19
— Call Identification			
Call Page Networkwide	307	PAGENET	22
— Call Page Network Wide			
Call Park	33	CPRK	2
— Call Park			
— Recall after Parkin			
Call Park Networkwide	306	CPRKNET	22
— Call Park Network Wide			
Call Processor Input/Output (Option 81)	298	CPIO	21
— Call Processor Input/Output)			

Package Name	Number	Mnemonic	Release
Called Party Control on Internal Calls	310	CPCI	22
— China Phase III - Called Party Control on Internal Calls			
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 Privacy	301	CPP	21
— Calling Party Privacy			
— Calling Party Privacy Enhancement			
Call Waiting Notification (Meridian 911)	225	CWNT	19
— Call Waiting Notification (Meridian 911)			
Centralized Attendant Services (Main)	26	CASM	1
— Centralized Attendant Services - Main			
Centralized Attendant Services (Remote)	27	CASR	1
— Centralized Attendant Services – Remote			
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			
CLASS Calling Name Delivery	333	CNAME	23
— CLASS			
CLASS Calling Number Delivery	332	CNUMB	23
— CLASS			

Package Name	Number	Mnemonic	Release
Command Status Link	77	CSL	8
— Command Status Link			
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			
Customer Controlled Routing	215	CCR	17
— Customer Controlled Routing			
— MFC Interworking with AML Based Applications (see also packages 128, and 214)			
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			

Package Name	Number	Mnemonic	Release
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			
Digit Display	19	DDSP	1
— Digit Display			
Digit Key Signaling	180	DKS	1
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 Expansion (7 Digit)	150	DNXP	13
— Directory Number Expansion			
Distinctive Ringing	74	DRNG	4/9
— Distinctive/New Distinctive Ringing			
Do-Not-Disturb, Group	16	DNDG	1
— Do Not Disturb Group			

Package Name	Number	Mnemonic	Release
Do-Not-Disturb, Individual	9	DNDI	1
— Do Not Disturb			
— Network Individual Do Not Disturb (see also packages 127, and 159)			
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 Hot Line	70	HOT	4/10
— Hot Line			
— Network Intercom			
Enhanced Music	119	EMUS	12
— Music, Enhanced			
Enhanced Night Service	133	ENS	20
— Enhanced Night Service			
Emergency Services Access	329	ESA	23
— Emergency Services Access (See also packages 330 and 331)			

Package Name	Number	Mnemonic	Release
Emergency Services Access Calling Number Mapping	331	ESA_CLMP	23
— Emergency Services Access (See also packages 329 and 330)			
Emergency Services Access Supplementary	330	ESA_SUPP	23
— Emergency Services Access (See also packages 329 and 331)			
Executive Distinctive Ringing	185	EDRG	22
— Executive Distinctive Ringing			
— Distinctive Ringing by DN			
Fast Tone and Digit Switch	87	FTDS	7
— Fast Tone Digit Switch			
Feature Group D	158	FGD	17
— Feature Group D (Inbound to Meridian 1)			
FCC Compliance for DID Answer Supervision	223	FCC68	17
— Federal Communications Commission Compliance for DID Answer Supervision			
Flexible Call Back Queuing	61	FCBQ	1
— Flexible Call Back Queuing			
Flexible Direct Inward Dialing	362	FDID	24

Package Name	Number	Mnemonic	Release
Flexible Feature Codes	139	FFC	15
— Call Forward/Hunt Override Via Flexible Feature Code			
— Calling Party Privacy			
— 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 Tones and Cadences	125	FTC	16
— Flexible Tone and Digit Switch Control			
— Reverse Dial on Routes and Telephones			
— Tones and Cadences			
Forced Charge Account	52	FCA	1
— Charge Account, Forced			
Group Call	48	GRP	1
— Dial Access to Group Calls (see also package 139).			
— Group Call			

Package Name	Number	Mnemonic	Release
History File	55	HIST	1
— History File			
Hold in Queue for IVR	218	IVR	18
Hospitality Screen Enhancement	208	HSE	17
— Hospitality Enhancements: Display Enhancements			
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			
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 Enhancements			
Integrated Services Digital Network Signaling Link	147	ISL	13
— Call Connection Restriction (see also packages 146 and 161)			
Inter-Exchange Carrier	149	IEC	13
— Inter Exchange Carrier			
Intercept Treatment	11	INTR	1
— Intercept Treatment			

Package Name	Number	Mnemonic	Release
Internal CDR	108	ICDR	10
— Internal Call Detail Recording			
Last Number Redial	90	LNR	8
— Last Number Redial			
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			
Maid Identification	210	MAID	17
— Maid Identification			
Make Set Busy	17	MSB	1
— Make Set Busy			
Malicious Call Trace	107	MCT	10
— Enhanced Malicious Call Trace			
— Malicious Call Trace			
— Malicious Call Trace DN/TN Print			
— Malicious Call Trace Idle			
MAT 5.0	296	MAT	22
Meridian 1 Companion Option	240	MCMO	19
— Meridian 1 COMPANION			

Package Name	Number	Mnemonic	Release
Meridian 1 Companion 500	350	MC500	24
— Meridian 1 Enhanced Capacity			
Meridian 1 Microcellular Option	303	MMO	22
Meridian 1 Mobility Multi-Site Networking	314	MMSN	22
Meridian Hospitality Voice Service	179	HVS	16
— Meridian Hospitality Voice Services			
Meridian Link Modular Server	209	MLM	16
— Meridian Link Enhancements			
Meridian SL-1 ST Package	96	SLST	9
— Meridian SL-1 ST Package			
Meridian 1 Enhanced Conference, TDS and MFS	204	XCT0	15
— Meridian 1 Enhanced Conference, TDS and MFS			
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 1 Fault Management	243	ALRM_FILTER	19
— Alarm Management			
Meridian 1 Packet Handler	248	MPH	19
— Meridian 1 Packet Handler			

Package Name	Number	Mnemonic	Release
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 911	224	M911	19
— Meridian 911 Enhancements – Call Abandon			
— Meridian 911 Enhancements – MADN Display Coordination			
Message Waiting Center	46	MWC	1
— Message Waiting Lamp Maintenance			
— Message Waiting Unconditional			
— Meridian Mail Trunk Access Restriction			
Mobility Server	302	MOSR	22
Multi-Language Wake Up	206	MLWU	16
— Multi-language Wake Up			
Multi-Party Operations	141	MPO	20
— Attendant Clearing during Night Service			
— Multi-Party Operations			
Multi-User Login	242	MULTI_USER	19
— Multi-User Login			
Multiple-Customer Operation	2	CUST	1
— Multiple Customer Operation			
Multiple Queue Assignment	297	MQA	21
— Multiple Queue Assignment			

Package Name	Number	Mnemonic	Release
Multiple-Tenant Service	86	TENS	7
— Multi-Tenant Service			
Music	44	MUS	1
— Musicc			
Music Broadcast	328	MUSBRD	23
— Music Broadcast			
M2000 Digital Sets	88	DSET	7
— Distinctive Ringing for Digital Telephones			
— M2312 Digit Display			
— 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			
Network Authorization Code	63	NAUT	1
— Network Authorization Code			
Network Class Of Service	32	NCOS	1
— Network Class of Service			
Network Priority Queuing	60	PQUE	1
— Network Priority Queuing			
New Flexible Code Restriction	49	NFCR	2
— China Number 1 Signaling Trunk Enhancements (see also packages 113, 128, and 131)			
— New Flexible Code Restriction			

Package Name	Number	Mnemonic	Release
New Format CDR	234	FCDR	18
— Call Detail Recording Time to Answer			
— CDR on Busy Tone			
Next Generation Connectivity	324	NGEN	22
Nortel Symposium Call Center	311	NGCC	22
Office Data Administration System	20	ODAS	1
— Office Data Administration System			
Off-Hook Queuing	62	OHQ	1
— Network Drop Back Busy and Off-hook Queuing (see also package 192)			
Optional Outpulsing Delay	79	OOD	5
— Optional Outpulsing Delay			
Open Alarms	315	OPEN ALARM	22
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)			
Originator Routing Control	192	ORC_RVQ	18
— Network Drop Back Busy and Off-hook Queuing (see also package 62)			
— Remote Virtual Queuing			
Pretranslation	92	PXLT	8
— Pretranslation			

Package Name	Number	Mnemonic	Release
Phantom TN	254	PHTN	20
— Phantom TNs			
Property Management System Interface	103	PMSI	10
— Property Management System Interface			
Priority Override/Forced Camp-On	186	POVR	20
— Forced Camp-on and Priority Override			
Recorded Announcement	7	RAN	1
— Recorded Announcement			
Recorded Announcement Broadcast	327	RANBRD	23
— Recorded Announcement Broadcast			
Remote IPE	286	REMOTE_IPE_ PKG	
— Remote Intelligent Peripheral Equipment			
Room Status	100	RMS	10
— Room Status			
Recorded Overflow Announcement	36	ROA	2
— Recorded Overflow Announcement			
Scheduled Access Restrictions	162	SAR	20
— Scheduled Access Restrictions			
Semi-Automatic Camp-On	181	SACP	15
— Attendant Blocking of Directory Number			
— Attendant Idle Extension Notification			
— Semi-Automatic Camp-On			
Single Term Access	228	STA	19
— Single Term Access			
Series Call	191	SECL	15
— Series Call			

Package Name	Number	Mnemonic	Release
Set Relocation	53	SR	1
— Automatic Set Relocation			
Station Activity Records	251	SCDR	20
— Station Activity Records			
Station Category Indication	80	SCI	7
— Station Category Indication			
Station Camp-On	121	SCMP	20
— Station Camp-On			
Station Loop Preemption	106	SLP	10
Station Specific Authorization Codes	229	SSAU	19
— Station Specific Authorization Code			
Stored Number Redial	64	SNR	3
— Stored Number Redial			
Supervisory Attendant Console	93	SUPV	8
— Supervisory Attendant Console			
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)			
Time and Date	8	TAD	1
— Time and Date			
Tone Detector	65	TDET	7
— Tone Detector			

Package Name	Number	Mnemonic	Release
Trunk Barring	132	TBAR	20
— Trunk Barring			
Trunk Hook Flash (Centrex)	157	THF	14
— Centrex Switchhook Flash			
— Italian Central Office Special Services (see also packages 129, and 131)			
Trunk Verification from Station	110	TVS	9.32
— Trunk Verification from a Station			
VIP Auto Wake Up	212	VAWU	17
— Hospitality Enhancements: V.I.P. Auto Wake Up			
Voice Mailbox Administration	246	VMBA	19
— Meridian Mail Voice Mailbox Administration			
500 Set Dial Access to Features	73	SS5	4
— 500 Set Features			
2500 Set Features	18	SS25	1
— Call Hold, Permanent			
— 2500 Set Features			

ACCL Enhancements

Certain networks have been configured that require the end user to enter an Authorization Code when processing calls. Different customers want to provide different tone/signals to the end user to inform them when to enter the Authorization Code.

The existing Authorization Code Conditionally Last (ACCL) feature provides an optional recorded announcement followed by 10 bursts of dial tone and then steady dial tone to prompt the user to enter the Authorization Code. Many end users do not recognize what these tones are, and end up abandoning the call. Another limitation of this feature is that the users are unable to interrupt the Recorded Announcement by entering the Authorization Code.

The Authorization Code Conditionally Last Enhancements (ACCLE) feature allows the user to receive an optional Recorded Announcement, followed by configurable bursts of tone and a steady dial tone. If the user enters the Authorization Code during Recorded Announcement, then Recorded Announcement is interrupted.

Operating parameters

The ACCL Enhancements feature applies to option 11C, 51C, 61C, 81, and 81C systems running X11 release 24 and later software. The feature is applicable to all the call types provided over a network (ISDN, BARS, NARS, CDP, DISA, analog, and digital).

Two new prompts, “ACLE” and “BRST” are introduced in LD 88:

- ACLE decides whether RAN messages can be made interruptible. Also, ACLE decides if Authorization Code Request Tone has to be given immediately when all the RAN trunks are busy/disabled or the RAN machine is disabled.
- BRST decides the numbers of initial bursts of tone to be given. This prompt can accept a value ranging from 0 to 10. The maximum value of BRST can be 10.

A new prompt ABST has been added in LD 56 to configure the cadence for the initial burst of tone. The ABST prompt is followed by subprompts XTON (if XCT card is enabled) or TDSH (if TDS card is enabled), XCAD and CDNC.

If the BRST value is 0, then the RAN message is followed by the steady dial tone as configured for the ABST prompt in LD 56. The user has to ensure that the XTON/TDSH (if the Japan Tones package (JTDS package 171) is enabled), XCAD, and CDNC prompts are configured for steady dial tone value if required. In addition to this, the first ON phase should be configured as zero in MCAD for steady dial tone to take effect immediately. It is important that if the ON phase is not made zero, burst tone will be heard when the user expects steady dial tone, even when BRST is zero.

If the BRST value is configured as zero in LD 88, then the user is given the Authorization Code Request Tone as per the guidelines listed above.

If the first ON phase is zero, then steady dial tone is given immediately.

Initial bursts of tone are stopped and steady dial tone is given immediately if any OFF phase is configured as zero in the MCAD table.

If the Japan Tones package (JTDS package 171) is enabled then steady special dial tone is given after the initial bursts. If the BRST value is zero then the user has to ensure that the XTON/TDSH, XCAD, and CDNC values of ABST prompts are set to special dial tone value.

If all MIRAN/RAN channels are busy/disabled or the RAN machine is disabled, then the caller is immediately given the authorization code request tone and is allowed to enter the authorization code. An error message, ERR9050, is sent to the TTY for technician follow-up. This is done only if the ACLE prompt in LD 88 is set to YES.

When the caller enters the authorization code, the digits are suppressed on any display telsets (optional).

While configuring a new cadence table in LD 56, if values of XTON/TDSH, XCAD and CDNC are not entered, then values are picked up from the default table.

Note: In the case of BRST=0, the values picked up from the default table will give a burst instead of steady dial tone. Make sure that the first ON phase in MCAD is set to zero to get immediate steady dial tone.

As with the base ACCL feature, the ACCLE feature does not support BRI sets.

If a RAN trunk is seized and the RAN machine is down at the time, the caller will receive silence for the duration of the RAN message time, then the Authorization Code Request Tone will be provided.

Feature interactions

NARS/BARS/CDP

With the Network Authorization code (NAUT) feature, users dialing a NARS, BARS, or CDP call can be prompted conditionally to enter an authorization code. The prompt is by an authorization request tone, which consists of 10 bursts of dial tone, followed by steady dial tone. The authorization request tone can optionally be preceded by an appropriate recorded announcement. The ACCLE feature changes the authorization request tone by replacing the 10 bursts of dial tone with a configurable burst of tone, followed by steady dial tone. Also, this feature allows the Recorded Announcement to be interruptible. The functionality of NARS, BARS, and CDP are not affected by the ACCL Enhancements feature.

Direct Inward System Access (DISA)

Users accessing a Meridian 1 node via the Direct Inward System Access (DISA) feature to make a NARS, BARS, or CDP call all are prompted for an authorization code. This prompt is by an authorization request tone, which consists of 10 bursts of dial tone, followed by steady dial tone. The authorization tone can, optionally, be preceded by an appropriate recorded announcement. The ACCLE feature changes the authorization request tone by replacing the 10 bursts of dial tone with a configurable burst of tone, followed by steady dial tone. Also, this feature allows the Recorded Announcement to be interruptible. The ACCLE feature does not affect the functionality of DISA.

Network Authorization code/Basic Authorization code (NAUT/BAUT)

The authorization code feature enables selected users to temporarily override the access restrictions assigned to a station or trunk. A user can enter an authorization code (authcode) to access more of the system facilities than would normally be allowed to the particular station or trunk because of the assigned Network Class of Service (NCOS). The Network Authorization code feature provides two package options:

- Basic Authorization codes (BAUT) for general applications.
- Network Authorization codes (NAUT) for network applications.

With the NAUT package, users can be prompted conditionally for an authcode after dialing a NARS call. The prompt is by the ACCL Enhancements Authorization Code Request Tone, that consists of a configurable burst of dial tone, followed by steady dial tone. The ACCL Enhancements feature allows the user to interrupt the recorded announcement and enter an authorization code. The functionality of NAUT/BAUT is not affected by the ACCL Enhancements feature.

Authorization Code Conditionally Last (ACCL)

In ACCL, users are prompted by an Authorization Code Request Tone, which consists of 10 bursts of dial tone, followed by steady dial tone. The Authorization Code Request Tone is optionally preceded by an appropriate Recorded Announcement (RAN). The ACCL Enhancements feature changes the Authorization Code Request Tone by allowing the 10 bursts of dial tone to be replaced by a configurable burst of tone, followed by steady dial tone. ACCL Enhancements allows the Recorded Announcement to be interruptible conditionally, based on whether prompt ACLE is YES or NO in LD 88.

Recorded Announcement (RAN)

The ACCLE feature enables the RAN to be interrupted by the entry of an Authorization Code. If all RAN trunks are busy/disabled or the RAN machine is disabled, then an error message is printed on the TTY and the ACCLE Authorization Code Request Tone is given (that consists of a configurable burst of dial tone, followed by steady dial tone).

Speed Call/Autodial with Authorization Code

Speed Call/Autodial with Authorization Code allows an Authorization Code to be included in a Speed Call entry or an Autodial key. The call cannot be terminated by storing the passcode in the Autodial key. The user is still prompted for authorization by the Authorization Code Request Tone as defined in LD 56.

RAN Broadcast

The RAN Broadcast feature allows the same trunk to be shared by calling parties receiving a RAN announcement.

In order to provide Recorded Announcement for the ACCLE feature, the RAN trunk from the RAN Broadcast machine can be used. However, ACCLE does not impact the functionality of RAN Broadcast.

Feature packaging

This feature does not introduce any new packages.

The following feature packages are required:

- Basic Authorization Code (BAUT), package 25
- Basic Alternate Route Selection (BARS), package 57.
- Network Alternate Route Selection (NARS), package 58.
- Network Authorization Code (NAUT), package 63

The following packages are required for ACCLE to be completely functional:

- Recorded Announcement (RAN), package 7 (if the RAN package is not equipped, no recorded announcement will be given). RAN requires Intercept Treatment (INTR) package 11.
- Flexible Tones and Cadences (FTC), package 125 (if the FTC package is not equipped, it is not possible to configure the initial burst or steady dial tone).

The following feature packages can optionally be used with ACCLE:

- Direct Inward System Access (DISA), package 22.
- Network Class of Service (NCOS), package 32
- Coordinated Dialing Plan (CDP), package 59.
- Scheduled Access Restrictions (SAR), package 162.
- Supplementary Package (SUPP), package 131.
- RAN Broadcast Package (RAN_BRDCST), package 327

Table 3 shows the different combinations of packages and the combination results. An “X” in the table indicates that the particular package is not equipped.

Table 1
ACCLE package combinations

Package Name	NARS	RAN ^a	BARS	BAUT	NCOS	FTC	NAUT	Result
Package Combination	X		X					ACCLE not functional
Package Combination		X					X	ACCLE partially functional ^b
Package Combination				X				ACCLE not functional
Package Combination						X		ACCLE partially functional ^c
Package Combination					X			ACCLE not functional
Package Combination							X	ACCLE not functional

a. The RAN package requires the INTR package (package 11).

b. If the Recorded Announcement (RAN) package is not equipped then no recorded announcement will be given.

c. If the Flexible Tones and Cadences (FTC) package is not equipped then it is not possible to configure the initial burst or steady dial tone.

Cadence Calculations

A cadence is defined at the CDNC prompt in LD 56 by entering the time for each ON and OFF phase. The time depends on the setting for the TMRK prompt in LD 17, which defines the software cadence increments as 96 or 128 ms. For each phase, enter the closest multiple of 5 ms equal to the multiple of 96 or 128 ms which gives the time required.

CDNC Calculation Example

Given that TMRK is set to 128 ms in LD 17, and a repeating 2 seconds on, 4 seconds off cadence is required:

1 Determine the ON phase (2 seconds = 2000 ms)

$2000/128 = 15.625 = 16$ (always round up)

$128 \times 16 = 2048$ ms

Round 2048 up to next multiple of 5 = 2050

Entry for prompt CDNC = $2050/5 = 0410$

2 Determine the OFF phase (4 seconds = 4000 ms)

$4000/128 = 31.25 = 32$

$128 \times 32 = 4096$ ms

Round 4096 up to next multiple of 5 = 4100

Entry for prompt CDNC = $4100/5 = 0820$

Feature implementation

LD 16 – Configure Recorded Announcement (RAN).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number associated with this route.
ROUT	0-511 0-127	Route number for options 51C-81C. Route number for option 11C.
...	...	...
TKTP	RAN	Trunk type
RTYP		Recording device for RAN trunks.
	AUD	Audichron or Cook 212, required for XUT trunks.
	CAP	Code-a-Phone.
	CK2	Cook 201 or QAY 1.
	CON	Cook 201 or Multichannel.
	DGT	213300 and 213400 Digital Recorders.
	LVL	Level start/stop (Enhanced Universal Trunk cards)
	PUL	Pulse start/stop (Enhanced Universal Trunk cards)
...	...	...
REP	1-15	Number of RAN repetitions.
...	...	...

LD 14 – Configure Recorded Announcement (RAN).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RAN	RAN trunk.
TN	l s c u c u	Terminal Number. Options 51C-81C. Option 11C.
...	...	...
XTRK	XUT	Universal trunk card.
CUST	xx	Customer number associated with this trunk.
RTMB	0-511 1-510 0-127 1-510	Route number and Member number. Option 11C format.
TIMP	1200	Termination impedance. Use 1200 ohms for RAN trunks.

LD 88 – Enable ACCL Enhancements (ACCLE) feature.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	AUB	Authorization Block.
CUST	0-99	Customer number associated with this function.
SPWD	xxxx	Secure data password.
ACDR	YES	Activate CDR for authcodes.
ALEN	1-14	Authorization Code length.
RANR	0-511	Recorded Announcement Route Number, if available.
	0-127	Option 11C.
	X	If RAN route is not available.
ACLE	YES	Recorded Announcement interruption is required.
BRST	0-(10)	Number of initial bursts of dial tone to be given.
...	...	...

LD 56 – Configure the ACCL Enhancements feature cadences.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	FTC	Flexible tones and cadences.
TABL	0-31	FTC table number.
DFLT	0-31	Default table number.
RING	<CR>	
HCCT	<CR>	
SCCT	YES	Change software controlled cadence tone definitions.
...	...	...
ABST		Authorization Burst of Tone
-XTON	0-(4)-255	NT8D17 TDS Tone code.
-XCAD	(0)-255	NT8D17 cadence tone for FCAD.
-CDNC	0-(2)-255	MCAD table entry for this cadence.
...	...	...

LD 56 – Configure the Firmware Cadence Table (FCAD).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	FCAD	Firmware cadence table.
WCAD	0-255	Cadence number in master cadence table.
CDNC	0410 0820	2 seconds on, 4 seconds off <i>See Cadence Calculations on page 66.</i>

LD 56 – Configure the Master Cadence Table (MCAD).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	MCAD	Master cadence table.
WCAD	0-255	Cadence number in master cadence table.
CDNC	0410 0820	2 seconds on, 4 seconds off.

Feature operation

There are no specific operating procedures required to use this feature.

Access Restrictions

Access restrictions limit terminal access to the exchange network, private network, and certain services and features.

Access restrictions can be temporarily overridden by the use of other features, if equipped, including Forced Charge Account, Authorization Code, and System Speed Call.

During the call origination process, access checks are made by the Meridian 1 on the following:

- the Class of Service (CLS) of the individual terminal
- the Trunk Group Access Restriction (TGAR) code of the 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
- the area and exchange codes dialed by terminals with Toll Denied or Conditionally Toll Denied Class of Service using direct trunk access codes and Code Restriction tables, and
- the Network Class of Service (NCOS) of the terminal if BARS/NARS or Coordinated Dialing Plan (CDP) access codes are dialed or if direct trunk access codes are dialed and New Flexible Code Restriction tables are programmed.

If any restrictions are detected when a call is placed, the call is given intercept treatment as defined in the Customer Data Block.

Class of Service restrictions

The Class of Service restrictions assigned to telephones and TIE trunks control the degree of access to and from external networks and certain features within the system. The eight possible Class of Service access restrictions are described in this feature module. These restrictions are applied by service change overlay programs to terminals. Table 2 lists the type of terminals and the corresponding overlay program.

Table 2
Type of terminal and corresponding overlay programs

Terminal Type	Overlay
Analog (500/2500 type) telephone	10
Meridian 1 proprietary telephones, Meridian Mail channels	11
Incoming TIE trunks	14
Authorization Codes	88
DISA ports	24

Descriptions of the eight Class of Service access restrictions follow, from the most restricted to the least restricted.

Fully Restricted Service

There are three levels of Fully Restricted Service:

- FR2
 - allowed to originate and receive internal calls
 - denied access to TIE and Common Controlled Switching Arrangement networks
 - denied access to and from the exchange network, either by dialing, through an attendant, or using call modification from an unrestricted telephone

Call modification takes place when certain features are activated while a call is in progress (e.g., Call Park, Call Pickup, Call Transfer, Conference, or Night Answer).

- FR1
 - allowed to originate and receive internal calls
 - allowed access to TIE and CCSA networks
 - denied access to and from the exchange network, either by dialing through an attendant or by using call modification from an unrestricted telephone

Note: In a networking environment, incoming and outgoing calls can be extended, via call modification, to a telephone with CLS = FR1.

If a telephone with CLS = FR1 is in a Multiple Appearance DN (MADN) arrangement, the call may be presented if at least one of the telephones has CLS = UNR. Once the call is presented it will ring all telephones in the MADN group. However, only UNR telephones can answer the call.

- FRE
 - allowed to originate and receive internal calls
 - allowed access to TIE and CCSA networks
 - allowed access to and from the exchange network using call modification from an unrestricted telephone
- denied access (either by dialing or through an attendant) to and from the exchange network

Note: The FRPT prompt in LD 17 allows or denies access to incoming calls for FRE CLS telephones. It allows FRE calls to Call Pickup, Night Answer, and to receive modified calls.

The assignment of Incoming Call Indicator (ICI) keys allows the attendant to recognize which calls are fully restricted:

- DF0 = calls from FRE, FR1, and FR2 CLS, and
- DL0 = calls from CUN, CTD, TLD, SRE, and UNR CLS.

Semi-Restricted Service (SRE)

- allowed to receive calls from the exchange network
- restricted from all dial access to the exchange network
- allowed to access the exchange network through an attendant or an unrestricted telephone only

Toll Denied Service (TLD)

- allowed to receive calls from the exchange network
- allowed access to WATS trunks for toll calls using direct trunk access codes, unless New Flexible Code Restriction (NFCR) is programmed to deny certain digits
- denied from calls on Central Office/Foreign Exchange (CO/FX) trunks where 0 or 1 is dialed as a first or second digit following a direct trunk access code. Special numbers, such as 411, 611, and 911, are allowed by default unless restricted specifically by NFCR.
- denied from toll calls on CO/FX trunks when BARS or NARS access codes are dialed, unless NFCR tables allow the call

- allowed toll calls on WATS trunks using BARS or NARS access codes, unless NFCR tables deny digits
- allowed access to the toll exchange network through an attendant or an unrestricted telephone
- allowed toll calls and special number calls on TIE trunks, unless NFCR tables specifically deny certain digits. Direct trunk access to toll calls on TIE trunks is permitted, as well as BARS or NARS access.

Conditionally Toll Denied Service (CTD)

- allowed to receive calls from the exchange network
- allowed access to WATS trunks for toll calls using direct trunk access codes, unless New Flexible Code Restriction (NFCR) is programmed to deny certain digits
- denied from calls on CO/FX trunks where 0 or 1 is dialed as a first or second digit following a direct trunk access code (special numbers excepted). New Flexible Code Restriction tables can be used to deny or allow certain calls on these routes.
- allowed access to toll calls on CO/FX/WATS trunks placed using BARS or NARS or CDP access codes. NFCR tables, if programmed on the routes, are ignored for CTD users dialing Electronic Switched Network (ESN) access codes.
- allowed toll calls and special number calls on TIE trunks, unless NFCR tables specifically deny certain digits. Direct trunk access is permitted as well as BARS or NARS access. NFCR tables deny calls for these users only if direct TIE trunk access codes are used.

Conditionally Unrestricted Service (CUN)

- allowed access for calls placed through Automatic Number Identification (ANI) trunks
- denied access for all other types of outgoing calls

Unrestricted Service (UNR)

- allowed to originate and receive calls from the exchange network

The eight possible Class of Service access restrictions are described in Table 3.

Table 3
Class of Service chart

	UNR	CTD/CUN	TLD	SRE	FRE	FR1	FR2
Incoming trunk calls	Yes	Yes	Yes	Yes	No Yes, if using call modification. (See page 44.)	No	No
Outgoing non-toll trunk calls	Yes	Yes	Yes	No direct access Yes, if using attendant or UNR telephone	No direct access Yes, if using UNR telephone	No	No
Outgoing toll trunk calls (0 or 1+ on COT or FX)	Yes	No direct access Yes, if using BARS/NARS	No direct access Yes, if using attendant or UNR telephone	No direct access Yes, if using attendant or UNR telephone	No direct access Yes, if using UNR telephone	No	No
To/From TIE trunk	Yes	Yes	Yes	Yes	Yes	Yes	No
To/From internal	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BARS/NARS calls TGAR = No	Uses NCOS only	Uses NCOS only	Uses NCOS and CLS	Uses NCOS and CLS	Uses NCOS and CLS	Uses NCOS and CLS	Uses NCOS and CLS
BARS/NARS calls TGAR = Yes	Uses NCOS and TGAR	Uses NCOS and TGAR	Uses NCOS, CLS, and TGAR	Uses NCOS, CLS, and TGAR	Uses NCOS, CLS, and TGAR	Uses NCOS, CLS, and TGAR	Uses CLS only

Code Restriction

Code Restriction allows limited access to the toll exchange network to stations and TIE trunks with a Toll Denied Class of Service (TLD). A Code Restriction Block that specifies the allowed area and exchange codes (200 through 999) is built for each trunk route. This block restricts access to specific area and exchange codes by monitoring the digits dialed.

There can be only one Code Restriction Block per route. The only routes that use Code Restriction Blocks are Central Office Trunk (COT) and FX, since they are toll routes. Code Restriction Blocks are ignored for all other types of routes.

When a telephone or TIE trunk with a CTD, CUN, or TLD Class of Service directly access a COT or FX route, the system examines the Code Restriction Block to determine the call eligibility.

Special numbers 01, 011, 411, 611, 800, and 911 are allowed by default. These special numbers, however, can be restricted in the Code Restriction Block so that they cannot be dialed successfully.

Code Restriction Blocks only perform three-digit screening. For 1+ dialing areas, the system can ignore the 1 when examining the TLD telephone dialed number. The 1 is later outputted with the dialed number to complete the call successfully.

Trunk Group Access Restriction

Trunk Group Access Restriction (TGAR) controls access to the exchange network, TIE trunks, CCSA trunks, and paging and dictation services.

Telephones (LD 10, LD 11), TIE trunks (LD 14), Direct Inward System Access (DISA) trunks (LD 24), Meridian Mail channels (LD 11), and Authorization Codes (LD 88) are assigned a TGAR code, which is used to block access to certain trunk groups entirely.

As of X11 Release 13, there can be up to 32 TGAR codes in use on a system (0-31). Previous to Release 13, there were only 16 codes (0-15).

When a telephone or TIE trunk dials the access code to a trunk route, the system first checks the Class of Service of the terminal. If access is allowed, the TGAR is checked next. If the TGAR of the originating terminal matches one of the listed Trunk Access Restriction Group (TARG) codes programmed against the trunk group, access is denied. Intercept treatment is given to denied calls. A list of TARG codes can be programmed in LD 16 against each route, where applicable, to block access by certain terminals.

Optionally, the TGAR can be used to block access to certain routes even when a BARS or NARS access code is dialed and the route is being seized. To enable/disable the TGAR option, the TGAR prompt must be defined in the Electronic Switched Network (ESN) data block in LD 86.

When denied access because of TGAR, a user may still gain access to a route via the Attendant Console or an unrestricted terminal.

If the attendant uses the Trunk Group Busy (TGB) keys on the console to make trunk groups busy, terminals with TGAR code 0-7 are intercepted to the attendant when they access the route by dialing or try to gain access using ESN access codes. Terminals with TGAR code 8-31 continue to have access to the route, unaffected by the activation of the TGB keys.

By default, TGAR code 0 means the terminal has access to all routes.

The following example further explains Trunk Group Access Restrictions. Assume a customer has seven trunk routes:

TGAR	Access denied to routes
Route 0	COT
1	WATS
2	FX 1
3	FX 2
4	TIE 1
5	TIE 2
6	Paging

Assume the following seven TGAR codes are required:

TGAR	Access denied to routes
0	No restrictions (default)
1	0, 1, 2, 3, 4, 5, 6
2	2, 3, 4, 5
3	3, 4, 5
4	2, 6
5	3, 4, 5, 6
6	5, 6

The TGAR/TARG matrix summary is as follows:

Trunk Type	Route number	TARG Code
		0 1 2 3 4 5 6 7-31
COT	0	1
WATS	1	1
FX 1	2	1 2 4
FX 2	3	1 2 3 5
TIE 1	4	1 2 3 5
TIE 2	5	1 2 3 5 6
Paging	6	1 4 5 6

It follows from the matrix summary that a telephone or TIE trunk was assigned one of the following TGAR codes:

- 0 (has no restrictions)
- 1 (cannot access trunk routes 0 through 6)
- 2 (cannot access trunk routes 2 through 5)

- 3 (cannot access trunk routes 3 through 5)
- 4 (cannot access trunk routes 2 and 6)
- 5 (cannot access trunk routes 3 through 6)
- 6 (cannot access trunk routes 5 and 6)

Trunk signaling arrangements

Trunk-to-trunk connections are further controlled by the signaling and supervision arrangements assigned to each trunk. Table 4 summarizes the trunk signaling arrangements.

Table 4
Trunk signaling arrangements

From	To		
	Trunk with/without disconnect supervision	Paging dictation trunk	Telephone (non-trunk)
Trunk with disconnect supervision	Yes	No	Yes
Trunk without disconnect supervision	No	No	Yes
RAN/Paging dictation trunk	No	No	No
Telephone	Yes	Yes	Yes
Note: Yes = connection allowed No = connection disallowed			

Two outgoing trunks cannot be connected unless a supervising party, local to the Meridian 1 system, is conferenced in the call. This is true regardless of the supervisions.

Transfer from a supervised trunk to a non-supervised loop start trunk is not permitted.

Operating parameters

If a conflict exists between the Class of Service (CLS) and Trunk Group Access Restrictions (TGAR), the access denied restriction takes precedence.

Access restrictions are applied through service change overlay programs. Access to telephone and trunk features is denied in the respective data block by allowing the system to default to a denial, by not entering the appropriate feature code, or by not assigning the feature to a key/lamp pair. You must enable the features and access restrictions you want, on a customer and telephone level.

Services such as paging and dictation can be restricted through TGAR codes, because the auxiliary equipment is linked to the Meridian 1 system by way of trunks.

Feature interactions

AC15 Recall: Timed Reminder Recall

With call modification, a trunk-to-trunk connection is controlled by signaling, recall capability and the supervision assigned to each trunk. For example, an established call from an unsupervised trunk cannot be transferred over another trunk.

When the AC15 Timed Reminder Recall feature is to be activated, an established call with an unsupervised trunk may be extended over an AC15 trunk because the connection is controlled before the called party answers by the AC15 recall timer.

Call Park

A call can be parked on any DN, regardless of its Class of Service. Access to a parked call is governed by the same Class of Service restrictions for normal trunk-to-telephone call processing. Table 5 details the restrictions. These restrictions can be overridden with the Authorization Code.

Table 5
Parked call access

Parked call type	Accessing telephone Class of Service		
	FRE	FR1	FR2
Telephone	allowed	allowed	allowed
CO/FX/WATS	denied	denied	denied
DID Trunk	denied	denied	denied
TIE trunk	allowed	allowed	denied

Call Pickup Network Wide

All access restrictions applicable to Network Alternate Route Selection (NARS)/Basic Alternate Route Selection (BARS) calls (including Class of Service, Network Class of Service, Trunk Barring (TBAR), and New Flexible Code Restriction (NFCR) restrictions based on digit manipulation) apply to a redirected call from the receiving node to the requesting node. This means that there are no limitations added to the access restriction checks for calls being redirected by the Call Pickup Network Wide feature.

If the call is blocked because of any of these access restrictions on either the receiving, tandeming, or requesting node, the originally called party is re-rung and the party attempting to pick up the call receives overflow tone.

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

The connection between the network user (extension or trunk) and the DPNSS1 UDP trunk can be barred based on the Class of Service Restrictions of the parties involved. The connection between the network user (extension or trunk) and the DPNSS1 trunk can also be barred based on the Trunk Group Access Restrictions feature. It is possible to bar the connection between originator and terminator through a DPNSS1 UDP trunk based on the DPNSS1 signaling information.

The Code Restriction sub-feature is not supported.

Direct Inward System Access

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

Group Hunt

If a routing-associated DN is programmed in a group hunt list, the access restrictions based on the Class of Service and/or TGAR of the calling station/route apply.

ISDN QSIG/EuroISDN Call Completion

ISDN QSIG/EuroISDN Call Completion does not override Access, Call Restriction or Trunk Group Access restrictions. When Call Completion is activated, the second call has the same restrictions as the initial call that received either no answer or a busy indication.

New Flexible Code Restriction

The Code Restriction feature and New Flexible Code Restriction cannot be implemented simultaneously for the same customer.

Scheduled Access Restrictions

The Trunk Access Restriction Group (TARG) defined for each route is not altered by Scheduled Access Restrictions. Access to the route is denied to any telephone or trunk assigned a Trunk Group Access Restriction code that is part of the TARG.

Trunk Barring

Trunk Barring is at the top of the hierarchy for access restrictions.

Virtual Network Services

Any VNS call is subject to the same Class of Service restrictions as if the call was performed on a TIE trunk, regardless of the type of Bearer trunk used.

Trunk Group Access Restrictions (TGARs) do not apply to VNS, and therefore they never restrict a VNS call from being made.

Feature packaging

The Access Restrictions feature is included in base X11 system software.

Feature implementation

LD 10 – Assign a Class of Service and TGAR code for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
TGAR	X, (0)-31	Station or trunk TGAR. X = remove TGAR value. Note: With X11 Release 12 and earlier, 0-15 TGAR codes are allowed.
CLS	(UNR) CUN TLD CTD SRE FRE FR1 FR2	Unrestricted (default). Conditionally Unrestricted. Toll Denied. Conditionally Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.

LD 11 – Assign a Class of Service and TGAR code for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.

TGAR	X, (0)-31	Station or trunk TGAR. X = remove TGAR value. Note: With X11 Release 12 and earlier, 0-15 TGAR codes are allowed.
CLS	(UNR) CUN TLD CTD SRE FRE FR1 FR2	Unrestricted (default). Conditionally Unrestricted. Toll Denied. Conditionally Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.

LD 14 – Assign a Class of Service and TGAR code for TIE trunks.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TIE, ISA, CSA	Trunk type.
TN	l s c u	Terminal Number.
TGAR	X, (0)-31	Station or trunk TGAR. X = remove TGAR value. Note: With X11 Release 12 and earlier, 0-15 TGAR codes are allowed.
CLS	(UNR) CUN TLD CTD SRE FRE FR1 FR2	Unrestricted (default). Conditionally Unrestricted. Toll Denied. Conditionally Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.

LD 88 – Assign a Class of Service to the Authorization Code classcode.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	AUB	Authcode Data Block.
CUST	0-99	Customer number.
SPWD	xxxx	Secure data password (see LD 15 for description).
CLAS	0-115	Classcode number.
CLS	(UNR) CUN TLD CTD SRE FRE FR1 FR2	Unrestricted (default). Conditionally Unrestricted. Toll Denied. Conditionally Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.
TGAR	X, (0)-31	Class code TGAR Network Class of Service.
NCOS	(0)-99	Toll Restricted.

LD 86 – Enable or disable the Trunk Group Access Restriction (TGAR) option.

Prompt	Response	Description
REQ	CHG	Change.
CUST	xx	Customer number.
FEAT	ESN	Electronic Switched Network.
...		
TGAR	(NO) YES	Do not check for Trunk Group Access Restrictions when a call is placed through BARS. Check for Trunk Group Access Restrictions when a call is placed through BARS.

LD 24 – Assign a Class of Service to Direct Inward System Access (DISA) numbers.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DIS	DISA data.
CUST	0-99	Customer number.
SPWD	xxxx	Secure data password (see LD 15 for description).
DN	xxx...x	DISA DN.
TGAR	X, (0)-31	Station or trunk TGAR. X = remove TGAR value. Note: With X11 Release 12 and earlier, 0-15 TGAR codes are allowed.

NCOS	(0)-99	Network Class of Service.
CLS	(UNR) CUN TLD CTD SRE FRE FR1 FR2	Unrestricted (default). Conditionally Unrestricted. Toll Denied. Conditionally Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.

LD 17 – Allow/deny incoming calls to telephones with an FRE Class of Service for all customers.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. Release 19 gate opener.
...		
FRPT	(NEFR), OLFR	(Deny) allow incoming trunk calls to telephones with FRE CLS, using call modification.

LD 16 – Add/change the TARG code for a trunk route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TARG	1 2 3...31	Route TARG codes (list each TGAR to be blocked from using this route – put a space between each entry). To remove an entry, precede with X. Note: With X11 Release 12 and earlier, the range for TARG codes is 1-15.

LD 19 – Implement Code Restriction on trunk routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CRB	Code Restriction Block.
CUST	0-99	Customer number.
ROUT	xxx	Trunk route number of COT or FX (there can be only one Code Restriction Block for each COT or FX route).
CLR	ALLOW	Allow all NPA/NXX codes except those entered in response to the prompt DENY.
	DENY	Deny all NPA/NXX codes except those entered in response to the prompt ALLOW.
	<CR>	Used when REQ = CHG.
ALLOW	xxx xxx...	If CLR = DENY, enter the NPA/NXX codes (200-999) allowed.
DENY	xxx xxx...	If CLR = ALLOW, enter the NPA/NXX codes (200-999) denied.

LD 16 – Define toll access digits that are to be ignored for Code Restriction.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
OABS	x x x	Outgoing digits (0-9) to be ignored.

Feature operation

No specific operating instructions are required to use this feature.

Activity Codes for Not Ready State

Prior to the introduction of the Activity Codes for Not Ready State feature, an agent recorded call related activities only during an active call. The Activity Codes for Not Ready State feature allows an agent to use the existing Activity Code key to record activities while in the Not Ready State.

The Activity Code for Not Ready State feature is supported on the Meridian MAX Release 9.0 and later.

Operating parameters

This feature is designed for Meridian 1 proprietary sets with display. This feature is not supported for analog (500/2500) sets.

The Not Ready State is automatically invoked if the supervisor uses the following keys:

- Observe Agent
- Call Agent
- Answer Agent
- Answer Emergency

Note: When these keys are used, the Activity Code key lamp does not flash.

The Activity entry key and Activity key lamp are not affected if the Program key, the Display key, volume up/down, and handsfree keys are used.

Activity Codes for Not Ready State cannot be activated during Walkaway, Logged Out or Make Set Busy States.

Feature Interactions

Meridian 1 proprietary set function keys

If any key other than the Activity, Handsfree Mute, Dial Pad, Display key or Volume Control key is pressed while entering an Activity code, the Activity key lamp turns dark and any code entered is lost.

Multiple Queue Assignment

If Multiple Queue Assignment (MQA) is in use, the default Activity code sent to the Meridian MAX becomes the default code for the queue of the agent's last call answered. The ACD D defaults back to the last ACD DN the set was logged into.

Incoming call

An incoming call to the agents Individual Directory Number (IDN) does not interfere with the Activity Code entered, if the entry is completed before answering the call. If the Activity Code entry is not completed before answering an incoming call, the Activity Code is lost.

Return to Queue on No Answer

If a call is not answered by an agent, the call is sent back to the Automatic Call Distribution (ACD) queue and the agent's set is automatically put into the Not Ready State. The Activity key lamp does not flash.

Feature packaging

There are two minimum package combinations required to operate this feature, one for Meridian MAX and the other for the Symposium Call Center.

Feature package requirements for Meridian MAX are:

- Automatic Call Distribution, Account Code (ACNT) package 155
- Automatic Call Distribution Package D (ACD D) package 50
- ACD D, Auxiliary Link Processor (LNK) package 51
- Automatic Call Distribution Package D, Auxiliary Security (AUXS) package 114

Feature packaging requirements for Symposium are:

- Automatic Call Distribution, Account Code (ACNT) package 155
- Nortel Symposium Call Center (NGCC) package 311

Feature implementation

LD 11- Specify an Activity Code key for the set.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	a...a	Set type. Where a...a = Meridian 1 proprietary set with display capabilities (2006, 2008, 2009, 2016, 2018, 2112, 2216, 2616, and SL1).
TN	l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u = unit for Option 51C-81C. c = card, u = unit for Option 11C.
CUST	xx	Customer Number as defined in LD 15.
...	...	
KEY	xx ACNT	xx = Key number (the ACNT key cannot be configured as 0).
KEY	<cr>	KEY is prompted until a carriage return is entered.
...	...	

LD 23 - Enable Activity Codes in the Not Ready State for an ACD queue.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	ACD	Automatic Call Distribution data block. Requires Basic Automatic Call Distribution (BACD) package 40.
...	...	
ACNT	x...x	Account (Default activity code). Maximum four digits. Prompted if the ADS data block is built and the DCUS (Maximum number of ACD customers) setting in LD 17 is greater than one.
NRAC	YES	Enable Not Ready Activity Codes. (NO) = default.
- NDFL	xxxx	Not Ready Default code. Must be equipped with ACD D or NGCC package.

Feature operation

To enter an Activity Code in the Not Ready State:

- 1 Press the Not Ready key. The Not Ready key lamp lights and the Activity Code key lamp flashes.
- 2 Press the Activity key. The Activity key lamp lights steadily.
- 3 Enter the activity code.

Note: The * is used to delete one digit at a time. The # symbol delete all the digits entered.
- 4 Press the Activity key. The activity code is sent to the system and the Activity Code key lamp goes out. This completes the activity code entry.
- 5 An ACD agent can enter multiple activity codes for each activity completed during any Not Ready Session. Repeat steps 2-4 until all tasks are entered.
- 6 Press the Not Ready key. The Not Ready key lamp goes out and the agent is placed back into the ACD queue.

To use the Display key in the Not Ready State:

- 1 The agent presses the Display key. The set display is cleared.
- 2 The agent presses the Activity key. The previously entered Activity Code appears in the set display.
- 3 The agent presses the Display key twice (or presses the RLS key) to display the time and date.

Note 1: If an activity code is not entered, the code configured in LD 23 (the Not Ready Default code setting) is sent to the system and the Activity Code Key lamp goes out.

Note 2: The ACCT message timestamp is set the first time the Activity key is pressed.

Agent Observe Login (Advanced)

In a Call Center, the supervisor can monitor the quality of service. However, some call centers do not want their supervisors to have the capability to observe the agents' personal calls. In some countries, there is a legal requirement to maintain the privacy of calls made by agents.

Without this feature, the supervisor can hear the agent's IDN (non-ACD) calls while observing the agent, even when the agent is logged out. This compromises the privacy of calls made by agents.

With this feature, the system administrator can choose three levels of restrictions on the observation of supervisors.

- No restrictions (RAO = NO)
The supervisor can observe any agent call. This is the default condition, and defines the supervisory function without this feature.
- Restrict Observe of IDN calls when logged out (RAO = YES)
The supervisor cannot observe agent IDN calls when the agent is logged out.
- Restrict Observe of all IDN calls (RAO = FULL)
The supervisor cannot observe any IDN calls by any agent regardless of whether the agent is logged-in or logged-out.

Operating parameters

The feature uses the Meridian 1 call processing software and the Meridian 1 Overlay 23 database administration program.

This feature does not impact hardware, firmware or loadware. There are no special limitations.

Feature interactions

In addition to the feature interactions for Agent Observe (Advanced), the following interactions apply to Agent Login Observe.

Hold

The audible tones for Agent Observe are not presented when an agent presses the Hold key. The tones are returned when the call on hold is restored. The supervisor can continue initiate observation of the agent, but hears nothing as the call is in a transient state.

— ACD Call on Hold

Once the agent retrieves the held call, the supervisor is put in conference irrespective of the value of RAO and agent login status.

— IDN Call on Hold

If RAO = No, the supervisor is put in conference once the agent retrieves the held call (whether the agent is logged-in or not).

If RAO = Yes, the supervisor is put in Observe Blocked state once the agent retrieves the held call in logged-out state. If the agent retrieves the held call in logged-in state, the supervisor is put in conference.

If RAO = Full, the supervisor was already put in Observe Blocked state against the IDN call. The supervisor is again put in Observe Blocked state when the agent retrieves the held call (irrespective of whether the agent is logged-in or logged-out).

Return to Queue on no Answer

The Return to Queue on no Answer, either logs out or puts the agent in NRD state if the agent fails to answer a ringing ACD call within the period entered at the RTQT prompt.

Agent Logged-out by RQNA when no IDN Call is Active

With RAO = Yes/Full, the supervisor enters the Observe Blocked state once the agent establishes an IDN call, if an agent under Continuous Observe establishes an IDN call.

Agent Logged-out by RQNA when an IDN call is on hold

If a logged-in agent puts in an IDN call and presses the InCalls key (i.e. when ACAA = Yes), the agent enters the idle agent queue and ACD calls are presented. If the agent fails to answer the ACD call before the RTQT (timer) times out, the agent is either logged-out or put in Not Ready state as configured by the RQNA feature.

If the agent is logged-out, the supervisor observing the agent enters the Observe Blocked state when the agent retrieves the held IDN call when RAO = Yes/Full. If the agent is put in the Not Ready state, the held call can be retrieved later and the agent can be observed by the supervisor when the call is retrieved if RAO = Yes.

Note: If an IDN call is on hold, for C and D customers, the NRD key press is ignored.

Network Blocking

If the supervisor activates Agent Observe when no conference loops are available, the OBV key on the supervisor's set flashes indicating that the supervisor cannot observe the agent at this time. When a conference loop becomes available, the OBV key lights up, and the supervisor can press the AGT key or can enter the agent's position-id to commence observation.

Multiple Queue Assignment Agents

With Multiple Queue Assignment (MQA), agents serving multiple queues are governed by the setting of the RAO option depending on which queue is being served. The ACD data block used to obtain these options will be the one associated with the call being served. Thus, it is possible that an agent may be serving multiple queues with different RAO definitions. For this reason, it is strongly recommended that the Restricted Agent Observe option be set similarly for all groups of ACD queues that individual agents may be serving simultaneously.

For an IDN call, the RAO option of the ACD queue for which the agent has most recently been served will be applicable while logged-in. Suppose that there are three queues A, B and C with RAO options set to NO, YES and FULL respectively. The logged-in agent answers an IDN call. If the most recently served ACD call was from

- ACD queue A, the call is observable

- ACD queue B, the call is observable
- ACD queue C, the call cannot be observed

When the agent has logged-out, the RAO option of the ACD queue defined on key zero of the agent is applicable.

Feature packaging

This feature is part of the ACD advanced feature (ACD-B, package 41).

The Basic ACD package (BACD, package 40) is also required to provide this functionality.

Feature implementation

LD 23 - Define the Restricted Agent Observe value.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	ACD	Type of data block is ACD.
...	...	
SPCP	NO	Separate DCP from PCP indication
OBTN	NO	Observe tone options
RAO	(NO) YES FULL	Restricted Agent Observe on Logout disabled. In such a case, the current functionality remains effective (default). Restricted Agent Observe on logout enabled. Restrict the supervisor from observing IDN calls from any of the agents at any time.
CWTH	xxxx	Number of calls waiting in queue before call waiting lamp lights.
NCWL	NO	New call waiting lamp settings.
...	...	

Feature operation

No specific operating procedures are required to use this feature.

Display Agents key (Basic)

A Display Agents key provides a summary of the status of all agents with AGT keys assigned to the supervisor. It gives a count of the number of agents in each of the four states at the moment the key is pressed. The following display is updated every time the Display Agents key is pressed.

aa—bb—cc—dd

Legend:

aa = the number of agents busy on ACD calls or in the Not Ready mode

bb = the number of agents waiting for ACD calls

cc = the number of agents busy on non-ACD calls

dd = the number of agent positions not occupied

If the associated Agent keys have not been configured or the agent position has not been configured, the display shows 00 in each of the fields in the display.

Introduced in X11 Release:	22.0X
Networking:	No

Alarm Management

The Alarm Management feature enhances and updates Meridian 1 operations, administration, and maintenance. Alarm Management provides overall alarm and fault handling, as well as refinements to Meridian 1 displays and alarm processes.

Alarm Management provides the following subfeatures:

- Event Collector
- Event Server
- Alarm Notification
- Escalation and Suppression Thresholds

This feature uses the following new command line input interface (input parser), which has the following general structure. This new command is entered at the command prompt “where”.

LD 117 – New Command Format

➔ **COMMAND OBJECT [(FIELD1 value (FIELD 2 value).....(FIELDx value)]**

With the Release 22 Alarm Management feature, all *processor-based system events* are processed and logged into a new disk-based System Event List (SEL). Events which are generated as a result of administration activities, such as SCH or ESN error messages, *are not* logged into the SEL. Events which are generated as a result of maintenance or system activities, like BUG and ERR error messages, *are* logged into the SEL. Unlike the previous System History File, this new System Event List survives Sysload, Initialization, and power failures.

The Event Collector

The Event Collector captures and maintains a list of all processor-based system events. The Event Collector also routes critical events to FIL TTY ports and lights the attendant console minor alarm lamp as appropriate. The System Event List (SEL) can be printed or browsed.

The Event Server

The Event Server has two components: the Event Default Table and the Event Preference Table.

Event Default Table

This table associates events with a default severity. By using the CHG EDT command in LD 117, the EDT can be overridden so that all events default to a severity of either INFO or MINOR. The EDT can be viewed in LD 117.

Table 6
Sample Event Default Table (EDT)

Error Code	Severity
ERR220	Critical
IOD6	Critical
BUG4001	Minor

Error codes which do not appear in the EDT will be assigned a default severity of MINOR.

The filter TTY only prints alarms that are marked as critical in the Event Default Table when upgrading to X11 Release 22 software. Alarms not marked as critical can be printed on the filter TTY by adding them to the Event Preference Table and changing the alarm severity to critical.

Event Preference Table

This table contains site-specific preferences for event severities as well as criteria for severity escalation and alarm suppression. The administrator can configure the EPT to:

- override the default event severity assigned by the default table
- escalate event severity of frequently occurring minor or major alarms

Table 7
Sample Event Preference Table (EPT)

Error Code	Severity	Escalate Threshold (events/60 sec.) (see Note 2)
ERR??? (see Note 1)	Critical	5
INI???	Default	7
BUG1??	Minor	0
HWI363	Major	3
Note 1: The “?” is a wildcard. See the section below for an explanation of wildcard entries. Note 2: The window timer length defaults to 60 seconds. However, this value can be changed by the Administrator. Read “Global Window Timer Length” on page 76 for more information.		

The special wildcard character “?” can be entered for the numeric segment of an error code entry in the EPT to represent a range of events. All events in the range indicated by the wildcard entry can then be assigned a particular severity or escalation threshold.

For example, if “ERR????” is entered and assigned a MAJOR severity in the EPT, all events from ERR0000 to ERR9999 are assigned MAJOR severity. If “BUG3?” is entered and assigned an escalation threshold of 5, the severity of all events from BUG0030 to BUG0039 will be escalated to the next higher severity if their occurrence rate exceeds 5 per time window.

Escalation and Suppression Thresholds

The escalation threshold specifies a number of events per window timer length that when exceeded, will cause the event severity to be escalated up one level. The window timer length is set to one minute by default. Escalation occurs only for minor or major alarms. Escalation threshold values must be less than the universal suppression threshold value.

A suppression threshold suppresses events that flood the system and applies to all events. It is set to 15 events per minute by default.

Global Window Timer Length

Both the escalation and suppression thresholds are measured within a global window timer length. The window timer length is set to one minute by default. However, the window timer length can be changed by using the CHG TIMER command in LD 117.

Alarm Notification

Alarm Notification has made improvements to the usage of the minor alarm lamp on Attendant Consoles. Existing procedure calls that activate or light the minor lamp have been removed. The minor lamp is now lit from a central location based upon alarm severity.

The severity of these alarms are determined by the Event Server for 11C, 51C, 61C, 81 and 81C systems and are managed in LD 117.

To receive alarm notification messages, the terminal or TTY must configure the prompt USER=FIL in LD 17. The response FIL allows alarm filtering message output. This configuration allows the system to print alarms.

The Meridian 1 now has four alarm severities: information, critical, major and minor. The Minor alarm lamp on the Attendant Consoles lights when critical alarms occur.

TTY Output Format of Events

TTY event output can be formatted or unformatted. Formatted output is also called fancy format. Output format is configured in LD 117 using the CHG FMT _OUTPUT command.

Fancy Format Output

The following is a sample of fancy format output:

```
*** BUG015 15/12/95 12:05:45 00345
EXPDATA: 04BEF0FC 05500FBA 05500EE2 05500EC6 05500EAA
BUG015 + 05500E72 + 05500E56 + 0550D96 + 055053A + 04D84E02 +
04D83CFC
BUG015 + 04D835CA 04D81BAE 04D7EABE 04F7EABE 04F7EDF2
04F7EFC 04F7E1B0

* ERR00220 15/12/92 12:05:27 00346
OPRDATA: 51

VAS0010 15/12/92 12:06:11 00347 VMBA VAS 5
```

Formatted output appears in the following template:

```
l<severity> <report id> <date> <time> <prim_seq_no> <cp_id> <cp_ad>
DESCTXT: <descriptive text>
OPRDATA: <operator data>
EXPDATA: <expert data>
```

Field	Description
<severity>	**** (critical); *** (major); ** (minor); " " (blank for info).
<report id>	The report id consists of an event category (e.g. BUG, ERR, etc.) and an event number (1200, 230, etc.). It is padded with blanks at the end to ensure it is nine characters long (four characters max. for category and five digits max. for number). Examples of report ids are: ERR230, ACD3560, and BUG30.
<date>	DD/MM/YY.
<time>	HH:MM:SS.
<prim_seq_no>	Primary sequence number of the event (length of five digits).
<cp_id>	The Component ID is a 15 character string which indicates the id of the subsystem generating the alarm.
<cp_ad>	The Component address is a 15 character string which indicates the address of the subsystem generating the event.
<descriptive text>	This is an optional string which describes an event.
<operator data>	This is an optional field which holds a 160 character string containing extra text or data to assist the operator in clearing a fault. This field contains any data output with a filtered SL-1 alarm (e.g. loop number, TN, etc.).
<expert data>	This is an optional variable length character string which contains extra text or data for a system expert or designer.

Unformatted Output

Unformatted data consists of only the report ID and perhaps additional text. The following is a sample of unformatted output:

```
BUG015
BUG015 + 04BEF0FC 05500FBA 05500EE2 05500EAA 0550E8E
BUG015 + 05500E72 05500E56 05500D96 0550053A 04D84E02
BUG015 + 04D835CA 04D81BAE 04D7EABE 04F7EDF2 04F7E2FC
04&E1B0
BUG015 + 04F7E148
```

ERR00220 51
VAS0010

Operating parameters

Event Collector and Event Server

The Default Tables associate default severity classification with the event. Default event severities are predetermined and cannot be changed.

EDT can be overridden using the CHG EDT prompt in LD 117 so that all events default to either INFO or MINOR severity. This is useful when a user wants to manage alarm severity entirely by entering data in Event Preference Tables.

The Default Table is stored in a disk file but is scanned into memory on start-up for rapid run-time access.

The Event Preference Table is used to capture site preferences, to selectively override default event severity assigned by the default table, and to escalate event severity of frequently occurring minor or major alarms. This table supports “wildcarding”. The special wildcard character “?” only matches significant digits of the event number (e.g., BUG1??? would match all “BUG” messages in the range of 1000 to 1999 and BUG12? would match range of 120 to 129). When entering “BUG” messages, leading zeros do not have to be entered. As an example, BUG001 can be entered as BUG1.

The escalation threshold value specifies a number of events per minute that when exceeded will cause the event severity to escalate to another level. Escalation only occurs for minor and major alarms. A threshold value of zero (0) disables the escalation feature.

A universal suppression threshold is applied to all events and suppresses events that are flooding the system. The suppression is set to 15 events per minute by default.

Alarm Notification

Initialization preserves the status of Attendant Console alarm lamps.

Feature interactions

There are no feature interactions.

Feature packaging

With the exception of the Alarm Notification subfeature, the Alarm Management feature is optional. It is a major enhancement to the existing Meridian 1 Alarm Filtering (ALRM_FILTER) package 243.

Feature implementation

This feature introduces a new overlay, LD 117, for configuration and administration. A detailed listing of alarm management and fault clearing commands is contained in the *X11 Software Input/Output Guide*.

LD 117 – System Events List commands.

Command	Object)	Field's Valid Inputs/Range	Description
BROWSE	SEL	UP n	Browse up n # of lines in System Event Log (SELOG).
BROWSE	SEL	DOWN n	Browse down n # of lines in SELOG.
BROWSE	SEL	TOP n	Browse to top of SELOG.
BROWSE	SEL	BOT n	Browse to Bottom of SELOG.
BROWSE	SEL	FIND xxx	Browse forward to find string xxx in SELOG.
BROWSE	SEL	BFIND xxx	Browse backward to find string xxx in SELOG.
CHG	SELSIZE	n	Change System Event Log Size (Number of Events in Selog) n = 0 - (1000) - 3000.
PRT	SEL		Print active alarm list (number of records to be printed).
PRT	SELSIZE		Print system event log size.

LD 117 – Event Default Table commands.

Command	Object	Field's Valid Inputs/Range	Description
CHG	EDT	(NORMAL)	Use EDT default severities.
CHG	<i>EDT</i>	INFO	Override EDT; use INFO as default severity.
CHG	<i>EDT</i>	MINOR	Override EDT; use MINOR as default severity.
CHG	FMT	(OFF)	Turn off formatted output.
CHG	FMT	ON	Turn on formatted output.
PRT	<i>EDT</i>		Print entries in Event Default Table.
PRT	<i>EDT</i>	ALL	Print all entries in Event Default Table.
PRT	EDT	aa..a	Print a single entry.
PRT	<i>EDT</i>	aa..a bb..b	Print a range of entries.

LD 117 – Event Preference Table commands.

Command	Object	Field's Valid Inputs/Range	Description
NEW/CHG	EPT	aa...a (INFO)	Information severity.
NEW/CHG	EPT	aa...a EDT	Use NT-defined severity from EDT.
NEWCHG	EPT	aa...a MAJOR	Major severity.
NEW/CHG	EPT	aa...a MINOR	Minor severity.
NEW/CHG	EPT	aa...a CRITICAL	Critical severity.
NEW/CHG	EPT	aa...a (0)-SUPPRES s	Escalate value (must be less than SUPPRESS value).

CHG	SUPPRESS	n	Change global suppress for events (number of occurrences before event is suppressed), n = 0-(15)-127.
CHG	TIMER	n	Change global timer window length in minutes, n = (1)-60.
OUT	EPT	ALL	Delete all entries in Event Preference Table.
OUT	EPT	aa..aa	Delete a single Event Preference Table (EPT).
PRT	EPT	aa...a aa...a	Print range of entries in Event Preference Table.
PRT	EPT	aa...a	Print specific Event Preference Table (EPT) event.
PRT	EPT	ALL	Print all entries in Event Preference Table (EPT).
PRT	FMT	(OFF)	Turn off formatted output.
PRT	FMT	ON	Turn on formatted output.

Prior to Release 22 Fault Management

LD 17 – Configure the Alarm/Exception filter for systems other than 51C, 61C, 81 and 81C.

Prompt	Response	Description
REQ	CHG	Change configuration.
TYPE	ALARM	Alarm Filter configuration data.
<i>FMT_OUTPUT</i> (<i><fmt_output></i>)		Current configuration of core output formatting automatically printed by the system.
<i>AF_STATUS</i> (<i><af_status></i>)		Current configuration of alarm filter status automatically printed by system.
FMT_OUTPUT	ON (OFF) <CR>	Enable Formatted Output printing. Disable Formatted Output printing. Retain current FMT_OUTPUT value.
AF_STATUS	ON (OFF) <CR>	Enable alarm and exception filtering. Disable alarm and exception filtering. Retain current AF_STATUS value.
TIMER	(1)-60	Configure alarm timer window in minutes for suppression and escalation.
SUPPRESS	0-(15)-127	Alarm count before suppression. 0 count disables the alarm suppression.
A_FILTER	NEW CHG OUT X <CR>	Create a new alarm filter entry. Change parameters of an entry. Remove an entry. Same as OUT. Concludes filter entries. Go to E_FILTER prompt.
- TRIGGER	aa...a	An alarm report ID string consisting of a valid mnemonic and a numeric field (e.g., BUG123, OVL457) the chain of 1 to 10 characters in length. A question mark “?” can be used to indicate a wildcard entry for the numeric portion of the report ID (e.g., BUG???? includes BUG system messages from 0-9999). The mnemonics supported for this prompt are listed at the beginning of this overlay.

- SEVERITY	CRITICAL MAJOR MINOR (NONE) <CR>	Critical alarm – switch operational status in jeopardy. Major alarm – serious condition, but switch is operational. Minor alarm – error condition detected. None – no rating. Retain current value. The capital letters in the response indicate the minimum number of letters required as input before the system finds a match. When an abbreviation for the severity is typed (e.g., “C”), the matching severity is printed (i.e., SEVERITY CRITICAL).
SEVERITY <severity>		
- ESCALATE:<#>	0-(2)-127	Number of occurrences of alarm before it is escalated to critical severity over the global defined TIMER period. When the TIMER period has elapsed, the Interval Alarm counter is cleared. An entry of 0 disables alarm escalation. Escalate can only be configured for MINOR and MAJOR alarms. Note: The core alarm filter is updated after the response to the ESCALATE prompt is inputted.
A_FILTER	<CR>	Concludes alarm filter entries. Go to E_FILTER prompt.
E_FILTER	NEW OUT X <CR>	Create a new exception filter entry. Remove exception filter entry. Same as OUT. Concludes exception filter entries. Skip to the next gateway or REQ prompt.

Feature operation

No specific operating procedures are required to use this feature.

Application Module

The Application Module (AM), previously known as the Meridian Link Module, is an application processor providing an interface between a host computer and the Meridian 1, providing operations, administration, and maintenance capabilities. It is housed in the Application Equipment Module (AEM). Up to two Application Modules can be put into one AEM chassis in a redundant configuration.

Related documents

For complete information regarding the Application Module (AM), see the following documents:

- *Meridian Link description* (553-3201-110)
- *Application Equipment Module installation guide* (553-3201-200)
- *Meridian Link installation* (553-3201-210)
- *Meridian Link software guide* (553-3201-310)
- *Meridian Link diagnostic and maintenance* (553-3201-510)

Application Module Link

The Application Module Link (AML) provides supervisory and control functions for the link that allows host computers and other external processors access to Integrated Services Digital Network (ISDN) network services on the Meridian 1. The tasks performed by the Application Module Link include link activation, fault detection, maintenance, and traffic reporting. The AML provides the association of telephones with one or more DNs with the host computer. This allows a computer to access basic telephone features of the Meridian 1. Telemarketing, electronic mail, and other features can take full advantage of ISDN services using the AML.

Operating parameters

Refer to the *Application Module Link description* (553-3201-100).

Feature interaction

Refer to the *Application Module Link description* (553-3201-100).

Feature packaging

This feature is part of ISDN Application Module Link for Third Party Vendors (IAP3P) package 153, which requires:

- Command Status Link (CSL) package 77
- Digit Display (DDSP) package 19
- Automatic Call Distribution Package A (ACD-A) package 45
- ACD Package B (ACD-B) package 41

Feature implementation

Refer to the *Application Module Link description* (553-3201-100).

Feature operation

Refer to the *Application Module Link description* (553-3201-100).

Attendant Administration

Attendant Administration allows the attendant to modify a specific set of features that can be assigned to telephones. The console must have an alphanumeric display, and it must be assigned to the same customer group as the telephones on which the features are to be changed.

Attendant Administration is implemented by assigning a Program key on the flexible feature strip on the Attendant Console. The Program key and a four-digit password allow the attendant to enter the Program mode in a manner equivalent to logging into the Meridian 1 system from a system terminal.

When in the Program mode, the Attendant Console key/lamp strip functions are changed from normal call processing to the Attendant Administration programming functions. A plastic overlay is placed over the console key/lamp strips to indicate their programming functions.

The attendant inputs the information by pressing the appropriate key or by entering numbers or letters on the dial pad. The alphanumeric display shows the entered information and provides feedback from the system. The feedback includes the current status of the telephone, the prompts requesting input, and the messages indicating an input error.

The features that may be changed by Attendant Administration are listed below (any feature not included in the list cannot be modified or changed by the Attendant Administration feature):

- Call Forward (analog [500/2500 type] telephones only)
- Call Forward Busy (all telephones)
- Call Forward No Answer (all telephones)
- Call Pickup (all telephones)

- Call Pickup Group (all telephones)
- Call Transfer (analog [500/2500 type] telephones only)
- Call Waiting (analog [500/2500 type] telephones only)
- Dial Intercom Group (analog [500/2500 type] telephones only)
- Directory Number (analog [500/2500 type] telephones only)
- Hunt Directory Number (all telephones)
- Hunting (all telephones)
- Last Hunt Key (SL-1 and Meridian digital telephones only)
- Message Waiting (all telephones)
- Permanent Hold (analog [500/2500 type] telephones only)
- Ring Again (analog [500/2500 type] telephones only)
- SL-1 and Meridian digital telephone key assignments
- Speed Calling (analog [500/2500 type] telephones only)
- Stored Number Redial (analog [500/2500 type] telephones only)

For details of feature operation, refer to the *X11 Attendant Administration user guide*.

Operating parameters

Calls cannot be initiated or received by the console while it is in the Program mode.

The attendant can only change data for the customer to which the console belongs.

The system generates Customer Service Change (CSC) messages that indicate changes made to individual telephones. These messages may be output on a system terminal or stored in the History File.

Attempting to change a telephone that is busy is not allowed. A busy telephone is defined as a telephone with any active or held calls or with any active features such as Autodial. There are exceptions. A telephone that has Call Forward All Calls or Make Set Busy activated can be modified.

During the time a telephone is undergoing feature changes by the attendant, it is made Maintenance Busy and is therefore inoperative.

If a console remains idle in the Program mode for 20 minutes, the Program mode is terminated and the console returns to Position Busy.

If an Attendant Console, maintenance telephone, or system terminal tries to log in to the system while another device is logged in, the system displays a message identifying the logged-in device. If a password is then entered, the login is accepted, forcing out the device previously logged in. A console forced out is returned to Position Busy and provided with an output message in the display to indicate what has occurred.

Unlike making service changes at a system terminal, when a Directory Number (DN) is entered for an analog (500/2500 type) telephone that appears elsewhere (as a mixed, Hunt, or Private Line DN), the associated error code (MIX, HUNT, or PVL) is not displayed. If the DN is not valid, an error code is displayed.

The database is automatically dumped during the midnight routine if a transaction has been successfully completed during the previous day. If this datadump fails, the minor alarm lamp on the console will light.

Feature interactions

Attendant Console

It is not necessary to have the handset/headset plugged in while in the Program mode. Plugging in the handset/headset while in the Program mode has no effect.

Directory Number Delayed Ringing

The Attendant Administration feature is not supported.

Initialize

The Attendant Administration password is preserved over an initialization and set to the value on the tape when the system is reloaded.

ISDN Calling Line Identification Enhancements

Administration of a Calling Line Identification entry, for a set from an attendant console, is not supported.

Phantom Terminal Numbers (TNs)

The Attendant Administration feature does not support Phantom TNs. Phantom DNs cannot be configured on a non-phantom TN.

SYSLOAD

If the system initializes or reloads while the console is in the Program mode, Attendant Administration is aborted and the console returns to the Position Busy mode. Any service change since the last Prime DN prompt (for initialize) or since the last successful datadump (for system reload) is lost and must be input again.

Feature packaging

Attendant Administration (AA) package 54 requires Attendant Overflow Position (AOP) package 56.

Feature implementation

LD 15 – Assign an Attendant Administration access code.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB PWD	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- ATAC	xxxx	New or changed Attendant Administration access code (maximum four digits). X preceding the access code removes it.
- - PWD2	xxxx	This password is programmed in LD 17 at the PWD2 prompt.

LD 12 – Add/change Attendant Administration key.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	ATT, 1250, 2250	Console type.
CUST	xx	Customer number. CUST is prompted only when REQ = NEW.
TN	l s c u	Terminal Number.
KEY	xx PRG	Add an Attendant Administration key.

Feature operation

For details on feature operation, refer to the *X11 Attendant Administration user guide*.

Attendant Alternative Answering

Attendant Alternative Answering (AAA) allows customers to define a timing threshold for attendant calls. After the predefined time, the unanswered call presented to an idle loop key on an Attendant Console is forwarded to a predefined DN for alternate answering.

An unanswered call is forwarded to an idle or busy alternate DN. The call is subject to further call modification depending on the database configuration for the alternate DN.

When a call is presented to an idle loop key on the Attendant Console, the following occurs:

- 1 The system checks the attendant for AAA eligibility by checking for the AAA timer. The AAA timer activates the AAA feature.
- 2 When the timer expires, the unanswered call is forwarded to the Attendant Alternative Answering DN (AAA DN) defined for an individual attendant. Calls forwarded to the AAA DN are subject to the individual telephone's features, independent of the attendant. It is possible that the DN rung is not be the AAA DN.

- 3 After the alternate telephone has been reached, the Attendant Console releases the call.
- 4 If call termination is unsuccessful at the AAA DN, an error message is generated that explains the problem:
 - If the error is because of an invalid AAA DN or tenant-to-tenant access denied condition, the call remains on the idle loop key for the attendant, and the AAA timer is not started again.
 - For all other errors, the call remains on the attendant loop key and the AAA timer is restarted. The sequence is repeated until the call is answered at the console, disconnected by the caller, or terminated at the AAA DN.

When an Automatic Wake Up (AWU) recall is presented to the AWU key on the Attendant Console, the following occurs:

- 1 The AWU key buzzes, and the associated indicator fast flashes.
- 2 The attendant presses the AWU key to accept the recall.
- 3 The attendant presses the RLS key to release the call. An AWU recall must be acknowledged before any other calls can be presented to the attendant.
- 4 With AAA, the AWU call is presented to the attendant for the duration of the AAA timer. If an AWU recall is not acknowledged before the timer threshold, the recall is returned to the attendant queue to be presented later. The AWU recall will not be forwarded to the AAA DN.

If the AAA DN does not answer, call treatment is defined by the features allowed for the originally dialed DN. If the originally dialed DN is the attendant, call treatment is defined by the features allowed for the AAA DN.

The order listed below reflects the precedence when one or more call forwarding features is equipped:

- 1 Call Forward All Calls
- 2 Message Center

- 3** Call Forward No Answer
 - Flexible Call Forward No Answer
 - Second Level Call Forward No Answer
 - Call Forward by Call Type
- 4** Automatic Timed Recalls (slow answer)

For an unanswered call presented to a busy AAA DN, treatment is defined by the features enabled for that customer and the AAA DN telephone.

The order listed below reflects the precedence when one or more call forwarding features is equipped on the AAA DN:

- 1** Call Forward All Calls
- 2** Hunting
- 3** Call Waiting
- 4** Message Waiting (Direct Inward Dialing [DID] calls only) (if Message Waiting Forward Busy (MWFB) is enabled in LD 15)
- 5** Call Forward Busy (DID calls only)

If no Call Forwarding feature is defined for the busy AAA DN, the call remains on the Attendant Console, and the AAA timer is restarted. When the AAA timer expires, the call is again forwarded to the AAA DN.

Operating parameters

Attendant Alternative Answering (AAA) is defined and applicable on a customer basis only, not at the Console Presentation Group (CPG) level. AAA only handles calls presented to the console, not calls in the attendant queue. It is recommended that the AAA DN assigned to an attendant be within the same CPG as the attendant.

Only 63 Attendant Consoles can be assigned per customer. Only one AAA DN can be assigned per attendant; therefore, this feature is limited to 63 AAA DNs per customer, one for each Attendant Console.

With Night Service (NSVC) enabled and active, calls are rerouted to the Night Service DN. Calls presented to the NSVC DN are not subject to AAA.

The AAA DN must be a valid DN or ACD DN. If invalid, the call stays on the console.

The AAA DN defined is not subject to pretranslation. The AAA DN must be the actual DN.

This feature allows more than one backup of the attendant to be available, provided the designated alternative DN is defined as a member of a Call Pickup group or as a Multiple Appearance DN.

Feature interactions

Attendant Overflow Position (AOP)

The AOP DN handles calls from the attendant queue if all Attendant Consoles are busy or in the Position Busy mode. Calls presented to the AOP DN are not subject to AAA.

Attendant Recall (ARC)

Under ARC conditions, the initiator of the recall rings the destination side of the console, and the third party becomes the source. The AAA timer is applied to the source party. If the AAA timer expires, the destination is dropped, and the source is forwarded to the AAA DN. If the source party disconnects before the destination party, the AAA timer is restarted on the destination party still buzzing the attendant through the ARC key. The AAA timer is dropped if both parties disconnect.

Call Forward All Calls

Call Forward All Calls takes precedence over all other Call Forwarding features for a particular telephone. Calls forwarded by AAA are subject to the Call Forwarding conditions on the AAA DN.

Call Forward Busy

If Call Forward Busy is allowed for the AAA DN (and that DN is busy), a DID call is returned to the attendant and can again be eligible for AAA timing and operation.

Call Forward by Call Type (CFCT)

If Call Forward by Call Type is enabled on the AAA DN, calls are forwarded based on the Call Type of the originator.

Call Forward No Answer (CFNA)

When the AAA DN does not answer, the call can be forwarded by CFNA to the DN defined as the CFNA DN for the originally dialed DN. If the originally dialed DN is the attendant, the call is forwarded to the CFNA DN defined for the AAA DN.

Centralized Attendant Service (CAS)

The AAA timer is not applied to CAS calls routed from the remote CAS location through the Release Link Trunk to the main CAS attendant. All other internal or trunk calls presented to the CAS attendant at the main location are timed by AAA as usual.

If the remote CAS attendant presses the CAS key while a call is being presented, the presented call is subject to AAA timing and is forwarded to the AAA DN at the remote location after the timer expires.

Do Not Disturb (DND)

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 AAA DNs.

Hunting

Calls directed to a busy 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.

Message Center

If the AAA DN is a Message Center (MWC), then a Message Center call to the attendant and forwarded by AAA is still treated like a Message Center call.

Multi-Tenant

Tenant-to-tenant access must be allowed between an internal caller and the AAA DN. If caller-to-AAA access is denied, the call remains on the console until the call is answered or dropped.

Call Pickup

The AAA DN can be assigned to a Call Pickup group to allow members of the same group to answer the call.

Feature packaging

Attendant Alternative Answering (AAA) package 174 has no feature package dependencies; however, this package is mutually exclusive with Attendant Forward No Answer (AFNA) package 134.

Feature implementation

LD 15 – Implement the Attendant Alternate Answering feature in the Customer Data Block.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- ATIM	(0)-126	AAA timer in two-second increments. Odd numbers are rounded down. ATIM = 0 disables the feature

LD 12 – Define the AAA DN for each Attendant Console affected.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
AADN	xxx...x	Attendant Alternative Answering DN.

Feature operation

No specific operating procedures are required to use this feature.

Attendant and Network-Wide Remote Call Forward

This modification to the Remote Call Forward (RCFW) feature allows a user to program a Call Forward Directory Number from any attendant console or station throughout the network. A new RFW key on the attendant console allows an attendant to view any station's Call Forward status and to activate or deactivate Call Forward for a station.

Refer to *ISDN Primary Rate Interface description and administration* (553-2901-100) for further details.

Attendant Barge-In

Attendant Barge-In allows the attendant to establish a connection with any trunk in the system to verify that the trunk is in working order. When Barge-In is active, a 256 millisecond burst of tone is sent to the connected parties every six seconds to indicate the presence of the attendant.

Operating parameters

Barge-In can only be used for trunks with Warning Tone Allowed (WTA) Class of Service. All parties connected to the trunk when the attendant attempts to barge in must have WTA Class of Service.

If equipped, the Barge-In key must be assigned to key 1 of the console flexible feature strip.

The system must be equipped with a conference loop.

Feature interactions

Automatic Redial

Attendant Barge In is not allowed to a trunk that is currently used for the Automatic Redial call redialing. This is done to avoid creating a conference when the tone detector is involved.

Call Detail Recording 100 Hour Call

For external PAGENET uncontrolled calls, Attendant Barge-In is blocked at the Paging node, per existing operation.

For external PAGENET controlled calls, Attendant Barge In is blocked at both the originating and Paging node.

Feature packaging

The Attendant Barge-In feature is included in base X11 system software.

Feature implementation

LD 12 – Add/change a Barge-In key on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	1 BIN	Add a Barge-In key.

LD 10 – Allow/deny a warning tone Class of Service for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(WTA), WTD	(Allow) deny warning tone.

LD 11 – Allow/deny a warning tone Class of Service for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(WTA), WTD	(Allow) deny warning tone.

LD 14 – Allow/deny warning tone Class of Service for trunks.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	COT, DID, FEX, RAN, TIE, WATS	Trunk type.
TN	l s c u	Terminal Number.
CLS	(WTA), WTD	(Allow) deny warning tone.

Feature operation

To establish a connection on a trunk, follow these steps:

- 1 Select an idle loop key.
- 2 Press **Barge-In**.
- 3 Dial the route access code and the trunk member number, followed by the octothorpe (#).

Possible results are:

- dial tone (trunk is idle and working)
- conversation (trunk is busy and working)
- modem carrier tone (long distance trunk is working), and
- fast busy (trunk is either disabled or has Warning Tone Denied Class of Service).

If you hear fast busy, check the trunk again before reporting a problem.

Attendant Blocking of Directory Number

Attendant Blocking of Directory Number (DN) allows a person to dial the attendant DN and request an external (long distance) call, and then disconnect while waiting for the call to be processed by the attendant. The requesting DN is idle and can receive and make calls.

When the attendant is ready to make the external (long distance) call, the Attendant Blocking of DN feature provides the attendant with the ability to block the DN while the external call request is being processed. The line appears busy to any caller attempting to contact the blocked DN. The blocked DN cannot be used to originate a call and will be connected to the attendant if it goes off hook. When the attendant has completed the external call, the blocked DN can be rung and the call extended. The attendant is guaranteed that the requesting DN is not busy and is available to take the call when the processing has been completed. This feature works in both standalone and Meridian Customer Defined Network (MCDN) environments.

Previously, this feature had only been available on Swedish A345 PBXs, but now is also available on the Meridian 1. Although developed for Telia Sweden, the feature is applicable to all marketplaces desiring Attendant Blocking of DN functionality.

Operating parameters

The Attendant Blocking of DN feature can only be activated as the source party of the Loop key on the Attendant Console.

The attendant has the ability to use the Attendant Blocking of DN feature only for the following types of DNs: sets with ordinary Single Call Arrangement Non Ringing key (SCN)/Single Call Arrangement Ringing key (SCR) DNs and analog (500/2500 type) telephones. HOT DNs, Multiple Call Arrangement Non Ringing key (MCN)/Multiple Call Arrangement Ringing key (MCR) DNs, Automatic Call Distribution (ACD) DNs, Primary Line DNs (PLDNs), any trunk access code, Flexible Feature Codes (FFCs), Basic Rate Interface (BRI) and all other types of extensions are considered to be invalid for the Attendant Blocking of DN feature.

When the Attendant Blocking of DN feature is activated for a DN, it is only the DN dialed that is blocked. Other DNs assigned to the set will be idle.

If Attendant Blocking of DN is attempted on a Multiple Appearance Single Call Arrangement DN, all idle appearances of the DN will be blocked.

The Attendant Blocking of DN will only be supported on the following Attendant Console types: M2250; M1250; QCW4; QCW8; or M345CD.

No new hardware is required for this feature.

Feature interactions

Advice of Charge for EuroISDN

For Advice of Charge at start of the call (AOC-S) and during the call (AOC-D), charging information is assigned respectively to the Attendant and the set's Message Registration (MR) meters for the charge incurred before and after the call transfer completion by an attendant. Advice of Charge at end of the call (AOC-E) charging information is assigned to the set's MR meter.

Attendant Hold

An Attendant Blocking of DN call can be put on hold by the attendant and will in this case be subject to normal Attendant Hold treatment. The Semi-automatic Camp-on (SACP) key lamp will be dark while on hold and be lit again when taken off hold. The same applies to Automatic Hold on the Loop key.

Automatic Call Distribution

It is not possible to activate the Attendant Blocking of DN feature for an Automatic Call Distribution (ACD) DN. If an attempt to block an ACD DN is made, the attempt will be canceled and overflow tone will be returned. However, individual DNs on ACD sets can be blocked.

Automatic Redial

An Automatic Redial (ARDL) redialed call is blocked from the calling party if an attendant uses the Attendant Blocking of Directory Number feature on the calling party's DN.

Break-in

The Attendant Blocking of DN and the source side Predial Break-in features are mutually exclusive for the same call. If the SACP key lamp is lit when the Break-in key is pressed to start a Predial Break-in attempt, the Break-in key is ignored. On the contrary, if the Break-in key lamp is lit and no call attempt is made on the source side when the SACP key is pressed to start an Attendant Blocking of DN, the SACP key is ignored.

If a Break-in attempt is made for an Attendant Blocking of DN call, the Break-in attempt will be considered to be temporarily denied.

It will be possible to Break-in on the destination side with an Attendant Blocking of DN call on the source side of the Attendant Console. The same limitations to Break-in will apply as if the source side call is a normal call.

Busy Lamp Field/Enhanced Busy Lamp Field

When a DN is blocked due to the Attendant Blocking of DN feature, the Busy Lamp Field/Enhanced Busy Lamp Field lamp corresponding to this DN displays the busy status of the DN as for ringing calls.

Busy Verify

The Attendant Blocking of DN and source-side Busy Verify are mutually exclusive for the same call. If the SACP key lamp is lit when the Busy Verify key is pressed to start a Busy Verify attempt, the Busy Verify key is ignored. On the contrary, if the Busy Verify lamp is lit when the SACP key is pressed to start an Attendant Blocking of DN attempt, the SACP key is ignored.

If a Busy Verify attempt is made on an Attendant Blocking of DN call, it will be denied.

Call Detail Recording Time to Answer

If the CDR Time to Answer feature is active, the time registration before answer will be started when the SACP key is pressed to ring the blocked DN and not when the DN is blocked.

Call Forward All Calls

Call Forward, Internal Calls

Call Forward and Busy Status

The Attendant Blocking of DN feature will override these Call Forward features. If the dialed DN of the set is idle, the DN can be blocked; if the DN is busy, busy tone will be heard.

Call Forward/Hunt Override Via Flexible Feature Code

Using Call Forward/Hunt Override FFC after activation of ABDN is not allowed. Any attempt will be canceled and overflow tone will be returned.

Using post-dial Break-in after dialing the Call Forward/Hunt Override FFC is possible after encountering a busy set, if Break-in is enabled.

Call Forward No Answer

The Attendant Blocking of DN feature will override the Call Forward No Answer feature. If the blocked DN of the set has the Call Forward No Answer feature active when the SACP key is pressed to ring the DN, the DN will ring until answered or disconnected. No Call Forward No Answer will be done for the Attendant Blocking of DN call.

Call Park

It is not possible to park an Attendant Blocking of DN call. If a Call Park call recalls to a blocked DN, the recall will be treated as if the DN is in a ringing state.

Call Waiting

If a set that has the Station-to station Call Waiting feature active (CLS SWA and a Call Waiting (CWT) key for SL-1 and digital sets) is idle when an Attendant Blocking of DN attempt is made, the Attendant Blocking of DN attempt will be allowed and processed as normal. If the DN is idle and there is an active call on the Call Waiting key, the Attendant Blocking of DN attempt will be allowed.

If a set has the Station-to-station Call Waiting feature active and the DN to be blocked is busy when an Attendant Blocking of DN attempt is made, the Attendant Blocking of DN attempt will be canceled and busy tone will be returned.

For a set that has the Call Waiting (or Station-to-station Call Waiting) feature active and a DN is blocked due to the Attendant Blocking of DN feature, any incoming call to the blocked DN will receive busy tone.

Camp-on

Camp-on will be denied for a DN that is blocked due to the Attendant Blocking of DN feature.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

If an Executive Intrusion attempt is made for an Attendant Blocking of DN call, the Executive Intrusion attempt is denied.

Directory Number Delayed Ringing

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.

Do Not Disturb

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.

Flexible Feature Code Boss Secretarial Filtering

The Flexible Feature Code (FFC) Boss Secretarial 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.

Flexible Feature Codes

If a Flexible Feature Code is dialed after pressing the SACP key to initiate an Attendant Blocking of DN attempt, overflow tone will be provided and the attempt cancelled.

Group Hunting

It is not possible to activate the Attendant Blocking of DN feature for a Pilot DN (PLDN). 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.

HOT DN

It is not possible to activate Attendant Blocking of DN for a HOT DN extension. If an attempt to block a HOT DN extension is made, the attempt will be canceled and overflow tone will be returned.

Hunting

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).

Idle Extension Notification

The Attendant Blocking of DN feature and the Idle Extension feature both use the SACP key for feature activation on the source side of the Attendant Console. The difference is that Attendant Blocking of DN only is valid when dialing a DN, whereas Idle Extension Notification only is valid when a busy DN is reached. If an Attendant Blocking of DN attempt is made for a DN that is busy, the Attendant Blocking of DN is canceled and it is possible to activate the Idle Extension Notification feature for the busy DN.

Intercept Computer Interface

The Attendant Blocking of DN feature will override the Intercept Computer Interface (ICP) Call Forward feature. If the dialed DN of the set that has the ICP Call Forward feature active is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

ISDN Basic Rate Interface (BRI) Trunk Access

It is possible to use the Attendant Blocking of DN feature in an ISDN MCDN based on BRI TIE trunks if Network Attendant Service (NAS) is configured in the network.

Line Lockout

If an Attendant Blocking of DN attempt is made on a set in Line Lockout state, busy tone will be returned.

Make Set Busy

The Attendant Blocking of DN feature will override the Make Set Busy feature. If the dialed DN of the set that has the Make Set Busy feature is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Multiple Appearance Multiple Call Arrangement

It is not possible to activate the Attendant Blocking of DN feature for a Multiple Appearance Multiple Call Arrangement DN (MCA DN (MCN/MCR)). If an attempt is made to block an MCA DN (MCN/MCR), the attempt will be canceled and overflow tone will be returned.

Multiple Appearance Single Call Arrangement

If Attendant Blocking of DN is attempted on a Multiple Appearance Single Call Arrangement DN (SCA DN (SCN/SCR)), all appearances of the DN will be blocked.

Network Intercom

A Hot Type I key cannot be blocked by the attendant, because it has no DN.

Pressing a Hot Type D key that is attendant blocked establishes the call on the source side of the attendant.

New Flexible Code Restriction

When the attendant has a blocked DN on the source side and dials on the destination side, any New Flexible Code Restriction active for the set of the blocked DN will be overridden. This is the same as if the attendant had a normal established call to the DN on the source side and dials the destination side.

Phantom Terminal Numbers (TNs)

DNs on Phantom TNs will not be overridden by the Attendant Blocking of DN feature.

Radio Paging

If a transferred Radio Paging call recalls to a blocked DN, the recall will be treated as if the DN is busy.

Ring Again

It is possible to activate Ring Again towards a DN that is blocked due to the Attendant Blocking of DN feature.

Ringing Change Key

When the SACP key (or Signal Source) key is pressed to ring a blocked SCR where the Ring Change feature is activated, an audible ring signal will always be given. This is independent of the Ring Change status.

Ring/Hold LED Status

When a DN is blocked, the status of the DN lamp will be the same as for a call put on hold.

Semi-automatic Camp-on

The Attendant Blocking of DN feature uses the SACP key to activate a blocking attempt, but the Attendant Blocking of DN feature is only valid on the source side of the Attendant Console. The Semi-automatic Camp-on feature is only valid on the destination side of the Attendant Console.

To have the Attendant Blocking of DN feature available and not the Semi-automatic Camp-on feature, a new response to the SACP prompt has been introduced in LD 15. Prompt SACP = NO means the Semi-automatic Camp-on feature is not available even if the SACP package is equipped and an SACP key exists on the Attendant Console. To have the Semi-automatic Camp-on feature available the SACP prompt must be answered with SNGL or ALL which have the same meanings as before.

Signal Source

The Signal Source key can be used to notify a blocked DN. Using the Signal Source key for an Attendant Blocking of DN call will give the same response as the SACP key when the DN is blocked (i.e., ring the blocked DN and darken the SACP key lamp). The Signal Source key cannot be used to initiate an Attendant Blocking of DN call.

Single Call Non Ringing DN

When the SACP (or Signal Source) key is pressed to ring a blocked Single Call Non Ringing DN (SCN), an audible ring signal will be given.

Source Included when Attendant Dials

The Attendant Blocking of DN feature will follow the current Source Included when Attendant Dialing handling occurs.

Vacant Number Routing

The Attendant Blocking of DN feature will work across an ISDN network if the call is routed due to the Vacant Number Routing feature.

Feature packaging

The Attendant Blocking of DN feature is packaged under Semi-automatic Camp-on (SACP) package 181.

To work in an ISDN network environment, Network Attendant Services (NAS) package 159 is required.

Feature Implementation

LD 12 – Configure the SACP key on the Attendant Console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Attendant Console type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11E.
...		
KEY	xx SACP	Semi-automatic Camp-on key.

LD 15 – This overlay has been modified to enable the Attendant Blocking of DN feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
...		

ATT	YES	Change Attendant Console options.
...		
- SACP	(NO), ALL, SNGL	Semi-automatic Camp-on not allowed. Semi-automatic Camp-on for all Camp-on occurrences. Semi-automatic Camp-on on a per call basis.
- ABDN	(NO), YES	Activation of the Attendant Blocking of DN feature is (not) allowed. The ABDN prompt only appears when the SACP package is equipped.

Feature operation

To block a DN

- 1 The attendant presses an idle Loop key.
- 2 The attendant presses the Semi-automatic Camp-on (SACP) key.
- 3 The SACP key lamp lights.
- 4 The attendant dials the source DN that is to be blocked. If the dialed DN is idle, the DN lamp will have the same state as a call put on hold, but the DN will not ring. If the DN is busy, the attendant hears busy tone and the SACP key lamp darkens.
If the dialed DN is idle, it is blocked. The DN lamp indicates a call on hold state, although the DN will not ring (for analog (500/2500 type) telephones, there is no indication that the DN is blocked.) On the Attendant Console, the SACP key lamp remains lit and the Source key lamp begins blinking.
If the dialed DN is busy, the attendant presses the Release (or Release SRC) key to release the call.

To place an outgoing call for the blocked DN

- 1 The attendant establishes a call to the desired destination in the normal way.
- 2 The attendant presses the SACP (or Signal SRC) key. The ringback tone is heard.
- 3 If the source DN answers, the attendant presses the Release key to extend the call between the destination to the source.

To release a blocked DN

The attendant presses either the SACP key or Signal Source key to ring the DN

– or –

The attendant presses either the Release key or the Release Source key to release the source DN, which then becomes idle.

To notify a blocked DN of an established call

The attendant presses the SACP or Signal Source key.

Attendant Break-In

The Attendant Break-In (BKI) feature simplifies the process required if an attendant must break in to an established call. When an attendant receives an urgent call and dials the destination DN, that DN may be busy. The attendant may then have to break in to the call. This feature provides a new key, the Break-In key, on the Attendant Console, and allows the attendant to extend a call to a busy extension through a simple key operation.

Prior to X11 Release 20, the break-in process involved the following steps:

- 1 Release the busy (destination) DN upon receiving the busy tone.
- 2 Place the incoming call on hold.
- 3 Use an idle loop key followed by the Busy Verify key.
- 4 Redial the DN, breaking in to the established call.
- 5 Request that all parties disconnect from the call.
- 6 When the DN becomes idle, connect it to the incoming call.

With X11 Release 20 and later, the break-in process involves the following steps:

- 1 Use the Break-In key upon receiving the busy tone. This action establishes a conference between the attendant and the members of the established call (but excludes the incoming call). Parties hear the intrusion tone; secrecy is preserved.
- 2 Announce that an important call is waiting and request that the other parties disconnect from the call.
- 3 Extend the incoming call to the previously busy DN as soon as the other parties disconnect.

By using the Break-In key before dialing the destination DN, the attendant can override features such as Call Forward and Hunting.

Operating parameters

The Attendant Break-In feature is supported on analog (500/2500 type) and digital telephones.

A console can have only one Break-In key.

A break-in connection cannot be put on hold.

Only one attendant at a time can break in to a call.

Attendant Break-In does not operate in the following situations:

- A party to the established call has Override Denied or Warning Tone Denied Class of Service
- The established call involves any of the following:
 - An attendant
 - Multi-frequency Compelled (MFC) device type
 - Digitone Receiver (DTR) device type
 - Page trunk
 - Dictation trunk
 - Recorded Announcement trunk
 - Integrated Voice and Message System (IVMS)
- The destination DN is on an outgoing trunk call. If the station is involved with an outgoing trunk call, the call is established when End of Dialing (EOD) times out, the number is dialed, or the trunk is answered.

Feature interactions

Attendant Blocking of Directory Number

The Attendant Blocking of DN and the source side Predial Break-in features are mutually exclusive for the same call. If the SACP key lamp is lit when the Break-in key is pressed to start a Predial Break-in attempt, the Break-in key is ignored. On the contrary, if the Break-in key lamp is lit and no call attempt is made on the source side when the SACP key is pressed to start an Attendant Blocking of DN, the SACP key is ignored.

If a Break-in attempt is made for an Attendant Blocking of DN call, the Break-in attempt will be considered to be temporarily denied.

It will be possible to Break-in on the destination side with an Attendant Blocking of DN call on the source side of the Attendant Console. The same limitations to Break-in will apply as if the source side call is a normal call.

Automatic Redial (ARDL)

Attendant Break-In is not permitted on a Meridian 1 proprietary set that is used for an ARDL call. These restrictions avoid creating a conference when the tone detector is involved in the call.

Automatic Call Distribution (ACD)

Once the destination DN has established the call with the ACD agent, the attendant can break in to the call. If the destination DN is in the ACD queue, Attendant Break-In is temporarily denied.

Camp-On and Call Waiting

If the destination DN has a camped-on incoming trunk call, the attendant cannot extend the urgent incoming call as a Camp-On call.

Call Forward All Calls

By pressing the Break-In key before dialing the destination DN, the attendant can override call forwarding on the destination DN. The attendant may not apply Camp-On to a telephone with Call Forward active.

Call Park

The attendant cannot break in to a parked call.

Call Transfer

The attendant cannot break in to a call that is being transferred until the transferred call is connected.

Conference

If the attendant cannot break in to a conference call because the call is supporting the maximum number of callers, busy tone continues and the Break-In key lamp flashes.

Digit Display

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.

Enhanced Override

Telephones with a toll operator break-in call cannot be camped on to or overridden. Overflow tone is returned to telephones attempting either Forced Camp-on or Priority Override.

Forced Camp-on

Telephones with a toll operator break-in call cannot be camped on to. Overflow tone is returned to telephones attempting Forced Camp-on.

Hold

The attendant cannot break in to a call on hold.

Hunting

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.

Make Set Busy and Do Not Disturb

For a telephone with Make Set Busy or Do No 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.

Meridian 911 Call Abandon

Since an abandoned call does not have a speech path established, the Break-In deny treatment is given to the attendant so that Break-In cannot occur.

Multiple Appearance Directory Number (MADN)

The attendant may get a busy tone if all the telephones with the required DN are busy. Break-In permits the attendant to break in to the connection with the least restricted TN. Where more than one TN exists that meets this criterion, Break-In chooses the one at the bottom of the DN block.

Multi-Party Operations – Three-Party Service

Break-In is not allowed to the party receiving the patience tone or the misoperation ringback.

Override

When one Meridian 1 telephone has overridden an existing call to establish a conference call, Break-In is temporarily denied. The attendant is notified by the override tone.

Priority Override

Telephones with a toll operator break-in call cannot be overridden. Overflow tone is returned to telephones attempting Priority Override.

Semi-Automatic Camp-On

The attendant can Break-in to an established call and apply Semi-automatic Camp-on to the desired party. The attendant may press the SACP key before or after the Break-in.

Trunk Barring

Trunk Barring does not result in intercept treatment for Toll Operator Break-In.

Feature packaging

Attendant Break-In (BKI) is package 127.

Feature implementation

LD 12 – Assign Break-In key on the Attendant Console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250 or 2250	Attendant Console type.
TN	l s c u	Terminal Number.
KEY	xx Bkl	Break-In key.

Feature operation

The operator can press the Break-In key either before or after dialing the destination DN. Break-In operates slightly differently in these two situations, as described below.

For Post-Dial Break-In:

- 1 The attendant answers an incoming external call.
- 2 The attendant dials the destination DN.
- 3 The attendant receives the busy tone (unless the destination DN allows Camp-On or Call Waiting).
- 4 The attendant presses the Break-In key.
- 5 If allowed, the attendant joins the call on the destination DN to announce the incoming call and request that other parties disconnect. (See Table 8 on page 126 for an explanation of console break in states.)
- 6 After the other parties disconnect, the attendant extends the incoming call to the destination DN.

For Pre-Dial Break-In:

- 1 The attendant answers an incoming external call.
- 2 The attendant presses the Break-In key.
- 3 The attendant dials the destination DN.

- 4 If the destination DN is busy, the attendant hears the busy tone; processing is the same as for Post-Dial Break-In above.

If the destination DN is not busy, the DEST lamp flashes and the Break-In lamp goes dark. The attendant hears the ringback tone. Pressing the Break-In key a second time causes normal call processing for an idle line.

If the destination DN is invalid, the attendant hears the overflow tone and the Break-In lamp goes off. To return to the source call, the attendant presses the Release Destination key.

Table 8 describes the possible Attendant Console break in states. These states depend on several factors:

- whether the source call is an external call
- the type of call in effect at the destination DN
- the combination of features allowed at the destination DN, and
- whether the attendant pressed the Break-In key before or after dialing the destination DN.

Table 8
Attendant Console Break-In States

Console State	Lamp State	Description
ALLOW	Destination = LIT Break-In = LIT Tone = INTRUSION	The attendant can break in to the call and extend the incoming call.
CONSULT ONLY	Destination = FLASH Break-In = LIT Tone = INTRUSION	The attendant can break in to the call but cannot extend the incoming call.
TEMPORARILY DENIED 1	Destination = FLASH Break-In = FLASH Tone = BUSY/ OVERRIDE	The attendant temporarily cannot break in to the call, and may attempt the break in later.
TEMPORARILY DENIED 2	Destination = FAST FLASH Break-In = FLASH Tone = OVERFLOW	The attendant temporarily cannot break in to the call.
DENIED	Destination = FLASH Break-In = DARK Tone = OVERFLOW	The attendant cannot break in to the established call or extend the incoming call.
BREAK-IN IGNORED	Destination = FLASH Break-In = DARK Tone = RING BACK	The attendant cannot break in. The attendant should make a second break in attempt.
INVALID DN	Destination = FLASH Break-In = DARK Tone = OVERFLOW	The attendant attempted to reach an invalid DN. The attendant should dial the correct destination DN.

Attendant Busy Verify

Attendant Busy Verify allows the attendant to establish a connection with any apparently busy DN to verify that the DN is actually busy and in working order. This feature can also be used to connect with a busy station if an emergency situation requires call interruption by the attendant.

When Busy Verify is active, a 256 millisecond burst of interrupted tone is sent every six seconds to indicate the presence of the attendant. The attendant can Busy Verify only those stations with Warning Tone Allowed Class of Service.

When a station is involved in a conference, the attendant can verify whether the station is busy even if it has Warning Tone Denied Class of Service.

An attendant can also use either the Release Source or Release Destination key on the console to release one of the parties involved in a Busy Verify conference.

Operating parameters

The system must be equipped with a conference loop.

If equipped, the Busy Verify key must be assigned to key 0 of the console flexible feature strip.

Feature interactions

Attendant Break-In

With X11 Release 20 or later, the attendant can use the Break-In key instead of Busy Verify to break in to an established call. Attendant Break-In simplifies this process.

Automatic Redial (ARDL)

Attendant Busy Verify is not permitted on a Meridian 1 proprietary set that is used for an ARDL call. These restrictions avoid creating a conference when the tone detector is involved in the call.

Call Forward All Calls

If the DN is call forwarded to the Attendant Console, the attendant will receive a click followed by silence.

Hunting and Call Forward Busy

Hunting and Call Forward Busy do not affect Busy Verify.

Feature packaging

Attendant Busy Verify is included in base X11 system software.

Feature implementation

LD 12 – Add/change a Busy Verify key on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Console type.
TN	I s c u	Terminal Number.
KEY	0 BVR	Add a Busy Verify key.

LD 10 – Allow/deny Warning Tone Class of Service for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	(WTA), WTD	Allow or deny warning tone.

LD 11 – Allow/deny Warning Tone Class of Service for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
CLS	(WTA), WTD	Allow or deny warning tone.

LD 14 – Allow/deny Warning Tone Class of Service for trunks.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	COT, DID, FEX, RAN, TIE, WAT	Trunk type.
TN	I s c u	Terminal Number.
CLS	(WTA), WTD	Allow or deny warning tone.

Feature operation

To verify a busy DN, follow these steps:

- 1 Select an idle loop key.
- 2 Press **Busy Verify**.
- 3 Dial the DN of the station.

If the DN is idle, press **Signal Source** to ring the station.

Possible results are:

- silence (DN is idle and working)
- conversation (DN is busy and working), or
- fast busy (station is disabled or has Warning Tone Denied Class of Service).

- 4 Press the **Rls** key to disconnect from the call.

An enhancement to Busy Verify feature offers the following functionality. Party A is on a call with Party B. The attendant:

- 1 Selects an idle loop key.
- 2 Presses **Busy Verify**.
- 3 Dials Party A and creates a Busy Verify conference between Party A, Party B, and the attendant.

The use of the **Rls DEST** and **Rls SOURCE** keys are allowed at this point as follows:

- The attendant can press the **Rls DEST** key to release Party A from the Busy Verify conference or
- The attendant can press the **Rls SOURCE** key to release Party B from the Busy Verify conference

Attendant Call Selection

All calls to the attendant, with the exception of slow-answer recalls, are automatically queued in order of arrival. The attendant can answer a call in two ways:

- Calls can be answered in the order received, regardless of call type, using the Loop key (LPK).
- A particular call type can be answered before other calls in the queue by manually selecting the appropriate Incoming Call Indicator (ICI) key.

The first call presented to an idle console is indicated by the appropriate ICI lamp. All subsequent calls are indicated by the Calls Waiting lamp only until the first call is released. All appropriate ICI lamps will then light, and an attendant may select a specific incoming call type by pressing the appropriate ICI key.

If a customer has multiple consoles, the first call in queue is presented to the first idle console.

Operating parameters

The maximum number of ICI lamps per Attendant Console is 20. All consoles associated with a customer have the same ICI assignments.

Feature interactions

There are no interactions with other features.

Feature packaging

Attendant Call Selection is included in base X11 system software.

Feature implementation

No change to existing configuration is required for the Attendant Call Selection feature.

Note: To implement ICI, see the Attendant Incoming Call Indicators feature description contained within this document.

Feature operation

The attendant can answer a call by

- pressing the Loop key to answer calls in the order received or
- pressing the appropriate ICI key to answer a call by call type.

Attendant Calls Waiting Indication

Call Waiting on the console gives the attendant an indication of the number of calls in the console queue and the length of time they have been waiting to be answered. Each console is equipped with a Call Waiting indicator. The indicator is dark when no calls are waiting in the queue. The indicator is steadily lit when one or more calls are waiting. The indicator flashes when the number of waiting calls exceeds the customer defined threshold, or when a call has been waiting longer than the specified number of seconds.

The two thresholds that control the lamp states are defined in the Customer Data Block. The time delay threshold can be specified from 0 to 511 seconds in multiples of two seconds. The number of calls threshold can be specified from 0 to 255. If zero is specified, this aspect of the Call Waiting feature is not operational.

An option is also provided to supply a two-second buzz to notify the attendant when the first call enters the queue or when the Call Waiting lamp changes from steadily lit to flashing, or both.

If the threshold has been exceeded and the Call Waiting indicator is flashing, it changes to steadily lit when the threshold is no longer exceeded by either number of calls or time delay.

Operating parameters

If neither the time delay or number of calls thresholds are defined, the Call Waiting lamp state will not change from steadily lit to flashing.

Feature interactions

Call Park on Unsupervised Trunks

If all the attendants are busy and a Call Park Recall occurs, the recall is placed in the calls waiting queue. If the recalled station is busy when the recall occurs, the Disconnect Timer (DCTI) temporarily suspends timing until the recall is presented. After the recall is presented, the Disconnect Timer continues timing for the remainder of the period.

Feature packaging

Attendant Calls Waiting Indication is included in base X11 system software.

Feature implementation

LD 15 – Define Call Waiting thresholds and indications for a customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- CWUP	(NO), YES	(Do not) automatically notify Attendant Console (M2250) when the number of calls waiting in queue changes.
- CWCL	(0)-255 (0)-255	Lower and upper bound of the threshold for the number of calls waiting (the default is 0).
- CWTM	(0)-511 (0)-511	Lower and upper bound of the threshold for the time calls are waiting (the default is 0).
- CWBZ	(NO), YES (NO), YES	The two options are: 1. (Disable) enable a buzz to the attendant when either the CWCL or CWTM thresholds are exceeded. 2. (Disable) enable a buzz to the attendant when the first call enters the queue.

LD 12 – Add/change a Display Calls Waiting key on an Attendant Console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx DCW	Add a Display Calls Waiting key. xx = 0-9 for QCW or M1250 Attendant Console. xx = 00-19 for M2250 Attendant Console.

Feature operation

If CWUP (notify change in Calls Waiting status) is set to YES in LD 15, the number of calls waiting are displayed on the M2250 console. If CWUP is set to NO, the attendant must press the Display Calls Waiting (DCW) key to display the number of waiting calls.

Attendant Consoles

Attendant Consoles assist in placing and extending calls into and out of the Meridian 1 system. The operator of an Attendant Console is known as the attendant. The consoles provide the attendant with many unique features that increase the speed and ease of call processing.

This feature module provides an overview of the Attendant Consoles and a description of the basic software capabilities and associated service changes. Additional information regarding attendant-related software features may be found in other feature modules in this document.

Table 9 lists the Attendant Consoles that are available with the Meridian 1 system:

Table 9
Meridian 1 Attendant Consoles

Console Type	Description
QCW 2	Basic console with an 8-digit display
QCW 3	Basic console with a 16-digit display
QCW 4	Basic console with a 16-character alphanumeric display
M1250	Console with a 4-line, 40-character wide alphanumeric Liquid Crystal Display
M2250	Digital console with a 4-line, 40-character wide alphanumeric Liquid Crystal Display

QCW Attendant Consoles

The Attendant Consoles have a digit display at the top of the console and a dial pad below the display. Five vertical keystrips on the console provide access to the functions described in this section.

Vertical keystrip 1

This keystrip at the far left on the console is utilized for Trunk Group Busy (TGB) keys. The attendant may deny stations access to a trunk route by pressing the associated Trunk Group Busy key. Additionally, the lamps associated with Trunk Group Busy keys provide the visual indication of the status of the trunks within the route (See Table 10).

Table 10
Visual Indication of the status of the trunks within the route

Visual Indication	Status of the trunks within the route
Dark	Some of the trunks in the route are idle.
Flashing	All of the trunks in the route are busy.
Steadily lit	The attendant has taken control of the route.

The basic Attendant Console has 10 Trunk Group Busy keys. If an add-on module is installed, there are 16 Trunk Group Busy keys.

Vertical keystrip 2

This keystrip is used for Incoming Call Indicator keys. The Incoming Call Indicators (ICIs) identify the type of calls in the queue and the status of each particular call type. Three lamp states are associated with each Incoming Call Indicator key (See Table 11).

Table 11
Key lamp states associated with each Incoming Call Indicator key

Lamp state	Status of call type
Dark	No calls of this type are waiting.
Flashing	One call of this type is waiting in queue.
Steadily lit	Two or more calls of this type are queued, or one call has been waiting longer than 20 seconds.

To select a specific type of incoming call, the Incoming Call Indicator key associated with a steadily lit or flashing LED is pressed. The call is removed from the queue and presented to an idle loop key on the Attendant Console.

The basic Attendant Console has 10 Incoming Call Indicator keys. If an add-on module is equipped, the console may have 20 Incoming Call Indicator keys. An Incoming Call Indicator key may be assigned to one or more of the call types listed in Table 12.

Table 12
Incoming Call Indicator key assignments

Key	Mnemonic	Meaning
00-19	CAX	Station Category Number (x = 1-7)
00-19	CFB	Call Forward Busy
00-19	CFN	Call Forward No Answer
00-19	DF0	Dial 0 fully restricted
00-19	DL0	Dial 0
00-19	IAT	Inter-attendant call
00-19	INT	Intercept
00-19	LCT	Lockout
00-19	LD0	Listed DN 0
00-19	LD1	Listed DN 1
00-19	LD2	Listed DN 2
00-19	LD3	Listed DN 3
00-19	MWC	Attendant Message Center
00-19	RLL	Recall
00-19	Rxxx	Route number

Vertical keystrip 3

This keystrip includes the following operating keys:

Release – Allows the attendant to release a call from the console. When the release lamp is lit, it indicates that no incoming calls are being presented to the console.

Loop key/lamps – Allows the attendant to answer and originate calls from the console. The first call in the attendant queue is automatically presented to an idle loop key. Subsequent calls are queued and presented to a loop key when the console becomes idle.

Position Busy – Puts the console into the Position Busy mode. All incoming calls are then redirected to another console in a multiple-console installation or to a night number in a single console installation.

Night Service – Permits incoming calls to be routed to preselected stations when all Attendant Consoles are in the Night mode.

Signal Remote – Provisioned if Centralized Attendant Service (CAS) is in use.

Three lamp indicators, positioned on the upper right-hand side of the keystrip, provide the following information:

- **Two Alarm indicators:** When steadily lit, the minor alarm lamp indicates the system has detected a malfunction that does not affect normal call processing. When the major alarm lamp is steadily lit, the system has detected a malfunction that does not permit normal call processing.
- **Call Waiting indicator:** The Call Waiting lamp indicates the number of calls in the attendant queue and the length of time they have been waiting to be answered. The lamp changes from steadily lit to flashing when waiting calls exceed a certain number, or when a call has been waiting longer than a specified time. The number of waiting calls are displayed by pressing the Display Calls Waiting key, if assigned.

Vertical keystrip 4

This keystrip provides the following fixed feature keys:

Hold – Allows the attendant to hold a call at the console.

Conference – Permits the attendant to set up a conference of up to five conferees, plus the attendant.

Release Destination – Allows the attendant to release the called party from a call held at the console, while holding the calling party.

Release Source – Allows the attendant to release the calling party from a call held at the console, while holding the called party.

Signal Source and Destination – Allows the attendant to recall either party to a call held on the console.

Exclude Destination – Excludes the called party from an established call held at the console, allowing the attendant to speak privately with the calling party.

Exclude Source – Excludes the calling party from an established call held at the console, allowing the attendant to speak privately with the called party.

Volume Control – Allows the attendant to change the volume of alerting signals. Each depression of the key changes the volume of the signal by one step in an eight step range.

Vertical keystrip 5

The optional features listed in Table 13 can be defined on this keystrip.

Table 13
Attendant Console optional feature key assignments (Part 1 of 2)

Key	Mnemonic	Meaning
00	BVR	Busy Verify
01	BIN	Barge-In
00-09	ADL	Autodial
02-09	AWU	Automatic Wake Up
00-09	CHG	Charge Account
00-09	CPN	Calling Party Number
00-09	DCW	Display Calls Waiting
00-09	DDL	Do-Not-Disturb, Individual
00-09	DDT	Display Date
00-09	DPD	Display Destination

Table 13
Attendant Console optional feature key assignments (Part 2 of 2)

Key	Mnemonic	Meaning
00-09	DPS	Display Source
00-09	DTM	Display Time
02-09	EES	End-to-End Signaling
00-09	GND 0-99	Group Do-Not-Disturb
00-09	MCK	Message cancellation
00-09	MDT	Display/Change Date
00-09	MIK	Message indication
00-09	MTM	Display/Change Time
00-09	PAG xxx...x	Paging (xxx...x = route access code)
00-09	PRG	Attendant Administration
00-09	PRK	Call Park
00-09	RDL	Stored Number Redial
00-09	RTC	Routing Control
00-09	SCC xxxx	Speed Call Controller (xxxx = list number)
00-09	SSC xxxx	System Speed Call Controller (xxxx = list number)
00-09	TRC	Malicious Call Trace

M1250 and M2250 Attendant Consoles

The M1250 Attendant Console is available on X11 Release 12 and later software. The M2250 Attendant Console is available on X11 Release 15 and later software. Both consoles have a four line LCD alphanumeric display, each line 40 characters wide, which displays the information presented in Table 14.

Table 14
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.

Directly below the display screen is a horizontal row of keys that provide the Position Busy, Night Service, Signal Source, and Signal Destination functions.

The M1250 and M2250 consoles have five vertical keystrips that provide the functions described for the QCW consoles. In addition, the consoles have a Shift key on the fixed feature key strip that provides access to an Options menu. This menu allows the setting of the display screen contrast, buzz tone, language, time and date format, and calls waiting options. Additional information on the Options menu can be found in the *M1250/2250 Attendant Console user guide* (P0735210).

The Shift key also allows M1250 consoles to have 20 Incoming Call Indicator keys in the regular mode and 16 Trunk Group Busy keys in the shift mode. The M2250 console can have 20 Incoming Call Indicator keys in the regular mode, and 20 Trunk Group Busy keys and an additional ten flexible feature keys in the shift mode. Add-on modules are not required on the M1250 and M2250 consoles to provide the additional key functions.

Attendant Call Party Name Display (CPND) and the Enhanced Busy Lamp Field/Console Graphics Module capabilities may be equipped with the M1250 and M2250 consoles. Please refer to the feature modules in this document for a complete description of these capabilities.

For additional information on Attendant Consoles and associated hardware, refer to the following Northern Telecom Publications:

- *M1250 and M2250 Attendant Consoles description* (553-2201-117)
- *Telephone and attendant console installation* (553-3001-215)
- *Meridian 1 fault clearing* (553-3001-510)

Operating parameters

Refer to the preceding Northern Telecom Publications.

Feature interactions

Refer to the preceding Northern Telecom Publications.

Feature packaging

QCW and M1250 Attendant Console capabilities are included in basic X11 system software.

Calling Party Name Display (CPND) package 95, includes Attendant CPND and requires Digit Display (DDSP) package 19.

M2250 Attendant Console (DCON) package 140, requires M2000 Digital Sets (DSET) package 88.

Feature implementation

LD 15 – Attendant Console related prompts and responses.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB LDN	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- LDN0	xxx...x	Listed Directory Number 0.
- LDA0	xx xx..., ALL	Attendant Consoles associated with LDN0 (see Note).
- LDN1	xxx...x	Listed Directory Number 1.
- LDA1	xx xx..., ALL	Attendant Consoles associated with LDN1 (see Note).
- LDN2	xxx...x	Listed Directory Number 2.
- LDA2	xx xx..., ALL	Attendant Consoles associated with LDN2 (see Note).
- LDN3	xxx...x	Listed Directory Number 3.
- LDA3	xx xx..., ALL	Attendant Consoles associated with LDN3 (see Note).
TYPE	NIT	Release 21 gate opener.
- NIT1	xxx...x	First Night Service DN.
- TIM1	hh mm	Hour and minute of first Night Service DN.
- NIT2	xxx...x	Second Night Service DN.
- TIM2	hh mm	Hour and minute for second Night Service DN.
- NIT3	xxx...x	Third Night Service DN.
- TIM3	hh mm	Hour and minute for third Night Service DN.
- NIT4	xxx...x	Fourth Night Service DN.
- TIM4	hh mm	Hour and minute for fourth Night Service DN.
TYPE	ATT	Release 21 gate opener.
ATDN	(0) xxx...x	Attendant DN.

- NCOS	(0)-99	Attendant Network Class of Service for all consoles.
TYPE	CAS	Release 21 gate opener.
- CAS	(NO), YES	Change Centralized Attendant Service options.
OPT	(IC1), IC2 (XTG), ITG (LOD), LOA (XDP), IDP (XLF), ILF (SYD), SYA	10 or 20 Incoming Call Indicators. Trunk Group Busy keys not equipped/equipped. (Deny) allow Lockout. Digit Display not equipped/equipped. Lamp Field Array not equipped/equipped. (Deny) allow Secrecy.
- ANAT	xxx x	Attendant Billing number.
- ANLD	xxx...x	ANI listed DN.
TYPE	ATT	Release 21 gate opener.
- LFTN	l s c u	TN of first Lamp Field Array.
- LFTN	l s c u	TN of second Lamp Field Array.
- LFFD	xxx...x	First DN of Lamp Field Array.
AATT	xxxx	AIOD attendant identifier.
TYPE	TIM	Release 21 gate opener.
- RTIM	xxxx yyyy zzzz	Recall timers. xxxx = slow answer (0-378). yyyy = Camp-On (0-510). zzzz = Call Waiting (0-510).
- ATIM	(0)-126	Attendant Alternative Answering timer.
ICI	xx yyy	Incoming Call Indicator key assignment. xx = key number. yyy = mnemonic (see Table 12). Note: Multiple responses can be entered for the same key. To remove an entry, enter xx NUL, then reenter the desired responses. To add an entry, enter the desired response. It will be added to any already existing response.
- AQTT	1-(30)-255	Attendant queue timing threshold in seconds.
TYPE	ATT	Release 21 gate opener.

- AODN	xxxx...x	Attendant overflow DN.
TYPE	PWD	Release 21 gate opener.
- ATAC	xxxx	Attendant Administration access code.
TYPE	ATT	Release 21 gate opener.
- CWUP	(NO) YES	Call Waiting queue update.
- CWCL	(0)-255 (0)-255	Call Waiting lower and upper thresholds for number of calls in queue.
- CWTM	(0)-511 (0)-511	Call Waiting lower and upper thresholds for time in queue.
- CWBZ	(NO) YES (NO) YES	Buzz when Call Waiting thresholds are exceeded. Buzz when first call enters queue.
- MATT	(NO) YES	Attendant Consoles used as Message Center.
- SPVC	0-63	Attendant number for supervisor console.
TYPE	AWU	Release 21 gate opener.
- AWU	(NO) YES X	Enable Automatic Wake Up (X erases AWU information).
- ATRC	(NO) YES	Attendant Recall after failed AWU attempts.
Note: Enter one or more attendant numbers (1-63). Enter ALL to enable this listed DN on all attendants. Precede the attendant number with X to remove.		

LD 12 – Add an Attendant Console.

Prompt	Response	Description
REQ	NEW	Add a console.
TYPE	ATT 1250 2250 PWR	Attendant Console. M1250 console. M2250 console. Power TN.
TN	l s c u	TN of Attendant Console.
CDEN	(DD), SD	Card density.

SETN	I s c u	Second TN (must be on same loop as primary TN of Attendant Console).
ANUM	1-63	Attendant number (1-63).
DLEN	(8) 16	Digit display length (the default is 8). Not prompted if TYPE = 1250 or 2250.
SSU	0-4095	System Speed Call user list number.
ICDR	(ICDD) ICDA	(Deny) allow internal call detail.
CPND	(CNDD) CNDA	(Deny) allow Call Party Name Display. Prompted if TYPE is 1250 or 2250.
DNDI	(DNDD) DNDA	(Deny) allow dialed name display.
EBLF	(BLFD) BLFA	(Deny) allow enhanced busy lamp field. Prompted if TYPE is 1250 or 2250.
AADN	xxx...x	Attendant Alternative Answering DN.
KEY	xx aaa	Key number and mnemonic for feature assignments (see Table 13).

Feature operation

Refer to the appropriate Attendant Console User guide for specific operation procedures.

Attendant Forward No Answer

The Attendant Forward No Answer (AFNA) feature is comprised of two capabilities. The first allows Direct Inward Dial (DID), Direct Outward Dial (DOD), or Central Office (CO) calls, presented to the attendant and not answered within a customer-defined period of time to be forwarded to another attendant, or to night DN if Night Service is activated.

The second capability allows Direct Inward Dial or Central Office calls, presented to a station that is in Night Service, to be disconnected if not answered within the pre-defined ring cycle, or time period. This second capability is called Night Forward No Answer (NFNA).

Two timers are available: the Attendant Forward No Answer timer (AFNT) and the Attendant Forward No Answer Buzz timer (AFBT), both of which are programmed in LD 15.

If the AFBT timer is programmed, when a call is presented to the attendant, the attendant receives a buzz at maximum volume for the duration of the AFBT timer. If the value set for the AFNT timer is higher than that of the AFBT timer, the attendant receives a buzz at normal volume for the duration between when the two timers expire. The AFNT timer can be set between two and 126 seconds. The AFBT timer cannot be set higher than the AFNT timer.

If the attendant does not accept the call before the AFNT timer expires, the attendant is put in Position Busy and the call is relinked to the top of the queue. If all attendants are put in Position Busy, the call can be forwarded via Attendant Overflow Position (AOP) or Night Service if equipped.

When a call is forwarded from the attendant queue to a busy Attendant Overflow Position, the call remains in the queue. If the AOP is idle, the Attendant Forward No Answer timer is started. If the call is not answered before time-out, the AOP is idled. The call is relinked to the top of the queue. If all attendants are in Position Busy, Night Service is activated and the call is transferred to the night DN.

If the night DN is busy, the call is added to the queue, provided the call involves a CO, FEX, WATS, CAS, or CAMA trunk, or was handled by Enhanced Night Service. Other calls, such as TIE or internal calls, are given busy tone.

During Night Service, when a DID or CO trunk call is presented to an idle DN, the Night Forward No Answer (NFNA) ring counter is started. If the call is not answered during the NFNA time cycle, the call is disconnected. Non-DID and non-CO calls ring until the call is answered or the calling party hangs up.

Operating parameters

Attendant Forward No Answer operates in a standalone or networking environment. For networking applications, the transferring and terminating stations can be located on different nodes.

Attendant Forward No Answer does not apply to inter-attendant calls.

Night Forward No Answer (NFNA) and Night Forward No Answer in seconds (NFNS) do not apply to calls waiting in the ACD queue or the Primary Line Directory Number (PLDN) queue.

When Night Forward No Answer times out on an unanswered trunk, the trunk is locked out until the far-end goes on-hook.

The maximum number of ring cycles for Attendant Forward No Answer on an Attendant Overflow Position is 63.

AFNA timing ceases and the volume of the attendant buzzer is set to the original value in the following cases:

- If the attendant answers a call
- If the attendant answers an Automatic Wake-up recall on the AWU key

- If an attendant-extended call is answered on a set during a slow answer recall to the attendant, and
- If a call waiting call is answered at a set while the attendant is ringing.

If a set or trunk disconnects while the attendant is being rung, and the AFNA timing cannot continue on the source or destination side, the volume of the attendant buzzer is set to its original value.

When a DID/DOD/CO call is transferred from one station to another station on the same node, Ring Again No Answer has priority over NFNA and NFNS.

Feature interactions

Attendant Recall

If an attendant recall is affected through the Attendant Recall key on a Meridian 1 proprietary set, or through a switchhook flash on an analog (500/2500 type) set, the destination side on the console is not dropped before the call is routed to the night DN.

DPNSS1 Diversion

If an incoming call is handled for Network Attendant Services routing towards DPNSS1, no diversion signaling is sent back to the calling party.

Multi-party Operations

Multi-Party Operations – Recovery of Mis-operation During Call Transfer takes precedence over NFNA and NFNS for DID/DOD/CO calls.

Night Forward No Answer

Call Forward No Answer has priority over Night Forward No Answer and AFNA on the Attendant Overflow Position.

Switchhook Flash

If a switchhook flash is performed on an analog (500/2500 type) telephone, the AFNA timing stops to allow for a valid disconnection. If a valid disconnection is not affected, the AFNA timing cycle begins again.

Feature packaging

This feature is contained in the Attendant Forward No Answer (AFNA) package 134; however, this package is mutually exclusive with Attendant Alternate Answering (AAA) package 174.

Within a networking environment, Network Attendant Service (NAS) package 159 is required.

Feature implementation

LD 15 – Modify data for each customer member to be configured.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	ATT	Release 21 gate opener.
...		
- OPT	(DNCA), DNCS	If DNCA is entered, all DID/CO or DOD calls are disconnected after the number of ring cycles defined by the response to the NFNA prompt while the system is in Night Service. If DNCS is entered, outgoing CO/DOD calls or incoming CO/DID calls in the answered state, and waiting on a set are disconnected after the number of seconds defined in response to the NFNS prompt expires.
...		
- AFNT	(0)-2-126	Attendant Forward No Answer Timer. The number of seconds in two-second intervals that the call is presented to the attendant before Attendant Forward No Answer is attempted. Odd entries are rounded down to the next valid entry. If 0 is entered, the call is not forwarded.

- AFBT	(0)-2-x	Attendant Forward Buzz Tone, where: x = the value defined for AFNT. The number of seconds in two-second intervals that the attendant is buzzed at full volume. Odd entries are rounded down to the next valid entry. If 0 is entered, the original volume is in effect.
TYPE	TIM	Release 21 gate opener.
...		
- NFNA	(0)-63	Night Forward No Answer ring cycles (prompted if OPT = DNCA). The number of times a DID/DOD and CO trunk call will ring a set before being disconnected during Night Service. A default value of 0 causes the call not to be disconnected.
- NFNS	(0)-504	Night Forward No Answer in seconds (prompted if OPT = DNCS). If a value is entered for this prompt, all outgoing CO/DOD trunk calls in a waiting state, and all incoming CO/DID calls in the answered state will be disconnected after the time in seconds expires as entered in response to this prompt. The entered value must be a multiple of eight. A default value of 0 causes the call not to be disconnected.

Feature operation

No specific operating procedures are required to use this feature.

Attendant Incoming Call Indicators

Attendant Consoles can be equipped with up to 20 Incoming Call Indicator (ICI) key/lamp pairs to identify the type of calls being presented and the call status for each particular call type. The customer can specify which incoming call types are to be assigned a separate ICI key. Possible call types include, but are not limited to, the following:

- Trunk calls (such as FX, WATS, and TIE)
- Listed Directory Number (LDN) calls
- Dial zero calls
- Fully restricted dial zero calls
- Automatic Timed Reminder recalls
- Attendant Interpositional calls
- Attendant Intercept calls
- Call Forward Busy calls, and
- Call Forward No Answer calls.

Three lamp states are associated with each Incoming Call Indicator key (See Table 15).

Table 15
Key lamp states associated with each Incoming Call Indicator key

Lamp state	Status of call type
Dark	No calls of this type are waiting.
Flashing	One call of this type is waiting in queue.
Steadily lit	Two or more calls of this type are queued, or one call has been waiting longer than 20 seconds.

Operating parameters

The ICI feature applies to Attendant Consoles only.

The number of ICI keys to be assigned (10 or 20) is defined in the Customer Data block. The default is ten.

No more than 20 ICI key/lamp pairs can be assigned to an Attendant Console. The assignment of call types to ICI key/lamp pairs is flexible. All Attendant Consoles in the customer group will have the same ICI key assignments.

Feature interactions

Attendant Call Selection Call Waiting

The ICI feature is used with the Attendant Call Selection and Call Waiting features to recognize, answer, and process incoming calls.

DPNSS1 Night Service

When a Night Service call is diverted to an attendant, the Incoming Call Indicator is the number of the incoming route. This is the same as for a NAS MCDN call routed to an attendant.

Feature packaging

The Attendant Incoming Call Indicators feature is included in base X11 system software.

Feature implementation

LD 15 – Assign ICI keys for Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(IC1), IC2	10 or 20 Incoming Call Indicators.
- ICI	0-19 CAx 0-19 CFB 0-19 CFN 0-19 DF0 0-19 DL0 0-19 IAT 0-19 INT 0-19 LCT 0-19 LD0-3 0-19 MWC 0-19 RLL 0-19 xxx	Station category number. x = category number 1 through 7. Call Forward Busy. Call Forward No Answer. Dial 0 fully restricted. Dial 0 (attendant). Inter-attendant call. Call intercept. Line Lockout Intercept. Listed Directory Number (0 through 3). Attendant Message Center. Recall. Route number.

Feature operation

No specific operating procedures are required to use this feature.

Attendant Interpositional Transfer

Attendant Interpositional Transfer enables an attendant to call or transfer a call to another attendant in a multiple-console group, even when the destination Attendant Console is busy.

When transferring a call to another attendant whose console is idle, the interpositional call is presented immediately. If the called attendant is busy, the calling attendant hears a busy tone. The attendant then presses the Release key and the transferred call will be the next call presented to the called Attendant Console.

Operating parameters

In systems using software prior to X11 Release 8, a call cannot be transferred if the called Attendant Console is in Position Busy, has activated Night Service, or if network blocking occurs. In these cases, the calling attendant receives a busy tone. With software Release 8 and later, the call can be transferred to an Attendant Console in the Position Busy state; however, the called console does not receive any audible signal. A Call Waiting indication appears on the console display.

Feature interactions

Night Service Enhancements

The queuing of interpositional calls is not allowed. Night Service enhancements do not apply to interpositional calls, which remain on the console until answered.

Feature packaging

Attendant Interpositional Transfer is included in base X11 system software.

Feature implementation

LD 15 – Add/change an Interpositional Call Incoming Call Indicator (ICI) key on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- ICI	0-19 IAT	Add an Inter-attendant Call ICI to all consoles.

Feature operation

To transfer a call to a busy attendant (Attendant Console), follow this step:

- The Attendant Console you have dialed is busy. Press **Rls**. Your call will be the next call presented to the busy attendant.

To transfer a call to an Attendant Console in Position Busy mode, follow this step:

- Dial the Interpositional access code (0) and the desired attendant position number. You receive a busy tone. Press **Rls**.

To answer a call transferred to an Attendant Console in Position Busy mode, follow these steps:

- 1** The Call Waiting indicator lights; there are no audible tones. Press the **Position Busy** key to take the console out of Position Busy mode.
- 2** The call is presented to the Loop key and you receive an audible tone. Press the **Loop** key.

Attendant Lockout

Attendant Lockout restricts the attendant from entering an established connection completed through and held on the console. Attendant Lockout does not come into effect until the call has been answered.

The attendant can re-enter the call if the source party is a station telephone. Attendant Lockout occurs only if the source party is an external number (trunk), and the destination party is a telephone.

Operating parameters

Busy Verify and Barge-In allow the attendant to override the Attendant Lockout feature.

Feature interactions

Attendant Recall

If one of the stations activates Attendant Recall, the attendant is allowed to re-enter the connection.

Feature packaging

Attendant Lockout is included in base X11 system software.

Feature implementation

LD 15 – Allow/deny Lockout for Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(LOD), LOA	(Deny) allow attendant lockout.

Feature operation

No specific operating procedures are required to use this feature.

Attendant Overflow Position

Attendant Overflow Position (AOP) allows certain types of calls to be automatically rerouted to a specified idle Directory Number (AOP DN) when calls waiting to be answered have exceeded a defined threshold, or an attendant is in the Position Busy state, but the system is not in Night Service.

When a call that can be rerouted has been waiting longer than the customer-defined Attendant Queue Timing Threshold (0-255 seconds), it is rerouted to the AOP DN. Calls that can be rerouted to the AOP DN are trunk calls, internal calls and Call Forward Busy, or Call Forward No Answer calls directed to the attendant.

Attendant calls that cannot be rerouted are transfer calls, intercept calls, parked call recalls, automatic or manual recalls, and attendant interposition calls. These calls will not be answered until an attendant becomes available.

When the last Attendant Console is put into Position Busy or disabled, the system does not go into Night Service if an AOP DN is available. In this case, calls that can be rerouted will be forwarded to the AOP DN. Ineligible calls remain unanswered until the system is put in Night Service or one of the consoles deactivates Position Busy.

Operating parameters

An AOP DN can be a single-appearance, multiple-appearance single-call, or multiple-appearance multiple-call DN. If it is a Multiple Appearance DN, a Meridian 1 proprietary telephone can busy out the AOP DN for all appearances.

An analog (500/2500 type) telephone can have an AOP DN. It does not have the ability to busy out the AOP DN and continue to receive calls. If it is a requirement that the analog (500/2500 type) telephone have an AOP DN, the AOP DN must also appear on a Meridian 1 proprietary telephone to create a mix of telephones, which negates privacy.

In order to properly identify and greet attendant overflow calls, it is best to have the AOP DN appear on a Meridian 1 proprietary telephone's secondary DN.

Meridian 1 proprietary telephones specified as Attendant Overflow Positions can prevent calls from being rerouted by the Attendant Overflow feature. To prevent attendant overflow calls, press the Attendant Overflow Position Busy (AOP Busy) key/lamp pair on the telephone. Activating this key will busy out all appearances of the AOP for either Single Call Ringing or Multiple Call Ringing arrangements. Overflow calls will remain in the attendant queue. Normal incoming calls to the AOP telephone will not be affected.

The following requirements apply to the activation/deactivation of the AOP Busy key:

- A telephone with an AOP Busy key must have an appearance of the AOP DN in order for the key to work.
- Any AOP DN that has an AOP Busy key can activate or deactivate the AOP feature. If the AOP Busy key is activated at one appearance of the AOP DN, attendant calls are not rerouted to any appearance of the AOP DN.
- Activation or deactivation of the AOP Busy key does not affect any call already rerouted to the AOP DN.
- If all consoles are in Position Busy and the system is not in Night Service when an AOP Busy key is activated, the system goes into Night Service.
- If the system is in Night Service when the AOP Busy key is deactivated, the system remains in Night Service.
- Activation or deactivation of the AOP Busy key does not affect the Position Busy status of the Attendant Console. If all Attendant Consoles are in Position Busy and the AOP Busy key is activated, the system goes into Night Service.

- The status of the AOP Busy key remains unchanged through a system initialization but is deactivated if a system reload occurs.

The AOP feature package is not allowed on systems equipped with Centralized Attendant Service-Main (CASM) or Centralized Attendant Service-Remote (CASR) packages.

Each customer may have only one AOP DN. The AOP DN cannot be a private line DN, a trunk DN, or a SPRE code.

There are no special ringing cadences or lamp operations to indicate that an incoming call to the AOP DN is an Attendant Overflow Position call. It is recommended that the AOP DN be used only for Attendant Overflow Position calls enabling calls to be answered appropriately.

If the AOP DN is busy, calls remain in the attendant queue and are not rerouted through the Attendant Overflow Position feature until the DN is free to receive the next call.

Calls will not be rerouted to the Attendant Overflow Position DN when

- Calls are on an Integrated Services Digital Network (ISDN) or Electronic Switched Network (ESN) network.
- All appearances of the AOP DN are busy.
- The AOP DN is in the Call Forward All Calls mode.
- The call is an interposition call from an attendant.
- The call has been redirected to the attendant by the Call Transfer or Attendant Recall features.
- The call is an intercept call to the attendants.
- The system is in the Power Fail Transfer mode.
- All appearances of the AOP DN have the Make Set Busy feature activated.
- Any appearance of the AOP DN has activated Attendant Overflow Position Busy (AOP Busy).
- An analog (500/2500 type) telephone appearance of the AOP DN goes idle and a Call Waiting call is queued for the telephone. The Call Waiting call rings the telephone and AOP calls are not rerouted to the telephone.

- The AOP DN goes idle with a Camp-On call queued for the telephone. The Camp-On call rings the telephone and AOP calls are not rerouted to the telephone.
- The rerouting of the call violates the access restrictions or Class of Service restrictions on the AOP DN telephone. For example, if the AOP DN is FR2, an external Public Exchange network call will not be rerouted to the AOP DN because it is prohibited by the telephone access restrictions.
- The system is in Night Service.

Feature interactions

Attendant

The Calls Waiting indicator on the Attendant Console is updated when a call is rerouted to the AOP DN.

Attendant Overflow Position Busy

If the telephone with AOP DN has an Attendant Overflow Position Busy (AOP Busy) key activated, calls will not overflow to any appearance of the AOP DN.

Attendant Recall

An Attendant Overflow Position call answered at an AOP DN may be recalled to the attendant using the Attendant Recall capability (ARC key).

Automatic Call Distribution (ACD)

With X11 Release 16 and later, externally marked trunks will overflow to an Automatic Call Distribution (ACD) DN. The ACD DN may only be an ACD agent configured as a virtual Voice Mail System agent (e.g. Meridian Mail). X11 Release 15 and earlier does not support ACD DN's defined as attendant overflow.

Call Forward All Calls

If the telephone assigned an Attendant Overflow DN has activated the Call Forward All Calls feature, overflow calls are not rerouted to the telephone. If an analog (500/2500 type) telephone is forwarded, AOP is canceled.

Call Forward No Answer

A call rerouted through Attendant Overflow Position will Call Forward to the forwarding DN only if it is the Prime DN or a single appearance DN on that telephone.

Call Pickup

An Attendant Overflow Position Call presented to the AOP DN can be picked up by any station belonging to the same Call Pickup Group.

Conference

An Attendant Overflow Position call answered on an AOP DN may be conferenced with another DN.

Line Lockout

If a telephone with an AOP DN is in Line Lockout, it still receives AOP calls.

Make Set Busy

If a telephone that is the only idle AOP DN has MSB activated, calls will not overflow.

If the AOP DN is a multiple appearance DN, the MSB key should be added to all telephones with an AOP DN.

If MSB is activated in a Multiple Call Ringing arrangement, the telephone appears busy. All other appearances of the AOP DN will still receive calls. This allows the user to leave the telephone and prevent callers from overflowing and receiving ringback with no answer.

If the AOP DN is a Multiple Appearance, Single Call arrangement and MSB is activated, the AOP DN of that telephone will flash, but the telephone will not ring (the call can still be answered from that appearance).

Multiple Appearance DN

A multiple appearance, multiple call AOP DN allows as many overflow calls to be in progress as there are appearances of the DN. A multiple appearance, single call AOP DN allows only one overflow call at a time.

Night Service

A call rerouted through the Attendant Overflow Position feature is not redirected to the Night DN if the system is subsequently put into Night Service. When all Attendant Consoles are in Position Busy, the system will not go into Night Service until the AOP Busy key is activated.

Deactivating the AOP Busy key after the system has been placed in Night Service does not affect the Night Service feature.

Night Service Enhancements

If a call with a ringing party on the destination side is presented at the last-active Attendant Console, and there is an active Attendant Overflow Position, the ringing destination will be disconnected when the call is requeued. Likewise, if the call is a Call Waiting recall, Call Waiting will be canceled.

Night Service Enhancements/Network Attendant Service (NAS)

Attendant Overflow Position is mutually exclusive with NAS. The routing configuration for NAS will apply during Night Service. External calls and recalls may be queued to a remote Night DN, if defined. Internal calls and internal recalls queued during Day Service will be dropped, if the Night DN has been defined on a remote node.

Recall to Same Attendant

Recalls and inter-attendant calls are not routed to the Attendant Overflow Position.

Traffic Measurement

Traffic measurements are provided for the Attendant Overflow feature in Traffic Report TFC005. A count of the number of attendant calls rerouted through the feature is printed.

Automatic Timed Recall

After an attendant call has been rerouted using the AOP feature, there is no automatic timed recall to the attendant or any other DN.

Ring Again

If Ring Again is activated against the AOP DN, notification is given to the originator when the telephone becomes idle. An AOP call, however, takes precedence over Ring Again notification on the AOP DN when the AOP DN becomes free.

Feature packaging

Attendant Overflow Position (AOP) package 56 has no feature package dependencies. Attendant Overflow Position and Centralized Attendant Service are, however, mutually exclusive.

Feature implementation

LD 15 – Assign/change an Attendant Overflow Position DN and queue threshold timing.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- AQTT	0-(30)-255	Attendant queue timing threshold (AQTT).
- AODN	xxx...x	DN where calls are to be overflowed when they have been in queue the time specified for AQTT.

LD 11 – Add/change an AOP DN and AOP Busy key.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.

KEY	xx yyy...y	Attendant Overflow Position DN. xx = key number. yyy...y = DN.
KEY	xx OVB	Attendant Overflow Position Busy key.

LD 10 – Add/change an Attendant Overflow Position DN on an Analog (500/2500 type) telephone.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
DN	yyy...y	Attendant Overflow Position DN.

Feature operation

Attendant Overflow Position calls will be rerouted to all appearances of the AOP DN as long as the following conditions are met:

- The system is not in Night Service.
- The Attendant Overflow key (any AOP DN appearance) is not activated.
- At least one appearance of the AOP DN is on a telephone that does not have Make Set Busy activated.

To prevent attendant overflow calls from being rerouted to the AOP DN, do any of the following:

- Activate the Attendant Overflow Position Busy key.
- Activate the Make Set Busy key on all telephones with an appearance of the AOP DN.
- Place the system in Night Service.

To prevent attendant overflow calls from being rerouted to a single telephone with an appearance of the AOP DN (but not others):

- Activate Make Set Busy or
- Activate Call Forward All Calls (analog [500/2500 type] telephone).

Attendant Position Busy

If multiple consoles are defined for a customer, an attendant can remove a console from service by pressing the Position Busy key. Incoming calls are then directed to other consoles in the customer group.

Operating parameters

Position Busy applies to Attendant Consoles only.

Feature interactions

Attendant Administration

If a console in the Attendant Administration mode is idle for more than 20 minutes, it automatically reverts to Position Busy. If the Meridian 1 system is initialized or reloaded while the console is in Attendant Administration mode, Attendant Administration is aborted and the console is placed in Position Busy.

Night Service

When the last console operator activates the Position Busy key or the Night key, Night Service is put into effect. Incoming calls receive the customer-specified night treatment.

Night Service Enhancements

Any call that has been presented to the Attendant Overflow Position cannot be removed from the console and requeued by pressing the Make Set Busy (MSB) key. The call will be removed only if the Attendant Forward No Answer feature is active and the Attendant Forward No Answer Timer has timed out. In this case, the call is requeued and the Attendant Overflow Position is idled.

Recall to Same Attendant

If an Attendant Console is in maintenance or Position Busy when a Recall to Same Attendant call is recalled to it, the recall is presented to the first available idle attendant. If an attendant goes into Position Busy with a Return to Same Attendant call in Call Waiting, the waiting call is presented to the first available attendant.

Series Call

If the attendant activates Position Busy while a Series Call is active, the recall occurs to the next available attendant.

Supervisory Console

Activation of the Position Busy key on a Supervisory console puts the console in the supervisory mode.

Feature packaging

Attendant Position Busy is included in base X11 system software.

Feature implementation

No change to existing configuration is required for the Attendant Position Busy feature.

Feature operation

In a multi-console environment, press the **Position Busy** key on an Attendant Console to remove it from service.

Attendant Recall

Attendant Recall allows a user to call the attendant directly during an established call by pressing a single key. A three-way connection is established among the user, the attendant, and the third party.

To activate this feature, a separate Attendant Recall key/lamp pair must be equipped on Meridian 1 proprietary telephones. A softkey must be programmed on the M3000 Touchphone for this feature.

On single-line telephones, a user can recall the attendant during an established call by flashing the switchhook. Attendant Recall is automatic if a Transfer Denied Class of Service (XFD) is specified for the telephone. If a Transfer Allowed Class of Service (XFA) is specified, the user hears a special dial tone following the switchhook flash, and then dials zero (0) to recall the attendant. After a switchhook flash has been used to recall the attendant, it is not possible to return to a two-party connection before the attendant answers.

Operating parameters

In order for the Overflow Position Busy (OVB) key to work, the telephone must have an AOP DN configured.

Feature interactions

Attendant

After the attendant and the two parties have been connected, the attendant can use the Attendant Splitting feature to communicate separately with either party.

Automatic Redial (ARDL)

When an ARDL call is not accepted by the calling party, the Attendant Recall (ARC) key is ignored if pressed.

Directory Number Delayed Ringing

If a dialed set has the Directory Number Delayed Ringing (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.

Multi-Party Operations

Users of analog (500/2500) telephones can perform an attendant recall during a two-party connection by performing a switchhook flash and then dialing the attendant DN.

Ring Again on No Answer

A set that is recalling the attendant cannot apply Ring Again on No Answer.

Feature packaging

Attendant Recall is included in base X11 system software.

Feature implementation

LD 15 – Add/change a Recall Incoming Call Indicator (ICI) key on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- ICI	xx RLL	Add a Recall ICI to all consoles.

LD 10 – Implement Attendant Recall for Analog (500/2500) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u c u	Terminal Number. Terminal for the Option 11.
CLS	(XFD), XFA	(Deny) allow call transfer, which allows automatic Attendant Recall.

LD 11 – Add/change an Attendant Recall key for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u c u	Terminal Number. Terminal Number for the Option 11.
KEY	xx ARC	Add an Attendant Recall key (the M3000 must use key 33). xx = key number.

Feature operation

To contact an attendant during a call (BCS telephone), follow these steps:

- 1** Press **Att Recall**.
- 2** Stay on the line until the attendant answers.
- 3** When you hang up, the other party remains connected to the attendant.

To contact an attendant during a call (analog [500/2500 type] telephone with Transfer Allowed Class of Service), follow these steps:

- 1** Flash the switchhook (you hear a special dial tone).
- 2** Dial zero (0).
- 3** When you hang up, the other party remains connected to the attendant.

To contact an attendant during a call (analog [500/2500 type] telephone with Transfer Denied Class of Service), follow these steps:

- 1** Flash the switchhook (the attendant is automatically dialed).
- 2** When you hang up, the other party remains connected to the attendant.

Attendant Secrecy

Attendant Secrecy automatically prevents a voice connection between the source and destination parties of a call being extended by an attendant, until the attendant connects the two parties. This allows the attendant to converse privately with the destination party before completing the connection. Attendant Secrecy is allowed or denied on a customer basis.

Operating parameters

Attendant Secrecy is available on Attendant Consoles only.

Attendant Secrecy operates only on external calls received from an outside trunk (for example, Central Office or WATS trunks).

Attendant Secrecy is not applicable to ISA trunks.

Feature interactions

Attendant Recall

Attendant Secrecy does not apply on an attendant recall or when the attendant reenters a call held on a Loop key. The Exclude Source and Destination keys are used in these cases.

Feature packaging

Attendant Secrecy is included in base X11 system software.

Feature implementation

LD 15 – Allow/deny Attendant Secrecy for a customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(SYD), SYA	(Deny) allow Attendant Secrecy.

Feature operation

No specific operating procedures are required to use this feature.

Attendant Splitting

Attendant Splitting allows the attendant to talk privately to the source or destination side of an existing connection on the console. The Exclude Source (EXCL SRC) key allows the attendant to speak privately with the destination (called) party. The Exclude Destination (EXCL DEST) key allows the attendant to speak privately with the source (calling) party.

Operating parameters

This feature is active only while the attendant is involved in the call.

Attendant Splitting applies to Attendant Consoles only.

Feature interactions

There are no interactions with other features.

Feature packaging

Attendant Splitting is included in base X11 system software.

Feature implementation

No change to existing configuration is required for the Attendant Splitting feature.

Feature operation

To speak privately to the source party:

- 1 Press **EXCL DEST**.
- 2 To connect yourself, the caller, and the called party, press the **lpk** key.
- 3 To end your connection in the call, press **Rls**.

To speak privately to the destination party:

- 1 Press **EXCL SCR**.
- 2 To connect yourself, the caller, and the called party, press the **lpk** key.
- 3 To end your connection in the call, press **Rls**.

Attendant Supervisory Console

The Supervisory Console feature allows one Attendant Console in a customer group to function in a supervisory capacity when put into the Position Busy state. The elements of the Supervisory Console feature allow any of the following functions.

Attendant Status Display

The supervisor, by monitoring the attendant status display, can determine how many attendant positions are in service and able to receive calls.

QCW-type consoles – If 1 to 16 attendants are assigned within a customer group, the supervisory console can be equipped with either a 10-key or 20-key add-on module. The 10- or 20-button add-on module mounted on the right side of the supervisory console provides a visual indication to the supervisor of which Attendant Consoles are in service. One key/lamp pair on the supervisory console add-on module is assigned for each attendant in the customer group including the supervisory attendant. When the supervisory console is operating as a normal attendant, the add-on module key functions are changed to Trunk Group Busy, if ICI 2 is defined in customer data.

M1250 console – If 1 to 16 attendants are assigned within a customer group, the supervisory console can monitor their status using Trunk Group Busy keys. No add-on module is necessary.

M2250 console – If 1 to 20 attendants are assigned within a customer group, the supervisory console can monitor their status using Trunk Group Busy keys. No add-on module is necessary.

When an indicator on the module associated with a particular attendant is on, the attendant is available to service calls. If the indicator is off, the attendant position is in a Position Busy state. Attendant status indicators are only operable when the supervisory console is in a supervisory mode (Position Busy key operated). When the supervisory attendant is in Position Busy, the LED associated with the supervisor fast flashes at 120 ipm.

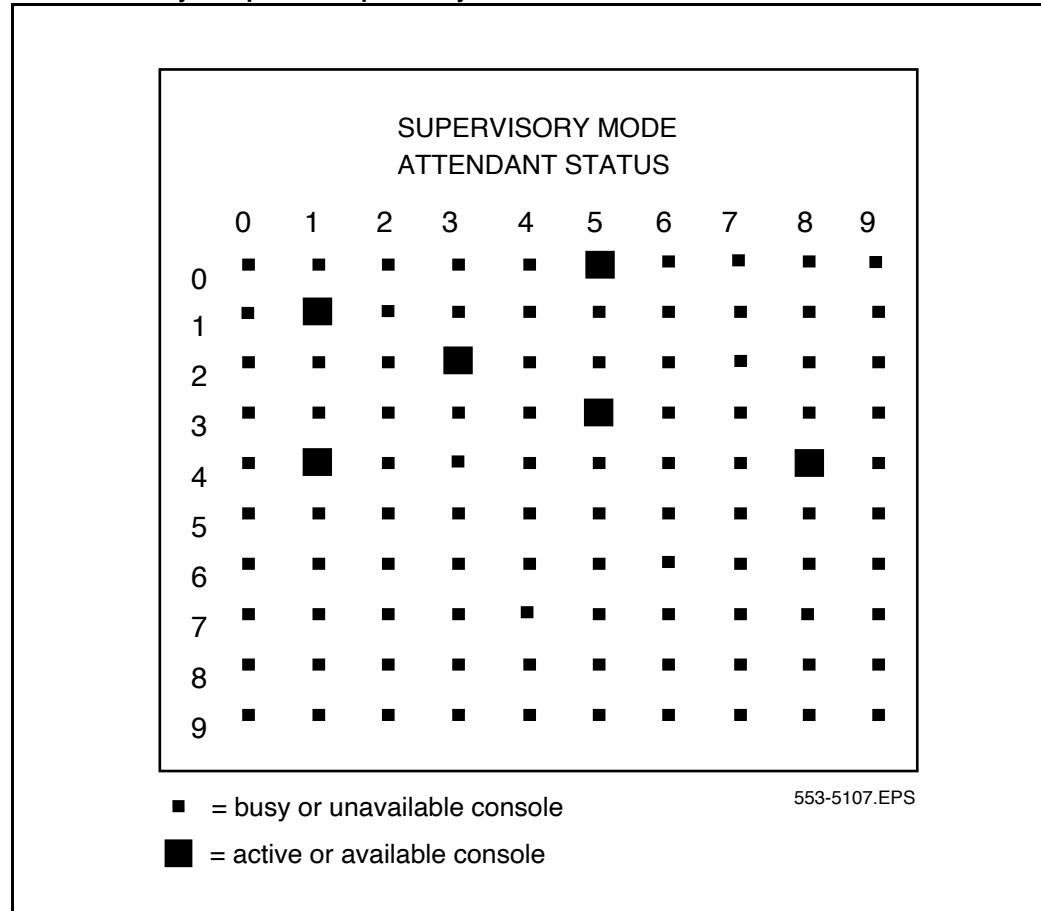
Attendant Status using Lamp Field Array

QCW console – A supervisory console can have up to 49 status indicators. The QMT3 Lamp Field Array (LFA) is used for this function because the Trunk Group Busy keys are limited to 16. The supervisory attendant may use the 16 TGB keys or the LFA, depending on the number of attendants or the preference of the customer.

The LFA associated with the supervisory console displays the attendant status on lamps 101 to 149. The lamp is dark when the attendant is in Position Busy and lit when the attendant is available. A steadily lit lamp in fields 51 to 81 identifies the active supervisory console. The letter S is displayed using lamps 0 to 42 to indicate that this LFA is in the supervisory mode. The LFA displays attendant status whether the console is in Supervisory mode or Attendant mode.

M1250 and M2250 consoles – A supervisory console can have up to 49 status indicators when used in the Standard Busy Lamp Field mode. When using Enhanced Busy Lamp Field mode, a supervisory console can display the status of all Attendant Consoles in the customer group. Figure 1 shows an example of Supervisory monitoring in Enhanced Busy Lamp Field mode on the Busy Lamp Field/Console Graphics Module.

Figure 1
Enhanced Busy Lamp Field Supervisory mode



Visual indication of calls in queue

An attendant call queue holds incoming calls to the Meridian 1 system that cannot be immediately answered by attendants. The supervisory console can monitor the call queue for specific types of incoming calls.

A maximum of 20 (ICI) key/lamp pairs may be assigned on an Attendant Console. Each ICI is assigned to handle a specific type of call (such as station, TIE, or dial 0) to the attendant. When a console is in the supervisory mode, the state of the lamp associated with each ICI provides a visual indication of the number of calls in the attendant queue for each ICI type. Each supervisory console ICI lamp state (dark, flash at 60 ipm, fast flash at 120 ipm, steadily ON) provides the supervisor with a visual indication of the number of calls in the queue for each call type. The ranges (calls in queue) are identified by one of three customer-specified thresholds that are set in service change programs.

Attendant Service Observation

This feature allows the supervisory attendant to monitor (listen only) calls in progress on other attendant loops without being heard. Service Observation requires the assignment of one key/lamp pair on the supervisory console flexible key strip. The key is assigned as Busy Verify through service-change programs. When the console is in Supervisory mode, the key function is Service Observation; when the console is operating as a normal attendant the key function is Busy Verify.

The observed attendant and the connected party or parties are not aware that their conversation is being monitored. The supervisor can release the connection by pressing the Release key. When the attendant is in a Service Observe mode, only the Release key is allowed as a valid input.

Supervisory assistance

An attendant can consult with, or transfer calls to, the supervisor or another attendant using the Interposition call feature. Interposition calls to the supervisor are allowed regardless of the mode of operation (Supervisory or Attendant). The supervisor can use the Interposition call feature to contact any attendant, except those in Position Busy. When the supervisor is conferring with an attendant, subsequent calls to the supervisor receive a busy indication.

If an attendant calls the supervisor who at the time is not in supervisory mode and is handling a call, the supervisory attendant interposition ICI lamp flashes at 60 ipm. As soon as the supervisor is idle, the calling attendant is connected to an idle loop on the supervisory console.

Interposition calls can be made from any attendant in the customer group to any other attendant within the customer group. Only one interposition call can be terminated on a console at a given time.

Supervisor serving as attendant

When the supervisor decides to act as an attendant, the supervisory console is removed from Position Busy. The system presents calls to the supervisory console as if it were a normal Attendant Console. The supervisory console must be idle to change states from attendant to supervisor or supervisor to attendant.

Operating parameters

The supervisory console and all Attendant Consoles (except M2250 Attendant Consoles) in the customer group must be assigned to QPC297 Attendant Console Monitor circuit packs. Their prime TN must be assigned to unit 0 and the secondary TN must be assigned to unit 1. Units 2 and 3 can be used for power; otherwise they must be left unassigned.

Note: M2250 digital Attendant Consoles must be minimum vintage of AD and have the Attendant Supervisory Module (ASM) installed to allow supervision.

The supervisory console must be equipped with one of the following if it is a QCW console:

- QMT1 type 10 key/lamp expansion module (can display status of attendants 1-15)
- QMT2 type 20 key/lamp expansion module (can display status of attendants 1-15)
- QMT3 type Lamp Field Array module (can display status of attendants 1-49)

The supervisory console must have a Digit Display (DDS).

If the supervisory console is a QCW equipped with a QMT3 Lamp Field Array, the status of attendants 50 to 63 cannot be displayed because of the physical limitations of the Standard Busy Lamp Field. An M1250 or M2250 console equipped with a Busy Lamp Field/Console Graphics Module (BLF/CGM) can display the status of all Attendant Consoles (up to the maximum 63) by using the Enhanced Busy Lamp Field mode. The BLF/CGM must be minimum vintage AD to provide this capability.

One supervisory console can be assigned per customer. Only one Attendant Console (1 to 63) can be assigned as a supervisory console.

The customer group must be equipped with more than one attendant.

When using the Attendant Supervisory Module (ASM), the console TN must be configured on unit 0, 4, 8, 16, and so on. The secondary TN (SETN) unit must succeed the Primary TN (1, 5, 9, 17, and so on). The ASM TN is then configured with TYPE = PWR. The PWR TN must succeed the SETN (2, 6, 10, 18, and so on).

Feature interactions

Add-on modules

Add-on modules (key/lamp strips and lamp field arrays used to display attendant status) can be used for other purposes defined by the customer when the console is in Normal mode; however if the Busy Lamp Field is assigned to display attendant status, it cannot be used for other functions during any mode of the Attendant Console.

Attendant Administration

Attendant Administration mode can be entered directly from the supervisory console from Supervisory or Normal mode by pressing the program (PRG) key. The Supervisory mode does not need to be terminated first.

Departmental Listed Directory Number (DLDN)

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.

Multi-Tenant Service

The supervisory capabilities extend to all Attendant Consoles defined within the customer group, regardless of tenant partitioning. The Attendant Console serving as supervisor should be a member of every Call Presentation Group so that it can serve all Tenant groups when operating in the Normal mode.

Feature packaging

Supervisory Console (SUPV) package 93 has no feature package dependencies.

Feature implementation

LD 15 – Enable/disable feature for a QCW console with Lamp Field Array or Add-on Module, or for an M1250/2250 console with a Console Graphics Module in the Standard Busy Lamp Field mode.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(XTG), ITG (XLF), ILF	Exclude/include Trunk Group Busy Indication. Requires OPT = IC2 for QCW consoles. Exclude/include Lamp Field Array Module.
- LFTN	l s c u	Secondary TN of supervisory console (required when Lamp Field Array is equipped).
- SPVC	1-63 0	Attendant number for supervisory console. No supervisory console.
- - SBLF	(NO), YES	Supervisory lamp field array is not or is to be used to monitor other Attendant Consoles.
- ITH1	1-255	Visual indication threshold 1 (number of calls in queue Š ITH1 but < ITH2).

- ITH2	2-255	Visual indication threshold 2 (number of calls in queue Š ITH2 but < ITH3).
- ITH3	3-255	Visual indication threshold 3 (number of calls in queue Š ITH3).

LD 15 – Enable/disable feature for an M1250/2250 console with a Console Graphics Module in the Enhanced Busy Lamp Field mode.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(XBL), IBL	Exclude/include Busy Lamp Field or Console Graphics Module.
- - SPVC	1-63 0	Attendant number for supervisory console. No supervisory console.
- ITH1	1-255	Visual indication threshold 1 (number of calls in queue Š ITH1 but < ITH2).
- ITH2	2-255	Visual indication threshold 2 (number of calls in queue Š ITH2 but < ITH3).
- ITH3	3-255	Visual indication threshold 3 (number of calls in queue Š ITH3).

LD 12 – Enable/disable supervisory console Silent Observe.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	0 BVR	Add Busy Verify key (key 0) for silent observation.

LD 12 – Enable/disable supervisory console for M1250/2250 consoles with Enhanced Busy Lamp Field and Silent Observe.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	1250, 2250	Console type.
TN	l s c u	Terminal Number.
EBLF	(BLFD), BLFA	(Deny) allow Enhanced Busy Lamp Field.
KEY	0 BVR	Add Busy Verify key (key 0) for silent observation.

LD 15 – Enable/disable an M1250/2250 console using Trunk Group Busy keys as status keys.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(XTG), ITG	Exclude/include Trunk Group Busy Indication.
- SPVC	1-63 0	Attendant number for supervisory console. No supervisory console.
- - SBLF	NO	Supervisory lamp field array is not to be used to monitor other Attendant Consoles.
- ITH1	1-255	Visual indication threshold 1 (number of calls in queue Š ITH1 but < ITH2).
- ITH2	2-255	Visual indication threshold 2 (number of calls in queue Š ITH2 but < ITH3).
- ITH3	3-255	Visual indication threshold 3 (number of calls in queue Š ITH3).

Feature operation

Enable/disable Supervisory mode

To put your console in Supervisory mode, follow these steps:

- 1 Press  when your console is idle (all lpk indicators are off). Your console is now in Position Busy mode, preventing calls from ringing at your console.
- 2 To cancel Supervisory mode, press  again.

Monitor other attendants

In Supervisory mode, you can monitor selected attendant calls without being detected by either the attendant or the caller. To monitor an attendant, follow these steps:

- 1 Once in Position Busy mode, select an idle loop key.
- 2 Press **obs/B. ver.**
- 3 Dial the access code, then the attendant number:
 - If the called attendant is talking to a caller, you hear the conversation but you cannot be heard.
 - If the called console is idle, the S and D indicators go on.
 - If the called console is in Position Busy mode, you hear a fast busy tone, the S and D indicators flash quickly, and the OBS/B. VER indicator goes off.
- 4 Press **RLs** to end the procedure.

Call an attendant

To call an attendant in your group, follow these steps:

- 1 Once in Position Busy mode, select an idle **lpk** key.
- 2 Dial the attendant access code.
- 3 Dial the attendant code.
You hear ringing. The S indicator flashes slowly.
- 4 Press **RLs** to end the call.
The S indicator goes on steadily, and the RLS indicator goes on.

Transfer a call to an attendant

You can transfer a call to an attendant in your group, even if the attendant's console is in Position Busy mode. To transfer a call, follow these steps:

- 1** Dial the attendant access code; then the attendant code.
The EXCL SRC indicator goes on; the caller is automatically placed on hold. The D indicator flashes slowly, the lpk and S indicators are on.
 - If you dial an incorrect attendant code or if the called console is in Night Service mode, the transfer cannot be completed. You hear a fast busy tone and the D indicator remains off. Press **RLs**.
 - If the called console is busy, you hear a busy tone and the D indicator continues to flash slowly. Press **RLs** and your call is placed in the attendant queue.
- 2** Press the **lpk** key when the attendant answers.
The EXCL SRC indicator goes off and the D indicator lights steadily. You, the caller, and the attendant are connected.
- 3** Press **RLs** to end your connection in the call.

Assist an attendant

Even when your console is in Supervisory mode, an attendant can call you for assistance or transfer a call to you by following these steps:

- 1** You receive a call from an attendant while you are in Supervisory mode. You hear a tone. The S indicator flashes and the INTER POS. C. indicator goes on.
- 2** Press the **lpk** key next to the flashing S indicator.
The tone stops; the lpk and S indicators light steadily. You are connected to the call.

Note: If it is a transferred call, the Call Waiting indicator lights. You must exit Position Busy mode to answer the call.

Attendant Trunk Group Busy Indication

The attendant can control user access to a trunk route by pressing the appropriate Trunk Group Busy key. Station users with a Trunk Group Access Restriction (TGAR) from 0 to 7 accessing the route that has been busied out will be automatically intercepted to the attendant. Station users with a TGAR of 8 to 31 will not be affected and can dial out in the normal manner.

The QCW Attendant Console has up to 10 Trunk Group Busy key/lamp pairs assigned. If an add-on module is equipped on the console, up to 16 Trunk Group Busy key/lamp pairs can be assigned.

The Shift key allows the M1250 Attendant Console to have 16 Trunk Group Busy keys. The M2250 Attendant Console can have up to 20 Trunk Group Busy keys.

Trunk Group Busy Indication is allowed or denied on a customer basis. If allowed, the lamps associated with the Trunk Group Busy keys will provide the following visual indication of the status of the trunks within the route:

Table 16
Lamp states of Trunk Group Busy keys

Lamp state	Status of trunks
Off	Some of the trunks in the route are idle.
Flashing	All of the trunks in the route are busy.
Steadily lit	The attendant has taken control of the route.

Trunk Routes 0 to 9 are automatically assigned to keys 0 to 9 on the console. If an add-on module is equipped on a QCW console and the IC2 option specified, Trunk Group Busy key/lamp pairs will be automatically assigned to the add-on module. Trunk Routes 0 to 15 are assigned to keys 0 to 7 and 10 to 17.

On the M1250, Trunk Routes 0 to 15 are assigned 0 to 7 and 10 to 17 when the Shift key is activated. On the M2250, Trunk Routes are assigned to keys 0 to 9 and 10 to 19 when the Shift key is activated.

Operating parameters

There are no feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

Attendant Trunk Route Busy Indication is included in base X11 system software.

Feature implementation

LD 15 – Allow Trunk Group Busy keys.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(IC1), IC2	Allow Trunk Group Busy keys, where: IC1 = 10. IC2 = 16 for M1250, or 20 for M2250.
- OPT	(XTG), ITG	(Exclude) include Trunk Group Busy Indicator keys.

Feature operation

To restrict access to a trunk route (make it busy to users):

- Press the **Trunk Group Busy** key associated with the trunk.
The indicator goes on and remains steady.

To allow access to the trunk route:

- Press the **Trunk Group Busy** key associated with the trunk.
The indicator goes off.

Audible Reminder of Held Calls

Occasionally, a user may forget that a call has been placed on hold. Audible Reminder of Held Calls (ARHC) allows an audible tone to operate as a reminder of a held call. It provides for a ring on analog (500/2500) telephones and a tone on Meridian 1 proprietary telephones. The cadence and the duration between cadences are programmed per customer. This ability allows the user to differentiate between the cadence for Audible Reminder of Held Calls (ARHC) and the cadences of other existing features.

The station user will hear a ring or tone, which is repeated every 2 to 120 seconds depending on how this feature is programmed, as a reminder that a call is being held. A single-line telephone user must hang up after putting a call on Permanent Hold in order to start the timer.

Operating parameters

For analog (500/2500) telephones, Audible Reminder of Held Calls (ARHC) applies only to permanent hold. When using ARHC on a Meridian 1 proprietary telephone, the station user must not be originating, receiving, or active on another call.

Audible Reminder of Held Calls is supported on Multiple Appearance DN's; however, only the appearance initiating Hold will receive the reminder ring.

This feature does not operate on Attendant Consoles.

Feature interactions

Permanent Hold

Permanent Hold must be enabled in LD 10 for the single-line telephone; however, the ARHC timer takes precedence over the Permanent Hold timer.

Feature packaging

Audible Reminder of Held Calls is included in base X11 system software.

Feature implementation

LD 15 – Set duration between reminder cadences for Audible Reminder of Held Calls.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB TIM	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- DBRC	2-(60)-120	Duration between reminder cadences for Audible Reminder of Held Call. An odd numbered entry is rounded up to the next even number.

LD 10 – Allow/deny Audible Reminder of Held Calls for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500, 2500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XFD), XFA (ARHD), ARHA	(Deny) allow call transfer. (Deny) allow Audible Reminder of Held Calls.
FTR	PHD	Permanent Hold allowed.

LD 11 – Allow/deny Audible Reminder of Held Calls for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(ARHD), ARHA	(Deny) allow Audible Reminder of Held Calls.

Feature operation

No specific operating procedures are required to use this feature.

Authorization Code Security Enhancement

The Authorization Code Security Enhancement feature enables a user to temporarily override the access restrictions assigned to a station or trunk because of their assigned Network Class of Service (NCOS), Class of Service (COS), and Trunk Group Access Restrictions (TGAR) codes. If a user requires access to system facilities in addition to that allowed on the set, the Authcode feature can be used to provide them.

The Authorization Code (Authcode) Security Enhancement feature alerts the technician when an invalid Authcode is entered by generating an Authcode Alarm. The Alarm indicates to the technician that a valid user has inadvertently dialed the wrong digits or some unauthorized person may be trying to use an Authcode to illegally access the switch.

The Authcode Alarm is generated upon detection of violation of all Authcode related features (i.e., Basic, Network, and Station Specific Authorization code), except for calls originated by the attendant.

A new class of alarm has been added (Security Administration – SECA) to distinguish security violations from other types of system messages. The message SECA001 will be printed on the TTY indicating that an invalid Authorization Code has been dialed. The following is the format of the SECA001 message:

- Originated station or trunk Terminal Number
- Calling Line Identification (CLID) when the call is originated from an Integrated Services Digital Network (ISDN) trunk, and
- The Authorization Code entered.

Operating parameters

This feature is enabled through the Authcode data block in LD 88.

The Authcode Alarm feature does not apply to calls originated by an attendant.

All existing operating parameters relating to Authorization Code usage apply to this feature.

All existing operating parameters relating to Fault Management apply to this feature.

For security reasons, the SECA001 alarm should not be configured in the Exception Filter table.

Feature interactions

Direct Private Network Access with Authorization Code Retry

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

Feature packaging

Authorization Code Security Enhancement is included in base X11 system software.

The following software packages are optional, but may be needed depending upon the application:

- Alarm Filtering (ALRM_FILTER) package 243
- Basic Authorization Code (BAUT) package 25
- Basic Alternate Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58
- Coordinated Dialing Plan (CDP) package 59
- Direct Private Network Access (DPNA) package 250
- Direct Inward System Access (DISA) package 22
- Network Class of Service (NCOS) package 32

- Network Authorization Code (NAUT) package 63
- Station Specific Authcodes (SSAU) package 229
- Recorded Announcement (RAN) package 7
- Scheduled Access Restrictions (SAR) package 162, and
- System Speed Call (SSC) package 34, or Network Speed Call (NSC) package 39.

Feature implementation

LD 88 – Configure the Authcode Alarm for each customer:

Prompt	Response	Description
REQ	NEW CHG	Configure or change.
TYPE	AUB	Authcode Data Block.
CUST	0-99	Customer number.
SPWD	xxx	Secure data password.
ALEN	1-14	Number of digits in Authcode.
ACDR	(NO), YES	(Do not) activate CDR for authcodes.
AUTHCOD_ALARM	(OFF), ON	(Disable) enable Authcode Alarm.
RANR	0-511	RAN route number for Authcode Last prompt.

LD 17 – Configure the Alarm Filter.

Prompt	Response	Description
REQ	CHG	Change configuration.
TYPE	ALARM	Change Alarm Filters. Release 21 Gate opener.
- FMT_OUTPUT	ON	Enables formatting for the alarm/exception output. <CR> retains current formatting status.

- AF_STATUS	ON	Alarm and Exception filtering.
- SUPPRESS	0-(5)-127	Alarm occurrence threshold (prior to suppressing). Determines number of times an alarm may occur before it is no longer output. The entry 0 indicates that all alarm occurrences are output (no suppression).
- ESCALATE	0-(2)-127	Alarm occurrence threshold (prior to escalating). Determines the number of occurrences of alarm before it is escalated to critical severity over a 24 hour period. When the Interval Time has elapsed, the Interval Alarm counter is cleared. This is applicable only to Major alarms. The entry 0 occurrence disables alarm escalation.
- A_FILTER	NEW, CHG, OUT	Add, Change, or Remove an Alarm Filter entry.
- TRIGGER	SECA001	Alarm report consisting of the mnemonic "SECA" and the numerics "001" must be entered for the Authcode security alarm.
- SEVERITY	aaaa	Alarm severity of a particular alarm entry, where: NONE = no rating and default status CRITICAL = System operation is in jeopardy MAJOR = Serious condition, system is operational MINOR = Error condition detected, system operation not affected <CR> = current value retained
...		

Feature operation

No specific operating procedures are required to use this feature.

Autodial

Autodial (ADL) allows users to dial a number by pressing a single key. Meridian 1 proprietary telephones, and Attendant Consoles can be assigned an Autodial key/lamp pair.

The number stored against the Autodial key can be programmed or changed at any time. The maximum number of digits the user is allowed to program can be 4, 8, 12, 16, 20, or 23 digits. Depending on the length allowed, the Autodial number can be another DN or an access code plus further digits. The asterisk (*) can be used as a pause for outpulsing (i.e., for outgoing trunks) when required. When the Autodial key is pressed, the stored number is processed as if it had been dialed manually.

Speed Call/Autodial with Authorization Code, X11 Release 13 and later

This enhancement allows an Authorization Code to be included in a Speed Call entry or an Autodial key. Entries can contain any one of the following combinations:

- SPRE code + digit 6 + authorization code
- SPRE code + digit 6 + authorization code + #, or
- SPRE code + digit 6 + authorization code + # + Electronic Switched Network (ESN) access code and dialed number.

Autodial Flexible Feature Codes

With X11 Release 20 or later, a user may define an Autodial DN that is automatically dialed by the Meridian 1 system in one of two ways:

- In LD 10, while defining the Autodial DN length under the feature (FTR) ADL.
- Using the Autodial Activate (ATDA) FFC, defined in LD 57. This method requires that the length of the Autodial must first be defined in LD 10. The user goes off hook and dials the ATDA FFC. Upon receiving dial tone, the user enters the desired Autodial DN, and then goes on hook.

If, after going off hook, no digits are entered within a customer-defined period of time (defined in LD 15) under ADLD (Autodial Delay), the Autodial DN is automatically dialed.

Note: In LD 10, the user may define a partial DN as an Autodial DN. The user may enter the remaining digits while making a call – the user goes off hook, waits for the dial tone to time out, and then enters the remaining digits of the desired DN. The call is then dialed out.

To deactivate Autodial, the user dials either the Autodial Deactivate (ATDD) FFC (defined in LD 57) or the general Deactivate (DEAF) FFC (also defined in LD 57).

Operating parameters

Autodial must be assigned to a key/lamp pair; as a result, it is not available on analog (500/2500 type) type telephones.

An attendant can enter an Authorization Code for other callers provided that the system is equipped with the Network Authorization Code (NAUT) package.

On Attendant Consoles, pressing the Autodial key, then pressing a Speed Call key is not allowed.

Authorization Code Conditionally Last is not supported by the Autodial feature.

An octothorpe (#) is required as a delimiter after the Authorization Code if an ESN access code and dialed number is stored as part of the Autodial key. If the octothorpe is not entered, the user receives fast busy tone. The octothorpe is not stored in the CDR record.

The Autodial feature allows a maximum of 23 digits including the SPRE code, the digit 6, the Authorization Code, the delimiter (#), the ESN access code, and the dialed number.

If the system initializes before the Authorization Code is recorded by CDR, the record will be lost.

An SL-1 digit display telephone can display up to 16 digits. Additional digits cause the digits to scroll off the display.

Because it has a Directory, the M3000 Touchphone does not support the Autodial feature.

On digit display telephones, Authorization Codes cannot be blocked from being displayed.

The Authorization Code is not validated during the storing process. An invalid Authorization Code is detected when the Autodial key is activated.

Network Automatic Route Selection (NARS) and Basic Alternate Route Selection (BARS) does not support the asterisk (*) as a pause when dialing an autodial number.

Feature interactions

AC15 Recall: Transfer from Meridian 1

Autodial is supported with the AC15 Recall: Transfer from Meridian 1 on the first transfer, provided that the digits are outpulsed on the trunk after the End-to-End Signaling Delay timer expires. If the far end is not ready, the call will fail because no dial tone detection is performed by the Meridian 1.

Additional transfers are supported if the stored digits are outpulsed without any treatment. For example, a route is seized and the route access code is outpulsed to the far end and interpreted as a Directory Number. No dial tone detector or timer is started, so the digits are outpulsed immediately without checking the state at the far end.

Automatic Redial (ARDL)

ARDL can be activated on a dialed number using the Autodial (ADL) key.

Call Forward and Busy Status

Party A can use the BFS key as an Autodial key to dial party B.

Calling Party Privacy

An outgoing trunk call initiated by pressing the Autodial key will carry the Privacy Indicator if the CPP code followed by the normal dialing sequence is stored against the Autodial key. The CPP code is counted against the maximum number of digits (currently 23) stored against the Autodial key.

A user can also store the CPP code against the Autodial key. An outgoing CPP call can be initiated by pressing the Autodial key, followed by manually dialing the digits.

An outgoing CPP call can also be initiated by dialing the CPP code, followed by pressing the Autodial key against which the normal dialing sequence of digits have been stored.

Direct Private Network Access

If the Autodial feature 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.

Enhanced Flexible Feature Codes - Busy Number Redial

Activation of Busy Number Redial (BNR) changes the activation of Autodial. The DN that is autodialed becomes the DN that was busy. When the BNR activation timer expires or the busy DN is redialed when it is idle, the autodial capability is deactivated, but the number saved is not cleared. If Autodial is then activated without entering a DN, the number used is the formerly busy DN.

Activation of Autodial when BNR is active deactivates BNR.

Flexible Hot Line and/or Enhanced Hot Line

Flexible Hot Line and/or Enhanced Hot Line are mutually exclusive with the Autodial feature.

Last Number Redial

A number dialed using Autodial will become the Last Number Redial number on all telephones, except the M2317 and M3000.

Speed Call Delimiter

An octothorpe (#) is required as a delimiter following an authorization code if an Electronic Switched Network (ESN) and dialed number are stored as part of the autodial key. If an octothorpe (#) is not entered, then the user receives a fast busy tone. If the MSCD = YES, then the end of dial delimiter must be programmed to something other than an octothorpe (#) in LD 15.

Feature packaging

Optional Features (OPTF) package 1 includes Autodial and has no feature package dependencies.

To implement Autodial with Authorization Code, the following packages are required:

- Charge Account/Authorization Code Base (CAB) package 24, or
Basic Authorization Code (BAUT) package 25, or
Network Authorization Code (NAUT) package 63.
- Optional Features (OPTF) package 1, or
System Speed Call (SSC) package 34, or
Network Speed Call (NSC) package 39.

The following packages are required for Autodial FFCs:

- Flexible Feature Codes (FFC) package number 139, and
- Background Terminal Facility (BGD) package 99.

Feature implementation

LD 11 – Assign Autodial key for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx ADL yy zzz...z	xx = assigned key number. yy = the length of the Autodial number (4, 8, 12, 16, 20, or 23 digits; default is 16). zzz...z = the digits to be dialed automatically (optional).

LD 12 – Assign Autodial key for M1250 and M2250 Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx ADL zzz...z	xx = assigned key number. zzz...z = the digits to be dialed automatically (optional).

LD 15 – Define Autodial Delay in Customer Data Block.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	CDB FCC	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
...		
- ADLD	(0)-20	Autodial Delay, in seconds. If 0, then FFC Autodial for 500/2500 telephones is disabled. Only prompted if FFC package (139) is equipped. Inputs are rounded up to the next valid increment of two (i.e., input of 11 would be rounded up to 12).

Feature operation

To program Autodial, follow these steps:

- 1 While the handset is on hook, press the **Autodial** key.
 The associated lamp flashes.
- 2 Dial the desired number and press the **Autodial** key again.
 The lamp goes dark.

To use Autodial, follow these steps:

- 1 Lift the handset off hook, or press the **Handsfree** key if allowed.
- 2 Press the **Autodial** key.
 The call is dialed.

The following instructions are for using the Autodial FFCs:

- Activate and program
 The user must dial the Autodial Activate (ATDA) FFC followed by the number to be stored as the Autodial number.
- Activate only
 The user must dial the Autodial Activate (ATDA) FFC.
- Deactivate
 The user must dial the Autodial Deactivate (ATDD) FFC or the Deactivate (DEAF) FFC.
- Use prerequisites
 To use Autodial, the Autodial Activate (ATDA) FFC must have been entered previously and an Autodial number must be stored.
- Use
 The user goes off hook, if no digits are dialed within the customer defined time period (ADLD), the system then dials the number stored as the Autodial number.

Autodial Tandem Transfer

Prior to the introduction of this feature, in order to access the Central Office (CO) transfer feature after a Centrex/Trunk Hook Flash on an established trunk call, the user had to manually dial the digits. This procedure permits call completion, but is slow and requires knowledge of the full telephone number. The Autodial Tandem Transfer (ATX) feature allows the Autodial key to be used after a switchhook flash to outpulse Dual-tone Multifrequency (DTMF) digits while a call is in an established state.

One application for the Autodial Tandem Transfer feature is for use in a 911 environment to transfer an emergency call from a Public Safety Answering Point (PSAP) to the most appropriate participating emergency agency. Manually dialing the digits by the PSAP in order to transfer the 911 call to another PSAP can take time and is subject to misdialing. To avoid this, the ADL key programmed with the special station number can be used to send digits to the tandem/Centrex office to transfer the call. Using the ATX feature, a PSAP can transfer the incoming call by pressing the Trunk Hook Flash (THF) key, waiting for a broken dial tone, and then pressing the ADL key.

Operating parameters

The Centrex/Trunk Switchhook feature only supports voice calls. Subsequently, the ATX feature which uses Centrex/Trunk Hook Flash does not support data calls.

Centrex/Trunk Hook Flash cannot be activated during Conference and No Hold Conference calls. Subsequently, the ATX feature which uses Centrex/Trunk Hook Flash does not support them either. Only two-party calls are supported by the ATX feature.

The following trunk types are supported by the ATX feature: AID, CAA, CAM, COT, TIE (supports ATX, not Trunk Hook Flash), CSA, DID, DOD, WATS, DTI, and DTI2.

The ATX feature is not supported on Meridian 1 proprietary sets, Attendant Consoles, and BRI sets.

Release 5 End-to-end signaling (EES) is not supported for this feature (only Release 19 Improved End-to-end signaling is supported).

Single CPU machines are not recommended for 911 applications. Meridian 911 hardware may be required for 911 applications.

Feature interactions

Automatic Dial

The ADL key is used by the Automatic Dial feature to send DN digits out during the dialing stage. Some of the digits, such as “#” and “*”, have special meanings. The “*” causes a three-second pause, while the “#” means end of dialing.

In the ATX feature when the ADL key is used during an established call, the DTMF tones corresponding to the digits programmed in the ADL key are sent out (using End-to-end Signaling to send the digit out). Therefore, the DTMF tones corresponding to “#” and “*” are outpulsed.

Call Detail Recording (CDR) Records

No modifications to this feature are required for the ATX feature.

For 911 applications most of the calls are incoming calls. Prior to Release 20, CDR records did not capture End-to-end Signaling (EES) digits for incoming calls, even though the ECDR option was set to YES. For Release 20, the outgoing End-to-end Signaling digits are captured for incoming 911 calls on the incoming CDR records. This only applies to 911 trunks.

Conference

The ATX feature is blocked during Conference and No Hold Conference calls.

Digit Display

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.

End-to-End Signaling

Release 19 Improved End-to-end Signaling is used to send the pre-programmed ADL digits to the CO. With the ATX feature, a 911 Agent can use the ADL key, or manually dialed digits, or a combination of both to dial the third party's number. It is recommended to set the DTMF prompt to NO (Release. 19 EES – LD 15) to get uniform feed back tone (Release. 19 single feed back tone) when using the ADL key along with manual dialing.

Enhanced Malicious Call Trace

Enhanced Malicious Call Trace implements the ability to send a call trace request to the CO and provides the possibility to record the call using a recorder. This feature also uses the Centrex/Trunk Switchhook Flash feature; the same enhancement applies to the ATX feature.

Last Number Redial

Normally, when the ADL key is pressed during the dialing stage, the ADL number will replace the Last Number Redial number. In the ATX feature, however, when the ADL key is used during the established stage, the ADL digits will not substitute the Last Number Redial number.

Speed Call Key

The Speed Call key cannot be used after THF or during an established call to send digits out to the far site; it can only be used during the dialing stage.

Feature packaging

Autodial Tandem Transfer (ATX) is package 258.

The following packages are also required:

- End-to-end Signaling (EES) package 10
- Trunk Hook Flash (THF) package 157.

Implementation

LD 11 – Define THF and ADL keys for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type where xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number (Option 11).
CLS	...	
KEY	xx THF yy ADL ll zz..zz	Key xx is configured for the Centrex/Trunk Switchhook Flash feature. Key yy is configured for the Autodial key; ll is the length of the autodial number (the default is 16). zz..zz are the digits to be dialed automatically.

LD 14 – Define THF Class of Service THFA for the trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	aaa	Trunk type, where: aaa = AID, CAA, CAM, COT, TIE (supports ATX, not Trunk Hook Flash), CSA, DID, DOD, WATS, DTI, and DTI2.
TN	l s c u c u	Terminal Number. Terminal Number (Option 11).
CLS	(THFD), THFA	The THF feature is (denied) allowed; the default is THFD.

LD 15 – Define feedback tone when ADL digits are sent out.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CDB CDR	Customer Data Block. Release 21 gate opener.
- CUST	xx	Customer number.
...		
CDR	YES	
...		
- ECDR	YES	Include EES digits in CDR record. This will include ADL digits that are outpulsed during an established call.
...		All-digital connection prefix.
- EEST	YES, NO	End-to-end Signaling feedback tone to originating party.
- DTMF	YES, NO	Type of feedback tone. DTMF = NO Single feedback tone (Rls. 19 EES). DTMF = YES DTMF feedback tone (Rls. 5 EES). Note: ATX only supports X11 Release 19 EES. Therefore, when EEST = YES, DTMF = YES, and the ADL key is pressed, single feedback tone is provided for the user.

LD 16 – Set the duration for Centrex/Trunk Switchhook Flash.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511	Route number.
TKYP	aaa	Trunk type.
...		
CNTL	(NO), YES	Change control or timers.
- TIMR	FLH <space> 60-(510)-1536	Flash timer in msec. The range of the Centrex switchhook flash timer is 60-(510)-1536. The FLH value is rounded down to the nearest 10 msec. tick. If the value entered is 128 or 129, then it is set to 130 msec. <i>Software controlled flash</i> 60-127 msec. Digit 1 will be sent. 128-1536 msec. software controlled switchhook flash. <i>Firmware controlled flash</i> The user can enter any value from 60 to 1536 msec. 90 msec. is the hardcoded firmware flash for an XFCOT pack; the technician should enter 90 msec. Note: the FWTM prompt must be set to YES for the trunk associated with this route in LD 14, if firmware timing is to be used.

Feature operation

Normal operation

- 1 An incoming call from a CO terminates to a Meridian 1 set.
- 2 The set user presses the **THF** key, waits for a broken dial tone from the CO, and then presses the **ADL** key to send a string of digits to the CO (the ADL has been pre-programed with the number).
- 3 The CO will transfer the call to the third party dialed by set A.

Meridian 911 operation

- 1 An incoming 911 trunk call to a tandem/Centrex office terminates to a PSAP on Meridian 1.
- 2 The PSAP call taker presses the **THF** key, waits for a broken dial tone, and then presses the **ADL** key to call the proper number (such as a police station).
- 3 The PSAP call taker then disconnects to complete the transfer.

Automatic Hold

The Automatic Hold feature allows an active call to be put on hold without having to use a separate Hold key. There are three ways to put a call on hold with the Automatic Hold feature:

- Press the active call key, the established call is automatically placed on hold.
- Press an idle Directory Number (DN) key, the established call is automatically placed on hold.
- Press any idle key and the established call is placed on hold.

If a set user is on an established call and wishes to answer an incoming call or initiate an outgoing call, the set user can press any idle DN key to place the call on hold and either initiate or establish a call on the same key. To terminate a call with the Automatic Hold feature, the Release key must be pressed.

This feature requires a new Class of Service implementation (Automatic Hold Class of Service).

Operating parameters

The Automatic Hold feature can be equipped on all multi-line Meridian 1 proprietary sets. The functionality to hold a call already exists on the Attendant Console. The Automatic Hold feature is not applicable on analog (500/2500) sets.

Feature interactions

Automatic Call Distribution Incalls Key

The Automatic Call Distribution (ACD) does not override the Incall key. The Incalls key is unique to the Automatic Hold feature. If an Automatic Call Distribution (ACD) agent has an active call on the Independent Directory Number (IDN) key, and a call comes in to an Incalls key, pressing the Incalls key to answer the call puts the active call on the IDN key on hold.

Call Transfer

If a call is established or ringing on the Transfer key, pressing any idle DN key automatically puts the call on hold. To transfer an active call, press the transfer key once to reestablish the call, press a second time to complete the transfer. To release the transfer feature you must press the release key.

Call Waiting

Pressing the Call Waiting key to answer a waiting call, makes that call active while the previous call is put on hold.

Conference

If a call is established on the conference key, pressing any DN key puts the Conference call on hold. The user must press the conference key to reestablish the call. Pressing the conference key a second time completes the Conference call.

No Hold Conference

The Automatic Hold feature does not apply in the case of a No Hold Conference call. Automatic Hold does not override the No Hold Conference feature.

Digit display

Digit display is the same with automatic hold as it was with manual hold.

Automatic Answer Back

The Automatic Hold feature is not applicable with the Automatic Answer Back feature.

Individual Hold Enhancement

When a Multiple Appearance Directory Number (MADN) call is put on hold on a Meridian 1 proprietary set, the Hold key lamp flashes at this user's set, while a slow flicker is shown at all other appearances of the same DN. With more than one single line MADN (SCR/SCN/HOT/PVR/PVN) active on a conference call, the user is put on hold either by pressing the Hold key, or with Automatic Hold feature enabled, the user can press the active single line MADN. With the Release Option disabled, the active call on the single line MADN is put on hold. With the Release Option enabled, the active call on the single line MADN is dropped.

Display Overflow on Calling Number Identification

If the number of Calling Number Identification (CNI) digits exceeds the capacity of the digit display, the active DN key can be pressed to show the remaining digits. If the active DN key is pressed again, the established call is placed on hold. The established call can be placed on hold, before the digits are displayed, by pressing any other DN key.

Group Call (GRC)

Only the originator of a Group Call (GRC) can put the Group Call on hold.

Hold Key

A set configuration with Automatic Hold Allowed Class of Service can still place calls on hold using the Hold key.

Enhanced Hotline and Hotline

On a Meridian 1 proprietary set pressing a designated Hotline key places an outgoing call to a pre-defined DN. Pressing any idle DN key or pressing the hotline key a second time can place this call on hold. The user can use the same DN key they used to put the call on hold to make an outgoing call or to answer an incoming call.

On a two-way Hotline key, the incoming call is held if the hotline key is pressed twice or if an idle DN key is pressed. Pressing the Release key while on an active Hotline call terminates the call.

Lamp Status

The LED lamp status indications of calls put on automatic hold are identical to those for calls that are put on hold using the Hold key.

Last Number Redial (LNR)

A set with Last Number Redial Allowed (LNA) Class of Service can put an active call on hold by pressing another idle DN key and still activate the Last Number Redial feature to make an outgoing call. Automatic Hold does not override this feature.

Music on Hold

Music on Hold may be applied to calls put on automatic hold.

Voice Call

If a user presses the Voice Call key while a call is established on the key, the call is placed on hold. If the Voice Call key is pressed while a call is established on another DN, the established call is put on hold.

Feature packaging

Automatic Hold feature is packaged as part of the X11 base software.

Feature implementation

LD 11 – Create or modify the data blocks for set.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Set type xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000.
TN	l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u= unit for Options 51C - 81C c = card, u = unit for Option 11C.
CUST	xx	Customer number xx as defined in LD 15.
...	...	
CLS	AHA	AHA = Automatic Hold allowed. (AHD) = Automatic Hold (denied).
...	...	

KEY	xx aaa yyyy	The set type must be configured with two DN keys. Where: xx = key number aaa = DN key type. DN types supported include: ACD, CWT, DIG, GRC, HOT, MCN, MCR, SCR, SCN, or VCC. yyyy = Directory Number for key type. Note: Refer to feature interactions in this chapter when assigning keys to see if feature operation conditions are affected.

Feature operation

To put a call on hold

With Automatic Hold enabled, a call can be placed on hold by pressing the DN on which the call is active or by pressing any other idle DN key.

To make a new call

An active call can automatically be placed on hold, if any idle DN key is pressed. A new call can now be made on the DN key that was pressed or any other DN key.

To answer a call

If the set user is on an active call and a second call is presented on another DN, the user can answer the incoming call which automatically places the first call on hold.

A user of a set having Automatic Hold Class of Service can still place an active call on hold by pressing the Hold key.

To terminate a call

To terminate a call the set user must press the Release key.

Automatic Answerback

Automatic Answerback (AAB), when assigned to a Meridian 1 proprietary telephone, allows any incoming call to a single appearance Prime Directory Number (PDN) to be answered automatically. An incoming call will ring one time, then the Meridian 1 system will turn on Handsfree and establish a speech path. When either party hangs up, the call is automatically disconnected.

Automatic Answerback can be permanently assigned either as a Class of Service, or with an Automatic Answerback key/lamp pair assigned to allow activation/deactivation of the feature. If privacy is desired during a call, handset operation is allowed.

Operating parameters

This feature is available on SL-1, M1109, M2112, M2317, M2616, and M3000 telephones.

SL-1 telephones must be equipped with QUS1C Logic Handsfree unit connected by the QKK3 Handsfree interface kit. M1109 telephones require a QKK8 Handsfree interface kit.

Incoming ground start trunks must provide Answer Supervision. If not, the call is connected to the attendant who provides the necessary supervision.

The Prime DN (PDN) must be a single appearance DN.

Calls presented to DNs other than the PDN, or calls presented to the PDN when active on another DN, will not receive Automatic Answerback treatment.

Automatic Answerback can be provided as a Class of Service or on a key/lamp pair. You cannot assign both in service change.

Feature interactions

Message Center

If a telephone is in the Automatic Answerback mode, incoming calls are not routed to the Message Center.

Feature packaging

Automatic Answerback (AAB) package 47 has no feature package dependencies.

Feature implementation

LD 11 – Assign Automatic Answerback as a Class of Service to SL-1, M2112, M2317, M2616, or M3000 telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2112, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
CLS	(AAD), AAA (HFD), HFA	(Deny) allow Automatic Answerback for all calls. AAA cannot be entered if the AAK key is already programmed. (Deny) Allow Handsfree. Note: HFA is allowed for the M2216 only.

LD 11 – Assign Automatic Answerback key to SL-1, M2112, M2317, M2616, or M3000 telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2112, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(HFD), HFA	(Deny) allow Handsfree. Note: HFA is allowed for the M2216 only.
	(AAD), AAA	Allow (Deny) Automatic Answerback. Must disable to add the AAK key.
KEY	xx AAK	Add Automatic Answerback key. xx = key number. Note: The M2216 with AAA cannot use key 5 as a feature key. Key 5 is reserved for handsfree. The M3000 must use key 35.

Feature operation

To activate Automatic Answerback, follow this step:

- Press **Auto Answer**.
Incoming calls to your PDN will ring once, then be answered with Handsfree turned on.

To deactivate Automatic Answerback, follow this step:

- Press **Auto Answer**.
Incoming calls to your PDN will not be answered automatically.

Note: If Automatic Answerback is assigned as a Class of Service instead of a key on your telephone, you cannot deactivate it.

Automatic Call Distribution

Automatic Call Distribution (ACD) is an optional feature. The ACD feature is used when a large number of incoming calls are answered by a group of ACD assigned telephones. Incoming calls are served on a first-in, first-out basis and are distributed among the available telephones so that the agent position that has been idle the longest is provided with the first call. This guarantees that incoming calls are distributed equally to all agents.

ACD is available in several packages:

- ACD Basic Features (ACD-A)
- ACD Advanced Features (ACD-B)
- ACD Management Reports (ACD-C1)
- ACD Load Management (ACD-C2)
- ACD-MAX
- Meridian MAX

Consult the following NTPs for complete information regarding the various ACD packages:

- *Automatic Call Distribution feature description* (553-2671-110)
- *Automatic Call Distribution ACD management commands and reports* (553-2671-112)

Customers with PC-based ACD Package D systems (ACD-MAX or Meridian MAX) should also consult the documents listed below:

- *Meridian MAX 3.3-AM Installation* (553-4001-101)

- *Meridian MAX Operation (553-4001-500)*
- *Meridian MAX System Messages (553-4001-800)*

Network ACD, introduced in X11 Release 15, uses Integrated Services Digital Network (ISDN) to allow ACD services over the customer's network for automatic least cost call routing in an ACD environment. In addition to the preceding documents, refer to the following:

- *Network ACD description and operation (553-3671-120).*

Automatic Gain Control Inhibit

The Automatic Gain Control (AGC) function, supported by the A44 chip in Meridian digital sets, lowers handset sound levels to minimize background noise. The AGC Inhibit enhancement allows a customer to suppress this function, on a system basis.

Whenever a transmission download occurs, which happens following a SYSLOAD or when the set line cord is plugged in, the option setting in LD 17 is included in the message. The message is interpreted by set's firmware and the appropriate setting is applied.

Operating parameters

There are no feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

Automatic Gain Control Inhibit is included in base X11 system software.

Feature implementation

LD 17 – Define AGC setting.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CFN ATRN	Configuration Record. Release 19 gate opener.
...		
ATRN	YES	Aries (Meridian Modular set) transmission parameter; only prompted if response to TYPE is CFN.
...		
- AGCD	(NO), YES	Automatic Gain Control Disable.

Feature operation

No specific operating procedures are required to use this feature.

Automatic Line Selection

Automatic Line Selection allows manual or automatic selection of incoming and outgoing lines for a given Meridian 1 proprietary telephone on a Class of Service basis. When a user lifts the handset, the telephone automatically selects a preferred line according to its priority. The line preferences are as follows, listed in order of selection priority:

- **Manual Line Selection**
The user manually selects the DN to be used before going off-hook. Dial tone is returned if the line is idle. If the line is ringing, the call is answered and connected to the speaker of the telephone or Handsfree unit.
- **Incoming Ringing Line Selection**
With Incoming Ringing Line Selection enabled, when the user goes off-hook, the telephone automatically scans the DN keys (without the user first manually selecting a DN key). If a line on the telephone is ringing, it is selected and the call is answered.
- **Incoming Non-Ringing Line Selection**
With Incoming Non-Ringing Line Selection enabled, when the user goes off-hook, the telephone scans the DN lines and answers any unanswered incoming calls that appear but do not ring at that telephone.
- **Outgoing Line Selection**
With Outgoing Line Selection enabled, when the user goes off-hook, the telephone scans the DN keys for an idle line. If a line is idle, it is selected and dial tone is returned.
- **Prime Line Selection**
When the handset is lifted, the system processes any manual, incoming, or outgoing line selections. If no line is selected by one of these modes, a designated Prime Line (the DN on key 0) is selected.

Operating parameters

This feature is available on Meridian 1 proprietary telephones only.

The user determines which line is in use by observing lamp state changes.

Feature interactions

Audible Message Waiting

The Audible Message Waiting signal is given if there is a message waiting on whatever line is selected by Outgoing Line Selection.

Automatic Call Distribution (ACD)

An ACD DN is not selected by automatic Incoming Non-Ringing and Outgoing Line Selection. It is selected by Incoming Ringing Line Selection.

Automatic Answerback

Automatic Answerback operates only on the Prime DN (key zero) and has no interrelation with Incoming Ringing/Non-Ringing Line Selection.

Automatic Redial (ARDL)

Manual Line Selection, Outgoing Line Selection or Prime Line Selection is interpreted as accepting the ARDL by the calling party.

Call Waiting

A call on the Call Waiting key is not selected.

Dial Intercom

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

Group Call

This feature is not selected for automatic Outgoing Line Selection or Non-Ringing Line Selection. It is selected for Incoming Ringing Line Selection.

Private Line Service

A Private line DN is selected by Incoming Ringing/Non-Ringing Line Selection and Outgoing Line Selection.

Voice Call

This feature is not selected by automatic Outgoing Line Selection. It is selected for Incoming Ringing and Non-Ringing Line Selection.

Feature packaging

Automatic Line Selection (LSEL) package 72 has no feature package dependencies.

Feature implementation

LD 11 – Assign Automatic Line Selection for each Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
CLS	(IRD), IRA (NID), NIA (OLD), OLA	(Deny) allow incoming ringing line preference. (Deny) allow incoming non-ringing line preference. (Deny) allow outgoing line preference.
LPK	xx	Specify the last key to be scanned for line preference (such as 0-7, 10-17, 20-27). Prompted only if CLS = IRA, NIA, or OLA. Note: A value of 0 (zero) for LPK disables this feature.

Feature operation

No specific operating procedures are required to use this feature.

Automatic Number Identification

The Automatic Number Identification (ANI) feature automatically identifies a station originating an outgoing toll call and its destination party and transmits the information to a recording office.

A system with ANI sends information about stations involved in an outgoing toll call, via Multifrequency (MF) signaling, over Central Automatic Message Accounting (CAMA) trunks to toll-switching CAMA, Traffic Operator Position System (TOPS) or Traffic Service Position System (TSPS) offices.

The software portion of ANI performs the following functions:

- identifies an originating outgoing toll call;
- determines the calling station identification, and controls the signaling and supervision of the ANI trunk circuit;
- connects the MF sender and the ANI trunk circuit;
- loads up to 16 digits that are to be MF outputted over the ANI trunk into the MF sender;
- orders initiation of the outputting; and
- removes the connection between the trunk and the MF sender and establishes the speech path to the trunk.

Note: With the X11 Release 23 feature, E.164/ESN Numbering Plan Expansion, the MF sender card can send 32 digits to the XCT card. This allows an International Number to be sent in one ANI message, instead of two ANI messages.

ANI signaling

E&M, DX or loop signaling sends ANI information to the Central Office. ANI supports three basic methods: Bell, NT400 and NT500.

- The Bell method interfaces the Meridian 1 to
 - Bell system TOPS, TSPS or CAMA offices
 - Strowger Automatic Toll Ticketing (SATT) systems types 57, 59, 62, and 70A. These systems accept 1+ and 0+ calls from the Meridian 1 using MF pulsing through customer-provided adapter circuits
 - Stromberg Carlson Ticketing Systems
- The NT400 method (Modes A and B) is an interface to the Northern Telecom NT400 ticketing system. Mode A repeats the toll access code (0 or 1) in the called number, whereas Mode B does not.
- The NT500 method (Modes A, B and C) interfaces to Northern Telecom NT500 ticketing systems.
 - Mode A repeats the Access Code (0 or 1) in the called number format for Central Offices that use MF outpulsing and combined trunk groups.
 - Mode B does not repeat the access code.
 - Mode C is used in Central Offices with MF outpulsing and trunk groups dedicated only to 1+ or 0+ calls.

The Bell and the NT400/500 methods have different supervisory signals and different number formatting, as illustrated in Figures 2 and 3. Additionally, there are formatting differences between the NT400 and NT500 method. Tables 17 through 20 summarize the possible combinations of trunk types and ANI signaling methods.

The MF sender cable allows the Meridian 1 to independently outpulse up to 16 digits (including starting and ending digits, called KP and ST respectively) in each of the 30 possible network loop time slots. With the X11 Release 23 feature, E.164/ESN Numbering Plan Expansion, the MF sender can send up to 32 digits. Therefore, an International Number to be sent in one ANI message, instead of two ANI messages.

Figure 2
Supervisory signals (Bell method)

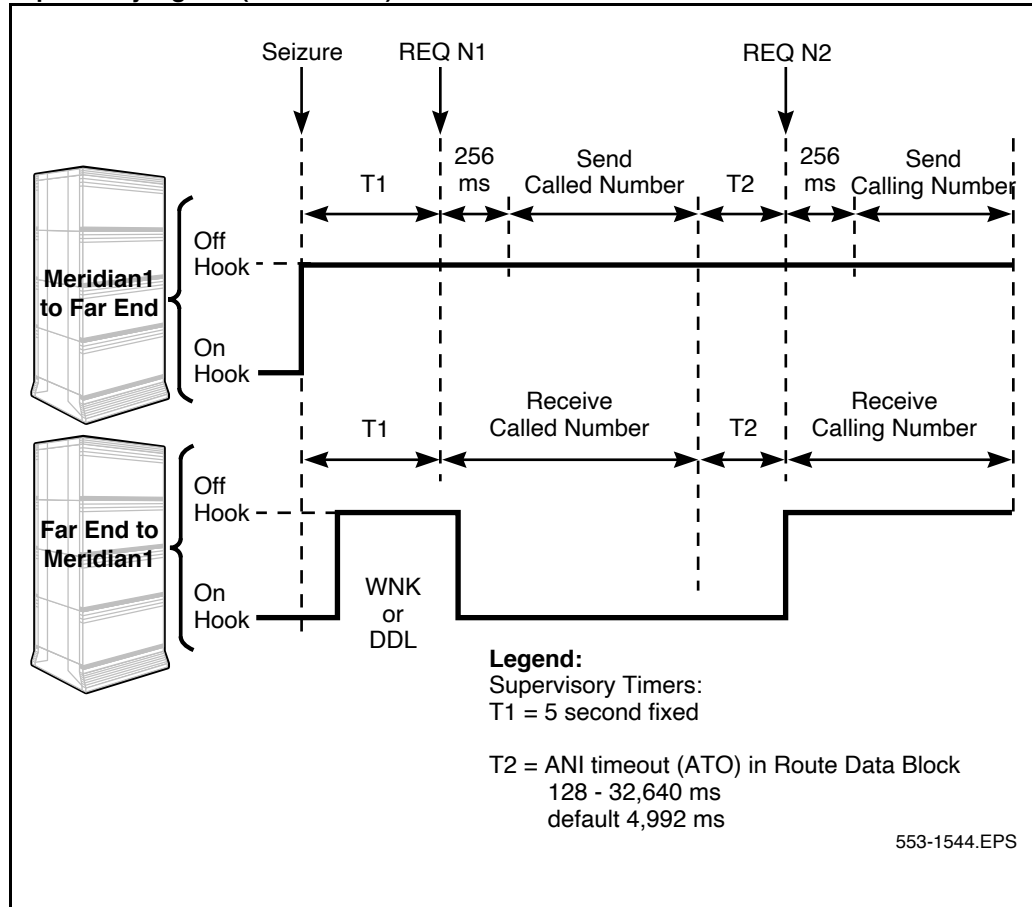


Table 17
Called and calling number information format (Bell method)

Dial Pulse (DP) sending of called numbers			
Call type	Called number	Calling number	
		Regular trunk group	Supervisory trunk group
0	seizure no digits	KP+ID+7D+STP	KP+ID+ST3P
0+7/10D	7/10D	KP+ID+7D+STP	KP+ID+7D+STP
1+7/10D	7/10D	KP+ID+7D+ST	KP+ID+7D+ST2P
011+CC+NN	11+CC+NN	KP+ID+7D+ST	KP+ID+7D+ST2P
01+CC+NN	1+CC+NN	KP+ID+7D+STP	KP+ID+7D+ST3P
010	10	KP+ID+7D+STP	KP+ID+7D+ST3P
Modified Bell Multifrequency sending mode (M2B)			
Call type	Called number		Calling number
	Regular trunk group	Super trunk group	
0	KP+STP	KP+ST3P	KP+ID+7D+ST
0+7/10D	KP+7/10D+STP	KP+7/10D+ST3P	KP+ID+7D+ST
00	KP+0+STP	KP+0+ST3P	KP+ID+7D+ST
00+7/10D	KP+0+7/10D+STP	KP+0+7/10DST3P	KP+ID+7D+ST
1+7/10D	KP+7/10D+ST	KP+7/10D+ST2P	KP+ID+7D+ST
011+CC+NN	KP+1+CC+NN+ST	KP+1+CC+NN+ST2P	KP+ID+7D+ST
01+CC+NN	KP+1+CC+NN+STP	KP+1+CC+NN+ST3P	KP+ID+7D+ST
010	KP+1+STP or KP+10+STP	KP+1+ST3 or KP+10+ST3P	KP+ID+7D+ST or KP+ID+7D+ST
Legend: 0+ = Operator-assisted call, more digits dialed 0- = Operator-assisted call, no other digits dialed 00+ = Toll operator assisted call, and any other digits dialed (X11 release 12 and later) 00- = Toll operator assisted call, no other digits dialed (X11 release 12 and later) 1+ = DDD call CC = Country code NN = National number ID = Information digit KP = Prepare for digits signal ST = End of pulsing STP = Premium ST2P = Identifier error			

Figure 3
Supervisory signals (NT400/500 method)

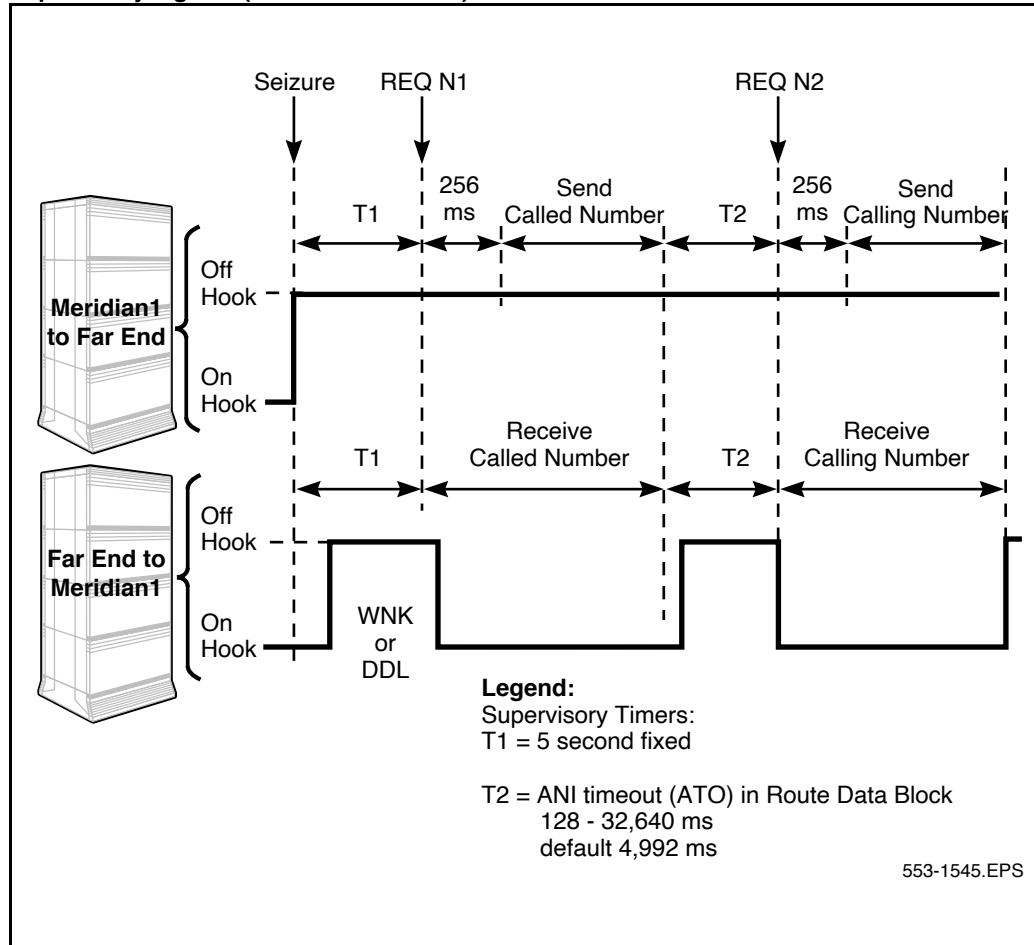


Table 18
Called and calling number information format (NT400 method)

Mode	Call type	Called number	Calling number
A	0+	KP+0+7/10D+ST	KP+CAT+7D+ST ¹
	0-	KP+0+ST	KP+CAT+7D+ST ¹
	1+	KP+1+7/10D+ST	KP+CAT+7D+ST ¹
B	1+	KP+7/10D+ST	KP+CM+CAT+7D+ST ¹
	0-	KP+ST	KP+CM+CAT+7D+ST ¹
	1+	KP+7/10D+ST	KP+CM+CAT+7D+ST ¹
Legend: CM = 1 (for 1+ calls) = STP (for 0± calls) CAT = XX (category digits) X = 0, 1,...,9, and XX is customer-defined data defining the type of long-distance call ST ¹ = ST (normal) = ST2P (identifier failure) ST ² = ST2P (identifier error) = KP (station-to-station 1+) = STP (premium 0±)			

Table 19
Called and calling number information format (NT500 method)

Mode	Call type	Called number		Calling number
		Dial Pulse (DP) sending	Multifrequency sending	
A	0+	0+7/10D	KP+0+7/10D+ST	KP+CAT+7D+ST ¹
	0-	0	KP+0+ST	KP+CAT+7D+ST ¹
	1+	1+7/10D	KP+1+7/10D+ST	KP+CAT+7D+ST ¹
B	0+	not applicable	KP+7/10D+ST	KP+CAT+7D+ST ²
	0-	not applicable	KP+ST	KP+CAT+7D+ST ²
	1+	not applicable	KP+7/10D+ST	KP+CAT+7D+ST ²
C	0+	not applicable	KP+7/10D+ST	KP+CAT+7D+ST ¹
	0-	not applicable	KP+ST	KP+CAT+7D+ST ¹
	1+	not applicable	KP+7/10D+ST	KP+CAT+7D+ST ¹
Legend: CM = 1 (for 1+ calls) = STP (for 0± calls) X = 0, 1,...,9, and XX is customer-defined data defining the type of long-distance call ST ¹ = ST (normal) = ST2P (identifier failure) ST ² = ST2P (identifier error) = KP (station-to-station 1+) = STP (premium 0±)				

Table 20
Possible combinations of trunk types and ANI methods

Trunk type	Bell	NT400 A	NT400 B	NT500 A	NT500 B	NT500 C
CAMA-MF	A	A	A	A	A	A
CAMA-DP	A	N	N	A	N	N
CCSA-MF	A	A	A	A	A	A
Legend: A = Allowed N = Not allowed						

Calling and called number information

The called number information always includes the Directory Number (DN) dialed (typically seven or ten digits). The information can also include the toll access code (typically 0 or 1). Multifrequency (MF) sending includes additional control signals such as KP (preparatory digits) or ST (end of pulsing).

The calling number information is always sent in MF. It consists of a calling Directory Number (always seven digits), the preparatory and end-of-pulsing signals and other auxiliary signals. For example, an information digit with the Bell method and class mark and category digits with the NT methods.

Each Meridian 1 customer system is assigned a three-, four-, or five-digit Automatic Number Identification (ANI) Listed Directory Number that identifies the customer to the toll office. The calling number for ANI is obtained by combining the ANI LDN with one of the following:

- Analog (500/2500 type) set: Directory Number (DN) of the telephone;
- SL-1 telephone: primary DN of the telephone;
- Attendant: ANI attendant number specified on a “per customer” basis; or
- TIE trunk: ANI trunk number specified on a “per trunk group” basis. See *X11 features and services* for information on how to assign ANI on a per trunk group.

The Directory Number Expansion (DNXP) package allows an internal DN to have up to seven digits. If the system is equipped with this package, all DN types listed can be expanded to seven digits maximum. Their combined length with the ANI LDN must remain at seven digits.

The ANI Listed Directory Number is based on the customer’s dialing plan. Otherwise, only the leading digits of a DN (station, attendant or TIE trunk) are retained in the ANI calling number. The full seven digits of a DN can be used as the ANI calling number, provided that no ANI Listed Directory Number is configured.

The calling number information is obtained immediately before being sent. Calls that are modified (For example, calls that are attendant extended or transferred) are billed against the party that initiated the trunk call. (This publication is consistent with Automatic Identification of Outward Dialing.)

Automatic Number Identification (ANI)/Central Automatic Message Accounting (CAMA) Enhancement

Two call types available in X11 Release 12 and later allow the ANI Bell method to handle 00- and 00+ calls. Customers dialing 00 can transmit KP + 0 + STP to access toll operator assistance. When 0 is dialed, customers can transmit KP + STP to access local operator assistance. Table 21 shows the actions taken by calling 00 and other combinations starting with 0.

Table 21
Actions taken with 00- and 00+ calls

Called number	Bell MF M1A action taken	Bell MF M2B action taken
0	KP + STP	KP + STP
0 + 7/10D	KP + 7/10D + STP	KP + 7/10D + ST3P
00	Overflow	KP + 0 + ST3P
00 + 7/10D	Overflow	KP + 0 + 7/10DST3P

After an ANI/CAMA route has been accessed, the Meridian 1 receives digits representing the called number. Table 21 identifies the actions taken.

Note: M1A represents the current Bell MF signaling mode. M2B represents the modified Bell MF signaling mode.

Automatic Number Identification/Central Automatic Message Accounting

CAMA routes using Bell MF signaling Mode B output pulse KP + 0 + ..., + START and allow 00- and 00+ calls. 00- and 00+ calls are denied for routes using a different signaling mode.

Controlled Class of Service Allowed (CCSA)

CCSA routes do not support ANI/CAMA.

Route Selection (RS)-Automatic Number Identification

Route Selection for ANI does not support 00- and 00+ dialing. Calls made using 00+ or 00- are treated as 0+ calls. The RS-ANI Data Block determines the 0+ call routing.

Operating parameters

Automatic Number Identification (ANI)/Digital Trunk Interface (DTI) supports CAMA trunks. CCSA-ANI trunks are not supported.

ANI/CAMA operates on a route basis and applies to CAMA routes using the Bell MF signaling method only.

All route members must have a Multifrequency Route (MFR) Class of Service (CLS).

ANI/CAMA is not supported over Dial Pulse trunks. When activating this feature, do not use mixed trunk members.

If 1 or 0 is not dialed following the Trunk Access Code, the Meridian 1 system intercepts all outgoing calls over CAMA trunks. This restriction does not apply to outgoing calls over CCSA-ANI trunks.

For E&M or DX signaling, use the QPC71 E&M/DX/Paging trunk circuit card. This card does not have to be modified for ANI. For a complete description of this trunk circuit card, refer to *QPC71 E&M/DX Signaling and Paging Trunk Card description*.

For loop signaling, the QPC72 loop signaling trunk circuit card is used. Connections are the same as those described in *QPC449 Loop Signaling Trunk Cards description*.

Note: The two trunk cards mentioned above provide compatibility with the signaling and supervision requirements of CAMA trunks. They also provide a path for the eventual analog transmission of the MF tones and for speech transmission.

Feature Interactions

INIT ACD Queue Call Restore

Restored calls do not retain ANI information, unless the call was an incoming call on an M911 trunk.

M911

With X11 Release 19 and later, the Meridian 911 permits special treatment for emergency calls. This feature requires the QPC916 MF receiver card. For more information about this card, see *Feature Group D description and operation*.

Valid Automatic Number Identification combinations

When the Meridian 1 receives a call from a 911 trunk, the trunk receives the ANI information through MF signaling from the Central Office. A valid ANI, received via 911, includes a 1-digit NPD or ID digit followed by a 7-digit calling number. The NPD or identification digit can be displayed directly on the answering set display or can be translated to a Numbering Plan Area (NPA) via the Numbering Plan Identification (NPID) translation table in LD 16.

The following are valid ANI digit combinations:

- KP A NXX-XXX ST (where A= the NPD, which can be 0–9);
- KP I NXX XXX ST (where I = an information digit, which can be 0–9);
- KP I ST (where I = the information digit for ANI failure or Operator Number Identification (ONI). ANI failure is usually designated by a 2 and ONI by a 1); and
- KP A ST (where A denotes maintenance testing, typically the digit 8).

If only one digit is received and that digit is defined in the NPID table as TEST or FAIL, the call is treated as a test case or a call with ANI failure.

Table 22 shows an example of an NPID table. The last two fields, ANI Failure and Test Calls, are mutually exclusive. If the NPD/ID digit 0 is interpreted as ANI failure, it cannot also be interpreted as a test call.

Table 22
Interpreting NPD/ID numbers

NPI/Info Digit	NPA	ANI Failure	Test Call
0	408	No	No
1	415	No	No
2	NONE	No	No
3	NONE	No	No
4	NONE	No	No
5	NONE	No	No
6	NONE	No	No
7	NONE	Yes	No
8	NONE	No	Yes
9	NONE	No	No

If the NPA is not specified (NPA = NONE), the NPD/ID digit appears on the set. Otherwise, the NPA appears on the set for calls with a valid ANI.

Seven zeros indicate a failure (for example, MF receive fault, garbled tones or a timeout). After all ANI digits are received or a timeout occurs, the Meridian 1 processes the call.

A test call has no display.

Trunk route assignments

The 911 trunk must auto-terminate to a Controlled Directory Number (CDN) defined in LD 23. The start arrangement must be WINK and the Class of Service must be defined as Priority Trunk (APY) and Multifrequency Receiver (MFR).

ANI failure

If ANI information is incorrectly delivered, the call may not have a valid ANI, as indicated by the seven zeros in the display.

ANI failure affects the incoming call's Application Module Link (AML) message, which informs the application with a special DN type value. The 911 caller's DN type Information Element (IE) contains one of these types: ANI with NPD, ANI with ID or ANI failure.

Some Central Offices indicate ANI failure with an 8-digit string consisting of NPD followed by 911-0YYY, where YYY denotes the problem. The ANI string 911-0YYY is not treated as a failure so that the digits appear on the screen rather than being overwritten by seven zeros.

Redundancy and call loss requirements are very precise. If the AML terminal display is unavailable (for example, if the host computer is down), the ANI information still appears on the set display.

CDR for 911 ANI calls

If CLID is set to YES in LD 17, 911 ANI information is included in CDR Q records (connection records). CDR records affected are Normal Records, Start/End Records, Authorization Code Records, Connection Records (Q, R, F) and Charge Account Records.

The CDR Q record option is not recommended, since the Meridian 911 application does not need Connection Records and they consume valuable CPU real time. The CDRQ record can nonetheless be configured to include ANI.

Route Selection (RS-ANI)

The optional Route Selection (RS-ANI) is provided with ANI. RS-ANI routes toll calls automatically through specified trunks to toll offices and routes local calls through CO trunks to local switching offices.

To place an outgoing CO call, the station user dials the RS-ANI Access Code (typically 9), followed by a CO Directory Number. If the user dials 0 or 1 after the Access Code, the call routes through a toll trunk group; otherwise, the call routes through a CO trunk group.

Operation

After receiving the RS-ANI Access Code, the Meridian 1 sends the user the second dial tone. The user has 30 seconds to dial a digit or digits. Following this time frame, the Meridian 1 removes the dial tone and provides overflow tone for an additional 15 seconds. The second dial tone is removed after the first digit or digits are dialed. Table 23 shows the Meridian 1 action that corresponds to the digit dialed.

Although it does provide an overflow tone if the user presses the octothorpe key (#), the Meridian 1 ignores the asterisk (*) key. If 0# is dialed, the Meridian 1 activates a 4-second timer and times out.

Table 23
RS-ANI operation

Digit dialed	Meridian 1 action taken
0	A four second timer starts to monitor the next digit dialed. Routing is based on this digit, as follows:
none	The timer times out and the call (0-) routes through the trunk group specified for 0- calls.
1	The timer cancels, and the call (IDD) routes through the trunk group specified for 1+ of IDD calls.
2–9	The timer cancels, and the call (0+) routes through the trunk group specified for 0+ calls.

Trunk types

TIE trunks access RS-ANI as stations do, but all other trunks are intercepted. Any type of trunk can be used for RS-ANI, with the exception of special-purpose trunks such as Paging, Dictation or Recorded Announcement. Normally, the trunk routes shown in Table 24 are used.

Table 24
Trunk route types

Call type	Trunk type
0±	Central Automatic Message Accounting (CAMA)
1+, 011+, 01+, 010-	Central Automatic Message Accounting (CAMA)
other	Central Office (CO)

Class of Service options

Conditionally Unrestricted station Class of Service places non-ARS-handled toll calls through ANI. Refer to *X11 features and services* and *X11 Software input/output guide* to implement this option. See Table 25 for RS-ANI Class of Service options.

Table 25
RS-ANI Class of Service options

Option	Explanation
UNR	Allowed to receive calls from and originate calls to the exchange network (CO, FX, WATS). This includes toll calls.
CUN	UNR for calls placed through ARS and for calls placed through ANI TLD for all other calls
CTD	UNR for calls placed through ARS TLD for all other calls
TLD	Allowed to receive calls from the exchange network; allowed dial access to local exchange network; allowed access to toll network by means of Meridian 1 attendant only; denied access to exchange operator
Legend UNR = Unrestricted CUN = Conditionally Unrestricted CTD = Conditionally Toll Denied TLD = Toll Restricted Service	

Trunk Optimization

ANI trunks allow the Trunk Optimization (TRO) feature to be used whenever calls are routed over PRI and ISL trunks. For additional information on this feature, refer to *ISDN Primary Rate Interface description and administration*.

Directory Number Expansion

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

New Flexible Code Restriction

Calls from Toll Denied (TLD) stations routed by Automatic Number Identification (ANI) are subject to NFCR. Calls placed by Conditionally Toll Denied (CTD) and Conditionally Unrestricted (CUN) Class of Service stations subject to ANI are treated as unrestricted calls.

Feature packaging

Automatic Number Identification (ANI) is package 12. The following packages are also required:

- ANI Route Selection (ANIR) package 13, which requires:
 - Automatic Number Identification (ANI) package 12

Feature implementation

LD 15 – ANI customer data.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ANI	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
ANAT	xxx...x	ANI billing number for attendants making ANI calls. (The total number of digits in ANAT and ANLD cannot exceed seven digits.)
ANLD	xxx...x	ANI listed DN for billing purposes (0-5 digits). (The total number of digits in ANAT and ANLD cannot exceed seven digits.)

LD 16 – Centralized Automatic Message Accounting (CAMA) route data.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	xxx	CAMA route number.
TKTP	CAM CAA	SIGL = Bel, NT4, or NT5. SIGL = Bel.
SIGL	BEL NT4 NT5	Bell method signaling. ITT-North NT400 signaling (only if TKTP = CAM). ITT-North NT500 signaling (only if TKTP = CAM).
FORM	M1A M2B M3C	For BEL, NT4, or NT5 (NT4 and NT5 not applicable if TKTP = CAA). For BEL, NT4, or NT5 (NT4 and NT5 not applicable if TKTP = CAA). For NT5 (only if TKTP = CAM).
ICOG	OGT	Outgoing.
ACOD	xxxx	Access Code.
ID	0-9	Identification digit for CAMA routes (for BEL).
CAT	00-99	Category digits for CAMA routes (only if TKTP = CAM). For NT4 and NT5.
STRK	(NO) YES	(Disable) enable super trunk group feature (Bell method signaling only).
SPTO	(NO) YES	7- to 10-digit, or 3-digit outpulsing for ANI calls.
ANKP	(NO) YES	(Do not) suppress KP signal on ANI calls.
CNTL	(NO) YES	(Do not) allow changes to timers.
- TIMR	ATO 128–65,408	ANI timeout timer in milliseconds (default is 4,992).
- ANDT	(NO) YES	(Do not) provide ANI dial tone.

LD 14 – Centralized Automatic Message Accounting (CAMA) trunk data.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CAM CAA	CAMA trunk. CAMA-ANI trunk (SIGL = BEL in LD 16).
TN	l s c u c u	Terminal Number. For Option 11.
XTRK	XUT XEM EXUT	Extended Universal Trunk card. Extended E & M trunk card. Enhanced Extended Universal Trunk (Release 19 and later).
...		
CUST	xx	Customer number.
...		
RTMB	0-127 1-126	Route number, Member number.
...		
SIGL	DPN DAS	Digital Private Network Signaling System Number 1. Digital Access Signaling System Number 2.
...		
SUPN	(NO) YES	Answer and disconnect supervision required.
...		
CLS	aaa	Class of Service options.

LD 28 – Route selection data for ANI calls.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RSA	Route selection for ANI.
RASC	xxxx	RS-ANI access code digits.
0-RT	xxxx	Route access code for 0- calls.
0+RT	xxxx	Route access code for 0+ calls.
1RT	xxxx	Route access code for 1+ or IDDD calls.
CORT	xxxx	Route access code for local calls.

LD 16 – Centralized Automatic Message Accounting (CAMA) route data.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	xxx	CAMA route number.
TKTP	TIE, CCSA	Trunk type.
ANTK	xxxx	Billing number for TIE or CCSA trunks that are allowed a tandem connection to ANI.

Feature operation

No specific operating procedures are required to use this feature.

Automatic Number Identification on DTI

Introduced in X11 Release 14.43, Automatic Number Identification (ANI) on Digital Trunk Interface (DTI) extends the ANI feature to digital Central Office (DCO) and Digital Toll Office (DTO) trunks. In addition, the ANI capability is extended to Primary Rate Access (PRA) trunk routes through the Primary Rate Interface.

For further information, refer to *Automatic Number Identification description* (553-2611-200).

Operating parameters

The QPC189F or NT817 (all vintages) are required to support this feature.

DTI interfaces externally with a digital trunk carrier facility at the DS-1 rate. MF signals pass across this interface in a digitally encoded format.

Supervisory signaling through DTI is accomplished by A&B bit signaling. A&B bit signaling can emulate E&M or loop signaling.

Address (called number) signaling through DTI can be dial pulse or MF. Immediate start or wink start may be used.

Calling number information signaling is done using the MF signaling method.

This enhancement supports the three basic signaling methods for ANI. These are Bell, NT400, and NT500.

Feature interactions

There are no interactions with other features.

Feature packaging

This enhancement is included in Automatic Number Identification (ANI) package 12 which requires X11 Release 14.43 and later.

Feature implementation

LD 16 – Define Central Office or Toll Office port types.

Prompt	Response	Description
...		
DTRK	(NO), YES	Digital trunk route.
DGTP	DTI	Digital trunk type.
PTYP	DCO, DTO	CO or Toll Office port type (default DCO).

Feature operation

No specific operating procedures are required to use this feature.

Automatic Preselection of Prime Directory Number

Automatic Preselection allows a user to select the Directory Number (DN) assigned to key zero by lifting the handset. It is not necessary to operate the DN key to get dial tone or to answer an incoming call. The DN assigned to key zero is referred to as the Prime Directory Number (PDN) for that telephone.

Operating parameters

The Automatic Preselection feature does not apply to single-line telephones.

Feature interactions

Automatic Redial (ARDL)

If a call is processed on key 0 and the calling party lifts the handset and selects the Prime Directory Number (PDN), this is interpreted as accepting a redialed call.

Feature packaging

The Automatic Preselection of Prime Directory Number feature is included in base X11 system software.

Feature implementation

The desired Directory Number is assigned to key zero in LD 11.

Feature operation

With this feature enabled, lifting the handset automatically selects the DN assigned to key zero to receive dial tone or answer an incoming call on that key.

Automatic Set Relocation

Automatic Set Relocation (ASR) and Modular Telephone Relocation (MTR) move a telephone to another location without the intervention of a craftsman. X11 Release 18 added MTR to reduce the number of steps required to relocate the Meridian Modular Terminals.

With ASR, Directory Numbers (DNs) and features assigned to the telephone are maintained. Up to 32 telephones can be relocated at any one time. The following access codes are associated with this feature:

- Special Prefix code (SPRE) relocation code 81
SPRE codes are system codes that enable analog (500/2500 type) telephones to utilize additional telephone features. Refer to the Telephones feature module in this document.
- Flexible Feature Code (FFC) relocation number
FFCs are user programmable codes that enable analog (500/2500 type) telephones to access certain telephone features. Refer to the Flexible Features Codes feature module in this document.
- Security code
You must enter the security code before a telephone can be moved.
- Identification code
The identification code is user selectable, and can be any four-digit number (excluding the symbols * and #). (MTR does not require this code.)

This feature is also used to install and enable line cards to make unused telephone locations available for telephone relocation. Adding the first telephone on a line card by using the Service Change overlay enables that card (if it is not already enabled). Removing the last telephone from a line card leaves that card enabled; it does not disable the card.

Automatic Set Relocation (ASR) requires the circuit units on SL-1 and digital line cards used for supplementary power to be specified as power units in LD 12. This allows the Meridian 1 system to disable signaling to these units, while leaving unequipped units enabled for telephone relocation. If power units are not specified, they generate erroneous messages and may disable the entire card.

After putting a telephone back into service, the craftsperson should wait at least 20 seconds before using the telephone.

Modular Telephone Relocation (X11 Release 18 and later)

Modular Telephone Relocation enhances ASR to make relocating Meridian Modular Telephones simpler and faster (by omitting the requirement for an identification code). The following telephones support Modular Terminal Relocation:

- M2006
- M2008
- M2016S
- M2216
- M2616

When a telephone is relocated out, a relocation block is automatically built to store the relocation information in the protected data area. The relocation block includes the old Terminal Number (TN), the terminal ID information, the serial number of the telephone, and feature information. If a data dump occurs, the relocation block is not copied to the disk.

Modular Telephone Relocation uses the unique serial number and terminal ID of the Meridian Modular Telephones (instead of the identification code) to identify the one being relocated. This reduces the number of steps needed for relocation.

A telephone's successful relocation is indicated by a 180-millisecond buzz through the telephone's loudspeaker, not a tone through the handset. The buzz occurs after the telephone is plugged into the new location, and the parameter download to the Meridian Modular Terminal is complete.

Modifying the relocation table

The relocation table contains information regarding the telephone's serial number, Terminal Number, and terminal identification. When a telephone is relocated OUT, the table maintains the necessary telephone information. When the telephone is relocated IN, the Meridian searches the table for that telephone's information. When the information is found, the data is moved to the new location. The telephone data is then removed from the relocation table.

Through LD 50, the serial number or any terminal ID information may be modified while the telephone is relocated out (before it has been relocated back in). For example, use LD 50 when replacing a telephone with another one of the same type with a different serial number or terminal ID, but the same key configuration.

LD 21 prints information about telephones that have been relocated out.

The IDU (ID for Unit) command in LD 32 determines the telephone's serial number and ID information.

Operating parameters

A single-line telephone must be relocated to a vacant position on an analog (500/2500 type) Line Card.

An SL-1 telephone must be relocated to a vacant position on an SL-1 Line Card. A digital telephone must be relocated to a vacant position on a Digital Line Card (DLC) or Integrated Services Digital Line Card (ISDLC) in the switch.

An Add-on Data Module (ADM) must be relocated to a vacant data port on a QPC311 Data Line Card. A collocated SL-1 telephone and ADM must be relocated to a vacant voice and data port combination on a QPC311 Data Line Card.

Moving a telephone from an off-premise to on-premise location or vice versa is not recommended as incorrect pad values on connections may result.

A Manual Line telephone cannot be relocated using the Automatic Set Relocation feature.

The relocation table allows a maximum of 32 telephones to be relocated out at one time.

A relocated out telephone cannot be relocated in to an already defined TN. A telephone being relocated in must be plugged into a TN location that currently has no assigned telephone information.

Automatic Call Distribution (ACD) agent telephones with an associated supervisor and the ACD supervisor telephones cannot be relocated.

If a data dump occurs while a telephone is relocated out, a SYSLOAD returns the telephone to its original TN location. If a telephone was in the relocated out state when the last data dump occurred, and has since relocated in, another data dump is necessary. The second data dump prevents a SYSLOAD from returning the telephone to its previous TN location.

When Modular Telephone Relocation is used and the overflow tone is returned during relocation out, the relocation attempt is abandoned. Try the relocation again.

When Modular Telephone Relocation is used, there is a slight delay between the time the telephone is plugged in and the buzz. The buzz occurs after the telephone is relocated in, enabled, and downloaded. This delay is traffic dependent. If no buzz is received, the relocation is unsuccessful.

When Modular Telephone Relocation is used and a telephone is relocated out, a Customer Service Change (CSC) message containing the old TN number, serial number, and terminal ID is displayed on the TTY. When a telephone is relocated in, a CSC message containing the old TN and new TN is displayed. These messages are placed in the History File.

When Modular Telephone Relocation is used and a SYSLOAD occurs before a data dump completes, the data for all telephones relocated in or out is lost. Return the telephones to their original location and repeat the relocation process.

Feature interactions

Automatic Redial (ARDL)

If the calling party's set is relocated, the ARDL request is cancelled.

Call Forward No Answer Hunting

Calls will not hunt or forward no answer to a telephone that is being relocated.

Call Forward Ring Again

If Call Forward, or Ring Again is active when a telephone is relocated, the feature is deactivated.

Enhanced Flexible Feature Codes - Busy Number Redial

The Busy Number Redial feature is deactivated when a set is relocated.

Make Set Busy

If Make Set Busy is active when the telephone is relocated, Make Set Busy remains active.

Multiple Appearance DN Redirection Prime (MARP)

The original MARP TN is restored when the telephone relocates.

When Automatic Set Relocation or Meridian Modular Terminal is used to move a telephone, the telephone's MARP designations are maintained. If the TN is a MARP for one or more DNs, the system maintains the MARP TN. A system message indicates the telephone relocation.

When a set leaves the system due to set relocation, the following CSC message appears:

CSC010 x y
x = old TN (l s c u) for the telephone
y = ID code entered

While the telephone is being relocated, a temporary MARP TN is assigned. The following SCH message appears for each DN associated to the removed MARP TN.

SCH5524 DN nnnn NEW MARP l s c u
nnnn = the DN associated with the MARP TN
l s c u = the new default MARP for DN nnnn

The same message given through Attendant Administration displays on the Attendant Console when a MARP is assigned for a DN. The History File can be configured to store these messages until a printout is requested.

When a telephone reenters the system, the following message appears:

CSC011 x y
x = old TN (l s c u) for the telephone
y = new TN (l s c u) for the telephone

The following message appears again for *each* changed TN:

SCH5524 DN nnnn NEW MARP l s c u
nnnn = the DN associated with the MARP TN
l s c u = the new MARP TN assigned to DN nnnn

Power Fail Transfer

Since Power Fail Transfer is hardwired to certain Terminal Numbers, this feature is not maintained by a telephone when it is relocated.

Feature packaging

Automatic Set Relocation (ASR) package 53 has no feature package dependencies.

Modular Telephone Relocation requires the following:

- Automatic Set Relocation (ASR) package 53
- Meridian Modular Terminals (ARIE) package 170
- Digital telephones (DSET) package 88

Feature implementation

LD 15 – Assign Automatic Set Relocation security code.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- SRCD	xxxx, <CR>, X	Automatic Set Relocation security code; default is 0000; X removes security code.

LD 10 – Enable/disable line circuits for Automatic Set Relocation.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CARD	500/2500 line circuit for Automatic Set Relocation.
TN	l s c u	Terminal Number.

LD 11 – Enable/disable line circuits for Automatic Set Relocation.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CARD	SL-1 or digital line circuit for Automatic Set Relocation.
TN	l s c u	Terminal Number.

LD 12 – Gather data for each SL-1 line circuit to be used as a supplementary power source.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	PWR	SL-1 line circuit for supplementary power.
TN	I s c u	Terminal Number.

LD 17 – Allow ASR messages to be printed at a system terminal or stored in the History File.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CFN ADAN	Configuration Record. Release 19 gate opener.
IOTB	(NO), YES	(Do not) change input/output terminals or devices.
HIST	(0)-65534	History File buffer length.
- ADAN	NEW, CHG aaa x	System terminal device number for Automatic Set Relocation messages. aaa and x = HST. PRT 0-15. TTY 0-15.
- USER	CSC	Customer service change (Automatic Set Relocation) messages.

LD 17 – Allow Automatic Set Relocation messages to be printed at a system terminal or stored in the History File with X11 Release 18 or later.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CFN ADAN	Configuration Record. Release 19 gate opener.
- ADAN	NEW, CHG aaa x	System terminal device number for Automatic Set Relocation messages. aaa and x = HST. PRT 0-15. TTY 0-15.
- CTYP	aaaa	Card type, where: aaaa = DCHI, MSDL, MSPS, SDI, SDI2, SDI4, or XSDI.
- DNUM	(0-15)	Device number printed automatically (same as ADAN number).
- USER	CSC	Customer service change (Automatic Set Relocation) messages.
CUST	0-99	Customer number.

LD 32 – Query information regarding a terminal's type, NT code, color, release number, and unique serial number. This command works only for Meridian Modular Terminals with X11 Release 18 and later.

IDU l s c u	Prints telephone's information.

LD 50 – Remove an entry in the relocation table with X11 Release 18 or later.

Prompt	Response	Description
REQ	OUT, CHG	Remove, or change an entry in the relocation table.
TYPE	MTRT	Modular Telephone Relocation Table.
TN	l s c u	Terminal Number.
SER	xxxxxx	Serial number (prompted for changes only).
NTCD	xxxxxxx	NT code (for changes only).
COLR	xx	Color (prompted for changes only).
RLS	xx	Release (prompted for changes only).

LD 21 – Print information in the relocation table.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	SRDT	Set relocation data.

Feature operation

Automatic Set Relocation

To use Automatic Set Relocation:

- 1 Lift the handset.
- 2 Enter the relocation code (either SPRE 81 or the Flexible Feature Code).
- 3 Enter the security code. With X11 Release 19 and later, a security code is required. The default is 0000.
- 4 Enter the four-digit code to identify your telephone. A tone confirms the telephone is ready to be moved.
- 5 Unplug the telephone and install it at the new location.
- 6 Wait 30 seconds after plugging the set into the new location, lift the handset, and dial the four-digit identifier. A tone confirms the telephone has been moved successfully.

Modular Telephone Relocation

To relocate a telephone using Modular Telephone Relocation:

- 1 Lift the handset or activate handsfree.
- 2 Enter the relocation code (either SPRE 81 or the Flexible Feature Code).
- 3 Enter the security code. With X11 Release 19 and later, a security code is required. The default is 0000.
- 4 A two-second tone burst confirms that the telephone is relocated out.
- 5 Unplug the telephone and install it at the new location.
- 6 The confirmation buzz through the telephone's loudspeaker indicates the telephone is in service.

Note: All calls associated with the telephone receive force disconnect while it is relocated out. The telephone information automatically moves to the relocation table.

Automatic Timed Reminders

Automatic Timed Reminders alert the attendant when a call extended to a station by the Attendant Console has not been answered within a predefined period of time. Recall timers for different conditions can be specified by the customer as follows:

- Slow Answer (set in increments of six seconds)
- Camp-On (set in increments of two seconds), and
- Call Waiting (set in increments of two seconds).

If no entry is made, the default is 30 seconds in each case.

Operating parameters

There are no feature requirements.

Feature interactions

Call Forward No Answer

Call Forward No Answer Second Level

When Call Forward No Answer is activated on a telephone, the slow answer timer begins only after the call reaches its final destination.

Call Park

A Call Park recall to an attendant appears on the Recall Incoming Call Indicator.

Call Waiting Redirection

When Call Forward No Answer (CFNA) is active, the Slow Answer Recall timer begins only after the call reaches its final destination. CFNA has precedence over Attendant Recall for attendant-extended calls. Irrespective of the relative time-out intervals for each feature, ringing continues as long as allowed by CFNA for sets with CFNA enabled.

Since the Call Waiting Redirection feature applies CFNA treatment to a Call Waiting call, the Call Waiting Redirection feature also has precedence over the Call Waiting recall timer.

Feature packaging

Automatic Timed Reminders is included in base X11 system software.

Feature implementation

LD 15 – Define Recall timers and add/change a Recall Incoming Call Indicator key on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB TIM	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- RTIM	xxxx yyyy zzzz	Recall timers. xxxx = slow answer, 0-3,066, in six-second increments (default 30 seconds). yyyy = Camp-on, 0-1,022, in two-second increments (default 30 seconds). zzzz = Call Waiting, 0-1,022, in two-second (increments (default 30 seconds).
TYPE	ATT	Release 21 gate opener.
ICI	0-19 RLL	Add RECALL ICI to all consoles.

Feature operation

One optional Recall Incoming Call Indicator (ICI) key is provided on the Attendant Console for operator-extended recalls.

Automatic Trunk Maintenance

The Automatic Trunk Maintenance (ATM) feature allows a system manager to monitor the transmission performance of specified trunk groups. The features also allow the Meridian 1 system to be programmed to automatically run scheduled transmission and supervision tests on specified trunk groups terminating at the Meridian 1. Maintenance reports test results to the system terminal and the Communication Management Center (CMC), if configured.

Automatic Trunk Maintenance programs can be run manually at any time, by loading the ATM diagnostic program (LD 92). ATM identifies trunks that fail any of the tests so that more rigorous tests can be performed manually using transmission test equipment. The system can be programmed to disable any of these flagged trunks, up to a configurable limit per trunk group, if they reach the programmable out-of-service threshold.

ATM tests the trunks and Digital Trunk Interface (DTI) channels in a specified group or groups, compares the measured and stored values, flags those trunks and DTI channels which fail any tests. ATM disables trunks and DTI channels that reach the specified out-of-service threshold.

The number of disabled trunks in a group is limited to a percentage of the total number of trunks in the group. The percentage is defined in the Automatic Trunk Maintenance data block in the Trunk Route Administration program (LD 16).

ATM provides the following data on trunk performance: far to near end measurements of loss and noise, near to far end measurement of loss and trunk connect and disconnect supervision.

The values measured in each test are compared with the thresholds stored in the ATM data block. The results of each test fall into one of the following ranges:

- result $\leq$ maintenance limit
- maintenance limit < result $\leq$ out-of-service limit
- result > out-of-service limit

The results of all the tests performed on each trunk determine the overall status of each trunk. Along with the measured values, the following classifications are reported in Table 26:

Table 26
Measured values and classifications of tests:

PASS	trunk passed all transmission tests
FAIL *	at least one test exceeded the transmission maintenance limit
DSBL **	at least one test exceeded the out-of-service limit and the trunk has been automatically disabled
FAIL **	at least one test exceeded the out-of-service limit, but the trunk has not been disabled, because the number of trunks already disabled in the group has reached a percentage limit defined in the ATM data block

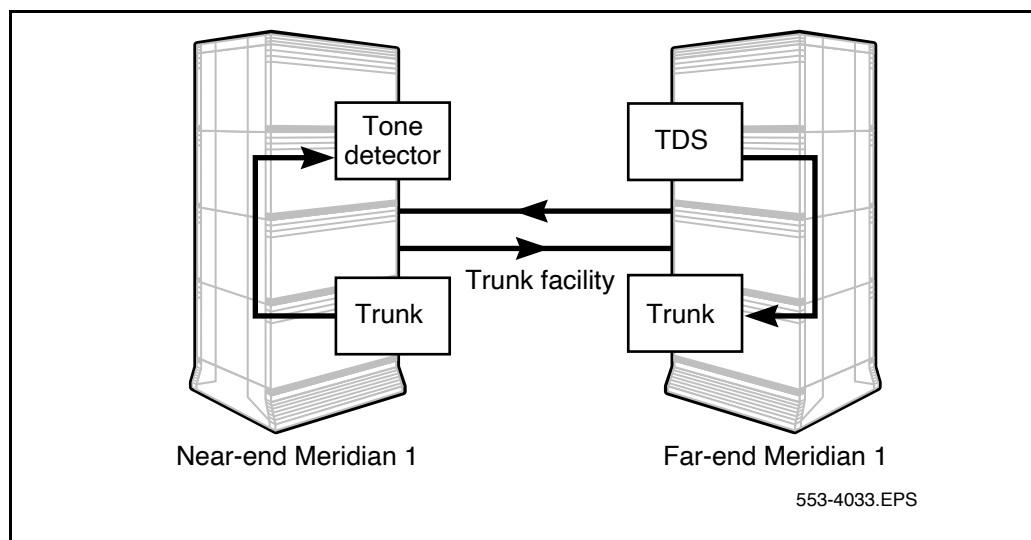
Far end to near end loss and noise measurement

As illustrated in Figure 4, tests evaluate the far end to near end transmission loss and noise performance levels of the trunks against the standard assigned in the ATM data block for each trunk. The test also chooses the reference trunk required in the near end to far end tests.

Automatic Trunk Maintenance (ATM) measures and stores

- the dB loss of a nominal 1000 Hz tone transmitted from the far end
- the noise level, in dBrn, of a silent termination from the far end (only if a Meridian 1 standard 100 test line is attached)

Figure 4
Far end to near end noise measurement



With ATM running, the near end Meridian 1

- seizes the trunk or DTI channel being tested
- outpulses the DN of the far end 100 test line or equivalent test line (the 100 test line returns 1020 Hz tone for 5.5 s, followed by silent termination; the nonstandard test line returns nominal 1000 Hz tone only)
- attaches a near end tone detector and tests its integrity in Modes 1, 3 and 4. Refer to *QPC422 Tone Detector Card description*.

The tone detector determines that the connection between the far end and near end is established and that nominal 1000 Hz test tone is returned. The test is terminated and marked unsuccessful if the test tone is not detected.

The tone detector measures and stores the dB level of the transmitted tone (if the far end test line is not a standard 100 test line, the tone detector times out after 7 seconds and stores the loss level in software) and the noise level, in dBm, of the circuit during silent termination.

Automatic Trunk Maintenance determines the actual measured loss (AML); the loss algorithm ensures that the proper pad values for the trunk under test are considered. As well as the difference between the AML and the expected measured loss (EML); EML is defined in LD 16 and stored in the ATM data block.

Automatic Trunk Maintenance compares the EML/AML result with the maintenance limit (LMNL) and the out-of-service limit (LOUT) defined in LD 16 and stored in the ATM data block and the actual measured noise level with the maintenance limit (NMNL) and out-of-service limit (NOUT) defined in LD 16 and stored in the ATM data block.

Automatic Trunk Maintenance flags trunks or Digital Trunk Interface (DTI) channels whose loss deviations from expected measured loss (EML) exceed maintenance, or out-of-service levels, or both.

ATM software disables trunks and DTI channels at the near end Meridian 1 during scheduled automatic trunk testing, provided the following conditions exist:

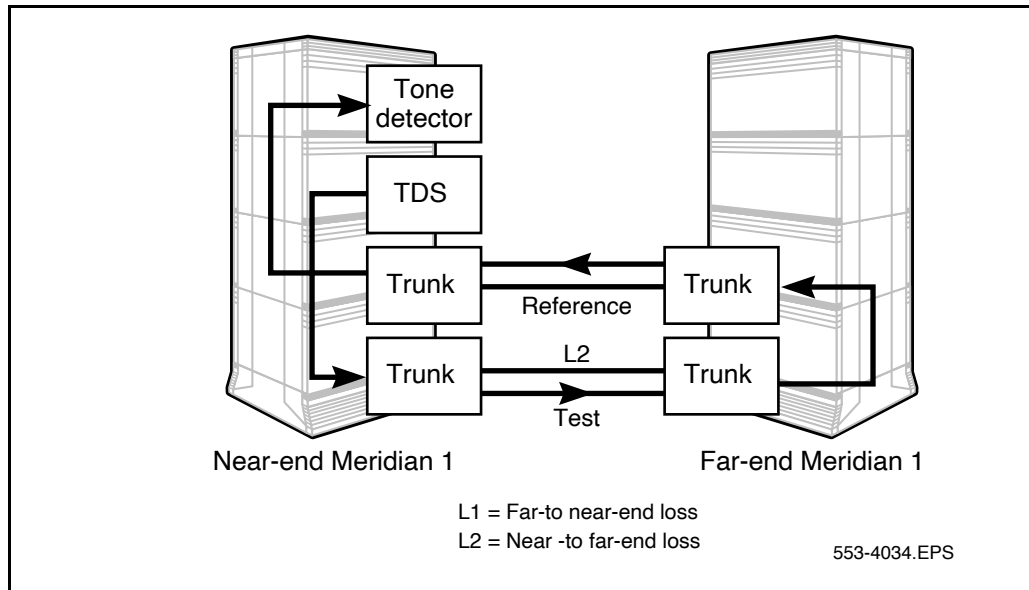
- the test results exceed the transmission out-of-service limits
- the percentage of disabled trunks in the trunk group has not been reached.
The percentage is the DSBL value programmed in the ATM database

ATM software sends the test results to the system terminal and/or to a Communication Management Center (CMC) facility, if configured.

Near end to far end loss measurements

As shown in Figure 5, this test evaluates the near end to far end transmission loss performance levels of the testing trunks, against standard values, assigned in the ATM data block for each trunk. The test uses a loop-around test termination, at the far end, and a reference trunk or Digital Trunk Interface (DTI) channel. The loss of the channel is known and it belongs to the same trunk group as the trunks being tested.

Figure 5
Near end to far end measurements



Choosing a reference trunk

ATM uses the far end to near end tests, described previously, to choose the reference trunk required to perform the near end to far end measurements. By definition, a reference trunk is a trunk or Digital Trunk Interface (DTI) channel with a far end to near end loss (AML) that satisfies the following:

$$EML - LMNL \leq AML \leq EML + LMNL$$

where:

AML = the actual measured loss of the reference trunk

EML = the expected measured loss

LMNL = the loss maintenance limit

and a noise level N, which satisfies following:

$$N < NOUT$$

where:

NOUT = the noise out-of-service limit

Based on the measurements within a trunk group, one of the following occurs:

- No reference trunks are defined. No trunks fit the reference trunk criteria. No measurements can be made with any assurance of accuracy.
- Only one reference trunk is defined. Only one trunk in the group fits reference trunk criteria. In this case, near-to-far end loss measurements can be made for all trunks or DTI channels in the trunk, except the reference trunk itself.
- Two or more reference trunks are defined. Two or more trunks fit reference trunk criteria. All trunks in the trunk group can be tested.

The trunk whose actual measured loss (AML) is closest to the expected measured loss (EML) is chosen (if it is available at the time). When ATM is used in the manual mode, the first trunk in the route found to satisfy reference trunk criteria is chosen.

Setting up the near end to far end test

ATM does the following:

- seizes the chosen reference trunk, output pulses the reference loop-around DN and attaches a tone detector, in Mode 1 (to detect a far end busy indication, if the loop-around DN is unavailable)
- seizes the first test trunk, output pulses the reference loop-around DN, and attaches a tone detector, in Mode 1 (to detect a far end busy indication if the loop-around DN is unavailable)

The reference and test trunks are automatically connected at the far end, and loop-around measurements can be made.

Near end to far end loss measurements on the reference trunk

If two or more trunks in the group meet reference trunk criteria, valid test data is stored as follows:

- ATM attaches a TDS to the first reference trunk and sends a 1020 Hz tone.
- ATM attaches a tone detector, in Mode 4, to the second reference trunk.
- ATM records the total loss on the loop and computes the near end to far end loss on the reference trunk. If ATM times out without an indication of a tone from the tone detector, excessive near end to far end loss on the reference trunk is indicated.

Near end to far end loss measurements on the test trunk

ATM completes the following:

- attaches a tone and digit switch (TDS) to the test trunk and sends a 1020 Hz tone
- attaches a tone detector, in Mode 4, to the reference trunk
- records the total loss on the loop and computes the near end to far end loss on the test trunk. If ATM times out without an indication of tone from the tone detector, excessive near end to far end loss on the test trunk is indicated.

Near end to far end loss measurements on the next test trunk

Using the same reference trunk, ATM seizes and tests each trunk in the group. When all trunks scheduled for testing have been examined, the results are sent to the system terminal and/or, to the Communication Management Center (CMC).

ATM seizes the next test trunk, output pulses the test loop-around DN and attaches a tone detector, in Mode 1. This is completed to detect far end busy indication, if the loop-around DN is unavailable.

The reference and next test trunk are automatically connected at the far end. Near-to-far measurements can be made for test trunks, as described previously in the section “Near end to far end loss measurements on the test trunk”.

Operating parameters

Near end Meridian 1

The following hardware at the near end Meridian 1 is required: a tone and digit switch (TDS) card, such as QPC197, QPC251 or QPC609, is used to provide a 1020 Hz tone and a silent termination and a tone detector card to test loss and noise levels.

Far end PBX

The far end PBX must be equipped with the following:

- Meridian 1-compatible source of nominal 1000 Hz tone (a far end Meridian 1 requires either a QPC197, QPC251, or QPC609 TDS card).
- Meridian 1-compatible loop-around facilities if near end to far end loss tests are to be done.
- A Meridian 1 must be equipped with the 100 and loop-around test facilities if full ATM capability is to be supported.
- Meridian 1-compatible loop-around facility at the far end will permit ATM near-to-far testing (non-Meridian 1/SL-100 sites).

Three active modes for the tone detector are used by the Automatic Trunk Maintenance (ATM) feature. In Mode 1 the tone detector listens for and reports the type of tone detected, such as ringback, busy, overflow or unidentified tone. In Mode 3, the tone detector listens for 1020 Hz tone (nominal 1000 Hz) followed by silent termination and reports the loss and noise levels. In Mode 4, the tone detector listens for and reports the presence of 1020 Hz tone (nominal 1000 Hz).

ATM can be stopped at any time to load another overlay program. ATM disconnects any trunks seized, but does not provide a report of any collected results.

ATM will not test a route with far end disconnect controls (FEDC) set to far end control. ATM requires that the far end test line respond to a near end disconnect by returning a disconnect signal. If FEDC for a route is set to far end control, this response will not occur until the far end forces a disconnect.

ATM testing to a far end Meridian 1 should not be performed on trunks which have Called Party Disconnect Control (CPDC). The test line does not respond to a disconnect from the ATM feature.

ATM supports testing on TIE, Wide Area Telephone Service (WATS), CSA, Central Office Trunk (COT), and Foreign Exchange (FEX) trunk types only.

When a seizure attempt by ATM fails because the trunk is busy, no attempt to re seize the trunk is made. For this reason, test results may be available in one direction but not the other.

Far end test facilities must be compatible with Meridian 1 test lines with respect to disconnection. The far end must respond to near end disconnect by releasing the test trunk toward the originating end immediately.

The far end PBX must support precise tone plan frequencies for call progress tones.

If an ATM test is unable to begin execution within its scheduled hour because another program is in the overlay area, the test is executed later when the overlay area becomes available within the scheduled hour. In any case, it is recommended to schedule the ATM tests so that they do not run when heavy use of the overlay area by other programs, such as midnight routines, is expected. Testing of large trunk groups should be made so that one set of measurements does not run past the starting time of another set.

ATM and traffic data may become intermixed if both are sent to the same system terminal. Where possible, this data should be routed to different terminals.

ATM measurements are performed on a trunk group basis. If more than one trunk route exists between the Meridian 1 and a far end switch, each will have separate measurement reports.

Feature interactions

Barge-In

Barge-In to a particular trunk is denied during scheduled or manual ATM testing. When attempted, overflow tone is returned to the attendant.

Traffic

To avoid interactions between traffic and ATM report outputs, scheduled ATM tests are performed 15 minutes past the hour specified in the Schedule data block (LD 16). Manual and automatic ATM trunk seizures are recorded on traffic peg counts.

Electronic Switched Network (ESN) signaling

ATM is not intended to test tandem connections through ESN switches. The Network Class-of-Service (NCOS) value associated with the test call is not important. Therefore, the NCOS value of the trunk under test is used.

Electronic Tandem Network (ETN) signaling

Test calls to ETN switches are treated in the same way as TIE trunk calls.

History File

ATM reports are classified as maintenance messages and are stored in the History File.

Digital Trunk Interface

ATM measures transmission performance on DTI trunks but not DTI connections to an SL-Server.

Call Detail Recording

There is no originating telephone on an ATM call. Therefore, Call Detail Recording (CDR) records for ORIGITYPE and ORGID equal TERTYPE and TERID. TERID contains the trunk route and member number of the trunk of the outgoing call.

Feature packaging

A Meridian 1 at the far end must have at least Generic X11 Release 2 software for the 100 and loop-around test requirements, in order for the full ATM feature to be supported

Feature implementation

ATM data blocks and schedules are printed in LD 21

Memory Management (for ATM) is programmed in LD 29.

LD 16– Add, change or remove an ATM Route data block,

Prompt	Response	Description
REQ	NEW, CHG, OUT	Add, change, or remove.
TYPE	ATM	ATM Data Block.
CUST	xx	Customer Number.
ROUT	0-511	Route Number. (Applies to TIE, CSA, FEX, WAT and COT trunk types.)
T100	n...n	T100 test line DN (2-10 digits).
PADT	0-63	Pad factor for the far-to-near end loss measurement.
STND	(YES) NO	Test line is a standard T100 test line.
NMNL	27-90	Noise Maintenance Limit (prompted if response to STND is "YES").

NOUT	27-90	Noise out of service limit (Prompted if response to STND is "YES").
NTOF	(YES) NO	Near- to- Far measurement tests are required.
REF	n...n	Reference loop around DN, range is 2 to 10 digits (Prompted if the response to NTOF is "YES").
TST	n...n	Test loop around DN (Prompted if the response to NTOF is "YES").
PADL	0-63	Pad factor for loop around (Prompted if the response to NTOF is "YES").
EML	0-15	Expected Measured Loss.
LMNL	0-15	Loss Deviation Maintenance Limit.
LOUT	0-15	Loss out-of-service Deviation Limit.
DSBL	(0)-100	Percentage of trunks to be disabled.
MXTI	0-(5)-15	Maximum Time (in seconds).

LD 16– Add, change or remove the ATM test schedule start times.

Prompt	Response	Description
REQ	NEW, CHG, OUT	Add, change, or remove.
TYPE	SCH	Schedule Data Block.
CUST	xx	Customer Number.
hour	0-23	Hour to start ATM test.
	<CR>	REQ is prompted again.
ROUT	0-511 X0-X511	Route Number. Delete a Route Number. HOUR is prompted again.

Feature operation

No specific operating procedures are required to use this feature.

Automatic Wake Up FFC Delimiter

The Automatic Wake Up Flexible Feature Code Delimiter modifies the user programming interface of the Automatic Wake Up feature, including variations such as Multiple and Repeat Multiple Automatic Wake Up. This modification provides two options for the user: optional delimiter at the end of time entry and optional standard time entry. These options are only applicable to Meridian 1 proprietary and Analog 2500 sets.

The optional delimiter at the end of time entry during the activation, deactivation or verification of Automatic Wake Up is an octothorpe (#).

The standard time entry allows a customer to enter standard time when activating Multiple Automatic Wake Up. When activated, a customer can eliminate the leading zero when entering a time. For example, the time seven am can be entered as 700 rather than 0700. The time can still be entered with four digits even if the standard time entry option is selected by the customer.

When activated, this feature provides the user with a response from the system. The response is silence or confirmation by means of a tone or a recorded announcement.

Operating parameters

The feature is applicable to Meridian 1 Options 11C, 51C, 61C, 81 and 81C systems.

If the user enables the delimiter option without enabling the standard time entry option, all four digits (H1H2M1M2) and an octothorpe (#) must be entered for a valid entry.

An octothorpe (#) is the only delimiter accepted to indicate the end of time entry. This delimiter is not programmable.

Feature interactions

Background Terminal

When changes to the wake up timer are initiated by the Background Terminal or user, the wake up time previously entered last is overridden. An octothorpe (#) is not required when entering the Wake up time from a background terminal.

Call Detail Recording

No Call Detail Recording report is generated for Automatic Wake Up calls.

Directory Numbers - Multiple Appearance

For Multiple Appearance Directory Numbers, wake up information is stored, deleted and queried from a DN's first primary appearance terminal number.

Directory Number - Prime Release Key

Pressing the Prime Directory Number or Release key, when programming a Wake up request, cancels the programming sequence. If an invalid timer is entered, the user hears an error tone. If another feature key is pressed during programming, it is ignored by the system.

Room Status

When a guest has either checked in or out, the room status changes. If an AWU request is still active, it is canceled if it is included as part of the Check In/Out option.

Feature packaging

Automatic Wake Up FFC Delimiter requires Flexible Feature Codes (FFC) package 139. The following packages are also required:

- Automatic Wake Up (AWU) package 102
- Controlled Class of Service (CCOS) package 81
- Recorded Announcement (RAN) package 7
- Background Terminal (BGD) package 99

Flexible Tone and Cadences (FTC) package 125 is required if a special error tone rather than overflow is desired for Automatic Wake Up. FTC and Message Intercept (MINT) package 163 is required if a recorded announcement is desired as confirmation from the system after wake up timer has been entered. International Supplementary Features (SUPP) package 131 is required if values other than the default are desired for the inter-digit timer.

Feature implementation

LD 15 – Enable Automatic Wake Up in Customer Data Block.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	AWU	Change Automatic Wake Up options.
CUST	xx	Customer number.
- AWU	YES	Enable Automatic Wake Up data.
...		
WUD	YES	Wake Up Delimiter. IF WUD = YES then time entry is valid only if user enters octothorpe (#) at end of time digits.
STE	YES	Standard Time Entry prompted only if WUD = YES. This prompt permits three or four digit time entry.

LD 57 – Configure Flexible Feature Codes for Automatic Call Wake Up.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	FFC	Flexible Feature Codes data block.
CUST	xx	Customer number.
FFCT	(NO), YES	Flexible Feature Confirmation Tone.
...		
CODE	AWUA	Auto Wake Up activation code.
- AWUA	xxxx	Auto Wake Up activation code for Meridian 1 proprietary and Analog (500/2500 type) telephones. AWUA is prompted until <CR> is entered.
...		
CODE	AWUD	Auto Wake Up deactivation code.
- AWUD	xxxx	Auto Wake Up deactivation code for Meridian 1 proprietary and Analog (500/2500 type) telephones. AWUD is prompted until <CR> is entered.
CODE	AWUV	Auto Wake Up verification code
- AWUV	xxxx	Auto Wake Up verification code for Meridian 1 proprietary and Analog (500/2500 type) telephones. AWUV is prompted until <CR> is entered.
CODE	MWUA	Multiple Wake Up activation.
- MWUA	xxxx	Multiple Wake Up activation code for Analog (500/2500 type) telephones. MWUA is prompted until <CR> is entered.
CODE	MWRA	Repeat Multiple Wake Up activation.
- MWRA	xxxx	Repeat Multiple Wake Up activation code Analog (500/2500 type) telephones. MWRA is prompted until <CR> is entered.

CODE	MWUD	Multiple Wake Up deactivation.
- MWUD	xxxx	Multiple Wake Up deactivation code Analog (500/2500 type) telephones. MWUD is prompted until <CR> is entered.

LD 56 – Set Automatic Wake Up special error tone and configuration tone.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0-31	Flexible Tones and Cadences (FTC) Table Number. To associate a FTC table with trunk route, enter the table number in response to the TTBL prompt in LD 16.
...		
HCCT	YES	Hardware Controlled Cadences and Tone modification of the hardware controlled cadence tone definitions allowed.
...		
- FFCT		Flexible Tone and Cadence.
- - XTON	xxx	Flexible Tone and Cadence confirmation tone. China xxx = 211 North America xxx = 004
- - XCAD	xxx	Cadence code for Firmware Cadence Table (FCAD) as entered at Cadence Number (WCAD) prompt. China xxx = 110 North America xxx = 000
- AWUT		Automatic Wake Up.
- - XTON	xxx	Automatic Wake Up special error tone. China xxx = 214 North America xxx = 007
- - XCAD	xxx	Cadence code for Firmware Cadence Table (FCAD) as entered at Cadence Number (WCAD) prompt. China xxx = 100 North American xxx = 017

Feature operation

The following feature operations occur if the WUD prompt (Wake Up Delimiter) and STE prompt (Standard Time Entry) are set to YES in LD 15. If WUD = YES and STE = NO, then the user must dial all four standard time digits and an octothorpe for a valid entry. If WUD = NO then the STE prompt will not appear. In this case, the prior operation exists and the user is not expected to enter the delimiter (#) at the end of time entry. However, all four time digits must be entered for a valid entry. Table 27 shows the Flexible Feature Codes used in the AWU FFC Delimiter feature.

Table 27
Flexible Feature Codes used in AWU FFC Delimiter feature

Feature	Activation Flexible Feature Code	Deactivation Flexible Feature Code	Verification Flexible Feature Code
Automatic Wake Up (AWU)	AWUA	AWUD	AWUV
Multiple Automatic Wake Up (MAWU)	MWUA	MWUD	AWUV
Repeat Multiple Automatic Wake Up	MWRA	MWUD	AWUV

Flexible Feature Code Automatic Wake Up Activation

To activate Automatic Wake Up from an Analog 2500 or a Meridian 1 proprietary telephone:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial “AWUA FFC” H1M1M2# or H1H2M1M2#. Get response and go on-hook.

To activate Automatic Wake Up from an Analog 500 telephone:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial “AWUA FFC” H1H2M1M2. Get response and go on-hook.

Flexible Feature Code Automatic Wake Up Deactivation

To deactivate Automatic Wake Up from an Analog (500/2500) or a Meridian 1 proprietary telephone:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "AWUD FFC". Get response and go on-hook.

Flexible Feature Code Multiple Automatic Wake Up Activation

To activate Multiple Automatic Wake Up from an Analog 2500 set:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "MWUA FFC" H1M1M2#. Get response and go on-hook.
- 3 Repeat for up to four wake up times maximum per day.

To activate Multiple Automatic Wake Up time from an Analog 500 set:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "MWAU FFC" H1H2M1M2. Get response and go on-hook.

Flexible Feature Code Multiple Automatic Wake Up Deactivation

To deactivate single wake up time from an Analog 2500 set:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "MWUD FFC" H1M1M2# or H1H2M1M2#. Get response and go on-hook.
- 3 Repeat for other wake up times as necessary.

To deactivate a single wake up time from an Analog 500 set:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "MWUD FFC" H1H2M1M2. Get response and go on-hook.
- 3 Repeat for other wake up times as necessary.

To deactivate all wake up times from an Analog 2500 telephone:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "MWUD FFC" #. Get response and go on-hook.

To deactivate all wake up times from an Analog 500 telephone:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "MWUD FFC" and go on-hook.

Flexible Feature Code Automatic/Multiple Automatic Wake Up Verification

To verify Automatic/Multiple Automatic Wake Up from an Analog 2500 set:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "AWUV FFC" H1M1M2# or H1H2M1M2. Get response and go on-hook.
- 3 Repeat for other wake up times as necessary.

To verify Automatic/Multiple Automatic Wake Up from an Analog 500 set:

- 1 Go off-hook. Listen for dial tone.
- 2 Dial "AWUV FFC" H1H2M1M2. Get response and go on-hook.

Automatic Wake Up

Automatic Wake Up (AWU) provides an efficient wake up service for hospitality and health care environments. It relieves the attendant from having to make wake up calls by providing this service automatically. At the requested time, the system automatically rings the room or extension and connects the called party upon answer to music followed by a recorded wake up announcement.

If the wake up call is answered within a customer-specified number of rings (two to five with X11 Release 15 and later, five rings with X11 Release 14 and earlier), the system recognizes a completed call and presents the predefined wake up treatment. The system disconnects the AWU call when the called party releases, or when the recording cycle is completed.

The wake up message runs continuously. Upon answering a wake up call, the called party hears music until the message begins again. If the message is 15 seconds long, and the wake up call is answered on the 14th second of the message, the calling party hears one second of music before the message; if the call is answered on the third second of the message, the calling party hears 12 seconds of music first.

The system allows for an alternate recording that can be used for evening wake up calls or when the primary recording is being updated. The secondary recording can also replace the primary recording at a customer-specified time period.

Answering the wake up call

The Wake Up indicator goes dark after the guest answers the wake up call. In X11 Release 16 and later, customers can set the attendant recall option if the call is unanswered after a specified number of tries (from one to three).

Answering the wake up call for multiple appearance DN telephones is similar to single appearance DN telephones: after the call is answered, the Wake Up indicator goes dark.

The system balances the wake up load over five-minute intervals, generating a maximum of 100 wake up calls per five-minute period. The system processes one wake up call every two seconds during peak periods, and one wake up call every four seconds during lighter periods. A light load is defined as anything less than 60 wake up call requests per five-minute interval.

A wake up request is rejected by the system under the following conditions:

- The wake up request (in units of five-minute intervals) is less than one interval ahead of the current time interval (see Note).
- The wake up request (in units of five-minute intervals) is less than five intervals before the current time interval. In other words, the wake up request is more than 23 hours and eight intervals in advance.
- The interval requested contains 100 calls already (or 500 calls with X11 Release 15 and later for XT, NT, and RT machines, and system Options 51, 61, 71, and 81).

Note: The time interval = (hour x 12) + (minute / 5). Always round down to the nearest five-minute interval.

If the interval requested for a wake-up call already contains the maximum number of calls, the system searches for the next available time interval in the following sequence:

- the five-minute interval before the requested time
- the five-minute interval after the requested time
- the next available five-minute interval within three hours before the requested time

You can also use a Background Terminal (BGD) to enter Automatic Wake Up information. The Background Terminal lets you monitor system operation. One or more terminals may be assigned to access AWU data. You can have data displayed or printed at a preselected time of day.

500 Wake Up Calls, X11 Release 15

The number of Automatic Wake Up calls available per five-minute period increases to 500 calls for NT, RT, and XT machines and system Options 51, 61, 71, and 81. The number (100) remains the same for all other systems.

The feature enhancement also lets you define the number of rings for the call from two to five. If there is no answer after the specified number of rings, the AWU call overflows to the next five-minute interval. The system tries three times to terminate the call before it is recalled to the attendant. X11 Release 16 and higher software lets you define the number of wake up attempts, from one to three.

No more than 25 analog (500/2500 type) telephones should be ringing at any one time. To ensure this, set the Number of Rings for Wake Up (NRWU) prompt in LD 15 according to the recommendations listed in Table 28. The NRWU is two to five, with a default of five.

Table 28
Recommended number of rings per Automatic Wake Up call

Time on (seconds)	Time off (seconds)	Maximum number of rings
2*	4*	5*
3	3	2
2	1	5
1	2	5
* North American standards		

Only 500 AWU calls can be defined for the system, but up to 750 calls can actually be placed. Up to half of the programmed AWU calls unanswered can be carried over to the next five-minute interval. The carry-over from one block to the next is important in limiting the number of calls in the original programmed interval.

For a complete description on programming AWU with the Background Terminal, please refer to *Background Terminal Facility description* (553-2311-316).

Guest Entry of Auto Wake Up (GEWU) Calls, X11 Release 16

GEWU provides entry of a wake up call from a room telephone. By using the Wake Up key (WUK) on the telephone, guests can program, query (with display), or cancel their own wake up calls based on a 24-hour time format.

Requests must be made on a daily basis since the wake up time is automatically canceled after each use.

GEWU does not alter the operation of AWU, but adds a new option to AWU programming. Unless otherwise specified, operating GEWU is the same regardless of whether the telephone has a display. The distinction is that with a display, guests can check their wake up call requests. A dash (–) indicates that no time has been programmed. In addition, when programming a wake up call, the system will search for and display the next available time if the time interval chosen for the wake up call is full. Without a display, the guest can still program and cancel a wake up call.

Note: For Multiple Appearance DN telephones, the wake up time for secondary DNs cannot be queried.

Multi-Language Wake Up (MLWU) Calls, X11 Release 16

MLWU provides Automatic Wake Up calls in any of up to six languages. You can use any language as long as you have a recording of it available on a Recorded Announcement (RAN) trunk.

At check-in, each guest can choose the language for wake up calls. If no language is assigned, the default language, Language 0, is used.

You can assign a language to a room's telephone at any time by using the Background Terminal (BGD) or Property Management System (PMS). A room DN is valid if it has at least one appearance as a Prime DN (key 0) on a telephone and Controlled Class of Service Allowed (CCSA). Multiple appearance telephones with the same Prime DN may be assigned different languages through Service Change.

You can also assign the language on a TN basis, allowing the language option to be employed outside the hospitality industry without requiring a BGD terminal or the PMS. Refer to LD 10 and LD 11 in the *X11 input/output guide* for the prompt "LANG."

The language remains unchanged until the next language assignment. An AWU language cannot be changed on a call-by-call basis. The customer may, however, optionally clear the language either at check-in or check-out times, using the Background Terminal.

If Automatic Wake Up is enabled, up to six pairs of language-specific RAN routes (both a.m. and p.m. for each language), called Automatic Wake Up routes (AWR), can be configured. The languages, 0-5, correspond to the AWR routes RAN1/RAN2 (for Language 0), LA11/LA12 (for Language 1), up to LA51/LA52 (for Language 5) in the Customer Data Block (LD 15). The only requirement is that the default language routes RAN1 and RAN2 for Language 0 must be defined. If a specific language AWR is not accessible at wake up time, the corresponding primary or secondary default language routes (RAN1 and RAN2) are used.

On a Background Terminal, a customer can define a two-character language identifier to reference the languages. For example, the customer may define Language 0 as EN (English), Language 1 as SP (Spanish), and Language 2 as GR (German). For details on implementing BGD terminal commands, refer to *Background Terminal Facility description* (553-2311-316).

Unanswered Automatic Wake Up calls recall to the attendant if the attendant recall option is on. Upon a recall, the room's language is displayed on the Attendant Console. On alphanumeric displays (M1250 or M2250 Attendant Consoles), the language identifier is displayed after the Call Party Name Display (CPND) fields. On digit displays (QCW Attendant Consoles), the language number (0-5) is displayed after the recalling DN field.

Multiple Wake Up Flexible Feature Codes

With X11 Release 20 or later, Multiple Wake Up allows up to four wake-up calls to be entered using a Flexible Feature Code (FFC), and allows those calls to be repeated daily, if desired, by entering a separate FFC. The time is in a four-digit 24-hour format (H1 H2 M1 M2). To activate Repeat Multiple Wake Up, the user dials "MWRA H1 H2 M1 M2".

Note: If a wake-up time has already been entered using the standard Automatic Wake Up Activate (AWUA) FFC, only three other multiple wake-up times may be entered.

To deactivate a single wake-up time, the user enters “MWUD H1 H2 M1 M2”, where MWUD is the Multiple Wake Up Deactivate FFC. To deactivate all wake-up times, the user enters “MWUD#”. The general Deactivate (DEAF) FFC does not apply to Multiple Wake Up.

If the MWUD FFC is entered again after all wake-up times have been deactivated, confirmation tone is given. If the MWUD FFC is entered again to deactivate a wake-up time that has been already deactivated, overflow tone is given. If an attempt is made to enter an existing wake-up time, confirmation tone is give. If an attempt is made to enter an existing wake-up time as a repeat wake-up time, then that time is activated as a repeat wake-up time. If an attempt is made to enter an existing repeat wake-up time as a single wake-up time, then that time is activated as a single wake-up time. In both cases, confirmation tone is given.

To verify a Multiple Wake Up time, the user dials “AWUV H1 H2 M1 M2” (where AWUV is the existing Verify Automatic Wake Up FFC).

Operating parameters

To operate AWU, a system must have a Background Terminal or Attendant Console with AWU key, room telephones with Controlled Class of Service Allowed (CCSA), and Recorded Announcement (RAN) trunks.

This feature requires a Background Terminal (BGD).

Each Automatic Wake route requires a minimum of two trunks.

The following hardware is required for the AWU feature:

- QPC74 RAN trunk interface card or NT8D14AH universal trunk card
- a continuous announcement (RAN) machine, such as the Audichron HQ-1 112

Systems with software earlier than X11 Release 15 require at least one dedicated conference circuit (loop and conference card) for the AWU feature. For X11 Release 15 and later software, a dedicated conference loop is no longer required for the network-enhanced machines.

For the call to utilize both music and a wake up announcement, an AWR route must be installed and the route must be programmed at the RANF prompt in LD 15. The music source can be wired into the audio pairs of the RAN trunk, or music can be recorded on the RAN device.

Automatic Wake Up is only allowed on a telephone's Prime Directory Number (PDN). For telephones in a multiple-appearance arrangement, all telephones are rung; however, only one wake up time may be assigned against the PDN. The system tries the wake up call a customer-defined number of times (from one to three with X11 Release 16 and later, three with X11 Release 15 and earlier), and then treats it as any other unanswered wake up call. In a single-call arrangement, if any appearance of the DN is busy when the wake up call is made, the wake up call is not presented. In a multiple-call arrangement, the wake up call is presented to all idle appearances.

A wake up key cannot be configured on a data station (a telephone with DTA Class of Service).

There can only be one wake up key per telephone.

Only Attendant Consoles can have an AWU key. X11 Release 16 and later releases allow the AWU time to be programmed on digital telephones (using GEWU and a Wake Up key).

Automatic Wake Up and Centralized Attendant Services (CAS) are mutually exclusive.

If the wake up call goes unanswered, or the guest hangs up before the AWU two-second hold time, the system tries the wake up call again in the next five-minute interval. If Attendant recall is enabled, the call transfers to the attendant following the last unsuccessful wake up call attempt.

Maintenance technicians can access any AWU RAN trunk or music trunk with the RAN trunk access code.

For Multiple Wake Up, the FFCs selected must be unique numbers up to seven digits long. They cannot conflict with any DN already in the dialing plan.

The following are not supported for Multiple Wake Up:

- The attendant query for the Multiple Wake Up time
- Multiple Wake Up from attendant administration
- The Background Terminal, Background Terminal Display for Multiple Wake Up
- Traffic for Multiple Wake Up

The Deactivate (DEAF) FFC is not supported for Multiple Wake Up.

Multiple Wake Up is supported only on analog (500/2500 type) telephones.

The Automatic Wake Up feature may be active at the same time as Multiple Wake Up.

If one Automatic Wake Up time has been set using the Automatic Wake Up Activate (AWUA) FFC, only three more Multiple Wake Up calls may be entered using the MWUA FFC.

Feature interactions

Attendant Administration

The Attendant Administration feature does not support data entry or changes for the AWU feature.

Attendant Overflow Position

AWU recalls are not redirected to a customer-defined Attendant Overflow Position DN. Failed wake up calls stay in the attendant queue or ring indefinitely on the console.

Coordinated Dialing Plan (CDP)

AWU supports CDP as long as an internal DN is used.

Directory Number Delayed Ringing

The Directory Number Delayed Ringing feature does not support the Automatic Wake Up feature.

Do Not Disturb (DND)

When a telephone is configured for DND, a wake up call can still be presented.

Flexible Feature Code enhancement

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.

Manual Line or Private Line Services

AWU does not support these features; an AWU call cannot be programmed against a manual line or private line DN.

Multiple Appearance DN

All Multiple Appearance DNs are rung, including both primary and secondary DNs. Programming the wake up request using the Wake Up key applies only to telephones with the primary DN on key 0, and the Wake Up indicator operates as described only on the telephone that is currently programming the wake up request.

In addition, if two or more Multiple Appearance Primary DN telephones program a wake up request at the same time, the last telephone to finish overrides. In other words, all telephones with the same primary DN get the same request time of the last telephone to program a request. If the last telephone cancels the request, all requests are canceled.

When the wake up programming sequence is finished, all Wake Up indicators on Multiple Appearance Prime DNs are updated unless a telephone is in the middle of Wake Up programming.

If the AWU Recall option is chosen, the recall is presented to any idle Attendant Console in the same Console Presentation Group (CPG) equipped with the AWU key.

Night Service

Unanswered AWU calls going through Attendant Recall are discarded if the Attendant Console is in the Night Service mode. AWU may still be programmed when the Attendant Console is in Night Service.

Pretranslation

When the Pretranslation feature is equipped with AWU, the actual DN, not the pretranslation DN, should be used when programming the AWU call request.

Room Status

When a guest checks in or out, the room status changes. If an AWU request is still active, it is canceled if it is included as part of the Check In/Out option.

Feature packaging

Automatic Wake Up (AWU) package 102 requires:

- Background Terminal Facility (BGD) package 99
- Controlled Class of Service (CCOS) package 81
- Recorded Announcement (RAN) package 7

Guest Entry of Auto Wake Up is included as part of Automatic Wake Up (AWU) package 102.

Multi-Language Wake Up (MLWU) package 206 requires Automatic Wake Up (AWU) package 102.

Multiple Wake Up FFCs require Flexible Feature Codes (FFC) package number 139.

Feature implementation

Step 1: Assign at least three AWR routes (RANF, RAN1, and RAN2)

LD 16 – Define the RANF route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511	Route number.
TKTP	AWR	AWU RAN route.
RTYP	AUD	Audichron recorder.
- GRD	IDLE	Ground Start Arrangement where: IDLE = RAN machine is sending a ground signal when idle. This is the default prompt. PLAY = RAN machine is sending a ground signal when playing.
ACOD	xxxx	Trunk route access code. Must be different from RANF ACOD.
Note: Route 31 cannot be used for AWU on X11 Release 13 and earlier.		

LD 16 – Define the RAN1 route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511	Route number. Must be different from RANF route number.
TKTP	AWR	AWU RAN route.

RTYP	AUD	Audichron recorder.
- GRD	IDLE	Ground Start Arrangement where: IDLE = RAN machine is sending a ground signal when idle. This is the default prompt. PLAY = RAN machine is sending a ground signal when playing.
ACOD	xxxx	Trunk route access code. Must be different from RANF and RAN1 ACODs.
Note: Route 31 cannot be used for AWU on X11 Release 13 and earlier.		

LD 16 – Define the RAN2 route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511	Route number. Must be different from RANF and RAN1 route numbers.
TKTP	AWR	AWU RAN route.
RTYP	AUD	Audichron recorder.
- GRD	IDLE	Ground Start Arrangement where: IDLE = RAN machine is sending a ground signal when idle. This is the default prompt. PLAY = RAN machine is sending a ground signal when playing.
ACOD	xxxx	Trunk route access code.
Note: Route 31 cannot be used for AWU on X11 Release 13 and earlier.		

Step 2: Build a trunk for each route**LD 14** – Define the trunk for RANF.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	AWR	AWU RAN trunk.
TN	l s c u	Terminal Number.
CUST	xx	Customer number.
RTMB	xx yy	Route number and member number.

LD 14 – Define the trunk for RAN1.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	AWR	AWU RAN trunk.
TN	l s c u	Terminal Number. Must be a different TN from RANF.
CUST	xx	Customer number.
RTMB	xx yy	Route number and member number. Must be a different RTMB from RANF.

LD 14 – Define the trunk for RAN2.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	AWR	AWU RAN trunk.
TN	l s c u	Terminal Number. Must be a different TN from RANF and RAN1.

CUST	xx	Customer number.
RTMB	xx yy	Route number and member number. Must be a different RTMB from RANF and RAN1.

Step 3: Enable AWU for the customer

LD 15 – Enable Automatic Wake Up in Customer Data Block.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB AWU	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- AWU	YES	Activate AWU for a customer.
- ATRC	(NO), YES	(Deny) allow attendant recall.
CONF	0-159	Conference loop number.
- RANF	0-511	Music RAN route number.
- RAN1	0-511	Primary AWR route number.
- RAN2	0-511 <CR>	Secondary AWR route number.
- LA11	X, 0-511	Language 1, RAN route 1. X = remove language RAN route definition.
- LA12	0-511	Language 1, AWR route 2.
- LA21	0-511	Language 2, AWR route 1.
- LA22	0-511	Language 2, AWR route 2.
- LA31	0-511	Language 3, AWR route 1.
- LA32	0-511	Language 3, AWR route 2.
- LA41	0-511	Language 4, AWR route 1.
- LA42	0-511	Language 4, AWR route 2.
- LA51	0-511	Language 5, AWR route 1.

- LA52	0-511	Language 5, AWR route 2.
- R2BN	hhmm	RAN2 start time.
- R2ED	hhmm	RAN2 end time.
- NRWU	2-(5)	Number of rings for a wake up call (X11 Release 15 and later).
- TAWU	1-(3)	Number of wake up tries for an unanswered AWU call (X11 Release 16 and later).
Note 1: Conference loops are required only for X11 Release 14 and earlier releases. Note 2: AWR route number ranges from 0-511 apply to RT, NT, 51, 61, 71, and 81 only. Range is 0-127 for all other options. Enter "X" to remove a route.		

Step 4: Allow AWU on telephones and Attendant Consoles

LD 10 – Set language and CCOS for analog (500/2500 type) telephones (on a per TN basis).

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500, 2500	Telephone type.
TN	l s c u	Terminal Number.
LANG	(0)-5	Language number. To remove entry, precede with X.
CLS	CCSA	Controlled Class of Service allowed.

LD 11 – Set language and CCOS for Meridian 1 proprietary telephones (on a per TN basis).

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	CCSA	Allow Controlled Class of Service.
LANG	(0)-5	Language number. To remove entry, precede with X.
KEY	xx WUK	Assign a wake up key on a telephone. Must be a key/lamp pair (X11 Release 16 and later).
Note: To assign a language on a per DN basis, use a Background Terminal.		

LD 12 – Allow access to AWU from Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaa	Console type, where: aaa = ATT, 1250, 2250.
TN	l s c u	Terminal Number.
KEY	xx AWU	Add an AWU key.

Feature operation

From a telephone with a Wake Up key

To program a wake up call from an idle telephone, follow these steps:

- 1** Press **Wake Up**.
The indicator flashes.
- 2** Dial the wake up request time, in 24-hour format (7:30 a.m. as 730, 7:30 p.m. as 1930).
Telephones with display show a dash followed by the time. If no time is set, a single dash is shown. The indicator keeps flashing.
- 3** Press **Wake Up**.
The indicator goes on steady.

Press the **Release** (Rls) or **PDN** key while programming a wake up request to abort the wake up request. Any previously defined wake up time will remain.

Display telephones If the time interval chosen for the wake up call is full, the system searches for and displays the next available time. If the system cannot find another time, the display shows four dashes (----), and the Wake Up indicator remains flashing. If the system finds another time, the guest has three options:

- To accept the new wake up time, press **Wake Up**.
- To reject the new wake up time and enter another one, dial the new wake up time and press **Wake Up** to validate the new time.
- To abort the wake up time, press **Rls** or the **Prime DN** key (PDN).

To cancel a wake up request, follow these steps:

- 1** Press **Wake Up**.
The indicator flashes.
- 2** Dial the octothorpe (#).
- 3** Press **Wake Up**.
The indicator goes off.

To check a wake up request on a telephone with display, follow these steps:

- 1 Press **Wake Up**.
The indicator flashes and the current wake up time appears on the display. If no wake up time is programmed, the display shows a dash (-).
- 2 Press **Wake Up**.
The indicator lights if a wake up time is set.

Note: In each scenario, the Wake Up indicator lights and the display clears, except when the wake up time is aborted and no wake up time was programmed before the abort. In this case, the Wake Up indicator stays off. If a time was programmed before aborting, the previous wake up time is restored, and the indicator is on.

From an Attendant Console

To program a wake up call from an Attendant Console, follow these steps:

- 1 Press **A. Wake Up**.
The A. Wake Up, ICI, lpk, and S indicators light.

Note: If the displayed number is not the number requiring the wake up call, dial the proper number.
- 2 Press the **octothorpe (#)**.
If the A. Wake Up indicator remains on steadily, the dialed number is valid. If it flashes, the number is invalid.
- 3 Dial the requested wake up time using a 24-hour format. Press **A. Wake Up** again.
If the A. Wake Up indicator remains on without flashing, the requested wake up time is acceptable; if it flashes, the time is not acceptable. Enter the new time; if it is acceptable, the indicator goes on without flashing.
- 4 Press **Rls** to end the procedure.

To cancel a wake up call from an Attendant Console, follow these steps:

- 1 Press **A. Wake Up**.
The A. Wake Up indicator lights.

Note: If the displayed number is not the number requiring cancellation of the wake up call, dial the proper number.

- 2 Press the **octothorpe (#)**, then press **A. Wake Up** again.
The A. Wake Up indicator goes off and the wake up request is canceled.

Note: If the indicator flashes quickly, no wake up call was found for the dialed number. Press **A. Wake Up** again.

- 3 Press **Rls** to end the procedure.

If a guest has not responded after three wake up call attempts, you'll hear a continuous buzz. The indicator will flash quickly. The extension number of the room that has failed to respond will be displayed. Follow these steps:

- 1 Press **A. Wake Up** to cancel the notification.
- 2 Press **Rls** to end the procedure.

To Use Multiple Wake Up FFCs

Activate single

The user must dial the Multiple Wake Up Activate (MWUA) FFC followed by the hour of the wake-up, in 24-hour format, followed by the hour of the next wake-up, in 24-hour format, followed by the minute of the first hour entered followed by the minute of the next hour entered:

MWUA H1 H2 M1 M2

Activate repeat (daily)

The user must dial the Multiple Wake Up Repeat Activate (MWRA) FFC followed by the hour of the wake-up, in 24-hour format, followed by the hour of the next wake-up, in 24-hour format, followed by the minute of the first hour entered followed by the minute of the next hour entered:

MWRA H1 H2 M1 M2

Deactivate single

The user must dial the Multiple Wake Up Deactivate (MWUD) FFC followed by the hour of the wake-up, in 24-hour format, followed by the hour of the next wake-up, in 24-hour format, followed by the minute of the first hour entered followed by the minute of the next hour entered:

MWUD H1 H2 M1 M2

Deactivate all

The user must dial the Multiple Wake Up Deactivate (MWUD) FFC:

MWUD H1 H2 M1 M2

Verify

The user must dial the Automatic Wake Up Verify (AWUV) FFC followed by the hour of the wake-up, in 24-hour format, followed by the hour of the next wake-up, in 24-hour format, followed by the minute of the first hour entered followed by the minute of the next hour entered:

AWUV H1 H2 M1 M2

Auxiliary Processor Link

The Auxiliary Processor Link (APL) is a full-duplex asynchronous data link capable of accommodating up to a 4800 baud rate. It is connected to the Meridian 1 system through a Serial Data Interface (SDI) port.

This feature is currently used in conjunction with the Integrated Messaging System package and the Automatic Call Distribution (ACD) Dialed Number Identification Service (DNIS) package.

Operating parameters

There are no feature requirements.

Feature interactions

DNIS Length Flexibility

Expanded DNIS (more than four DNIS digits) is not supported on the APL.

Feature packaging

Auxiliary Processor Link (APL) package 109 has no feature package dependencies.

Feature implementation

To implement this feature, refer to *Automatic Call Distribution feature description*.

Feature operation

No specific operating procedures are required to use this feature.

Auxiliary Signaling

In some situations, customers require special auxiliary devices such as bells, buzzers, or lights to be connected through the Meridian 1 system. These devices are activated through a regular 500/2500 Line Card and its associated data block.

Operating parameters

A C4A ringer, or any other special signaling device that can be activated by a 20 Hz ringing signal, can be equipped through the 500/2500 Line Card.

A maximum of five C4A ringers or equivalent devices can be configured on one Terminal Number. This limit depends on the device's impedance to the 20 Hz ringing.

Feature interactions

Mixed DNs

If the DN associated with the signaling device appears on analog (500/2500 type), or Meridian 1 proprietary telephones, the telephone can answer or connect into an active call.

Feature packaging

Auxiliary Signaling is included in basic X11 system software.

Feature implementation

The 500/2500 data block is programmed in LD 10.

Feature operation

No specific operating procedures are required to use this feature.

Background Terminal

Hospitality and health care personnel use Background Terminal (BGD) to enter, retrieve, and modify data associated with the following features:

- Automatic Wake Up (AWU)
- Room Status (RMS)
- Message Registration (MR)
- Call Party Name Display (CPND)

BGD helps monitor system operations by providing a visual display of information changes, hard-copy backup, and traffic statistics.

For complete information on this feature, refer to the *Background Terminal Facility description* (553-2311-316) in the Hospitality binder.

Boss/Secretary Filtering Enhancement

The Boss/Secretary Filtering Enhancement was designed for a boss/secretary environment.

Prior to the introduction of the Boss/Secretary Filtering feature, a boss could forward incoming call to their secretaries for screening. With the Boss/Secretary Filtering Enhancement (BSFE) feature, incoming calls are forwarded from the boss to a designated secretary using the Call Forward and Busy Status (BFS) key. A maximum of 16 BFS keys can be configured on the boss's set. A corresponding BFS key is also configured on each secretary's set. The following enhancements are also introduced by this feature:

- Display capabilities: If the Display key is pressed during an incoming filtered call, the calling party's name and number appears on the boss's display.
- Transfer capabilities: If a secretary presses the BFS key twice during an incoming filtered call, the call is automatically transferred back to the boss.
- New Class of Service: The Boss Secretary Filtering Enhancement Class of Service Allowed (BFEA) or Denied and the Recall to Boss Allowed (BRCA) or Denied (BRCD).
- Key Lamp status - The Boss/Secretary Filtering Enhancement feature allows configuration of the LCD indicator for the BFS key. It is possible to configure the same LCD lamp status to:
 - dark (key lamp is off)
 - lit (key lamp is steadily lit)
 - wink
 - flash (continual flash of light, 60 ipm)

The BSFE feature is configured on the boss set and is associated to the secretary sets with a specific BFS key layout. The BFS key must be a single appearance DN for the boss and the secretary sets. The BFS keys for the boss/secretary sets are configured in pairs and are on the same node.

Operating parameters

Meridian 1 proprietary sets with display support the Boss/Secretary Filtering Enhancement feature. The Boss/Secretary Filtering Enhancement feature cannot be configured for analog (500/2500) sets or Integrated Services Digital Network (ISDN) BRI sets. The ringing appearance of the DN can be on a 500/2500 set but not for a private line.

The Boss/Secretary Filtering Enhancement feature cannot be simultaneously activated with these features:

- Call Forward and Busy Status
- Call Forward All Calls
- Remote Call Forward
- Flexible Feature Code Boss Secretarial Filtering

The Boss/Secretary Filtering Enhancement feature supports a maximum of 16 secretary sets associated with the boss's set.

With the Boss Secretary Filtering Enhancement feature, the BFS key of the boss is generally non-ringing with key lamp indication notification, the secretary set is set up as ringing.

The Boss/Secretary Filtering Enhancement feature cannot be activated if the DN of either set is configured as an Automated Call Distribution (ACD) key.

Feature interactions

Hold

If the Boss/Secretary Filtering Enhancement feature is active, the secretary answers the boss's incoming call by pressing the SCR key or by pressing the BFS key. If the call is answered on the BFS key, pressing the key a second time will automatically put the call on hold and autodial the boss's DN. If the class of service of the set is Auto Hold Allowed (AHA) and the call is on the BFS key, pressing the SCR key a second time puts the call on hold. If the class of service of the set is Auto Hold Denied (AHD) and the call is on the BFS key, pressing the SCR key again releases the call.

Hotline

Hotline takes precedence over BSFE. Hotline calls to the Boss's set are not filtered, even if the BSFE feature is active. The hotline calls are directed to the boss's set.

Voice Call

If the Voice Call key/lamp is configured on a third party's set as the boss's DN, the call is not filtered by the Boss/Secretary Filtering Enhancement feature and the call terminates on the boss's set.

Voice Mail

If a call is unanswered, whether the BSFE feature is active or deactivated, the voice mail message is sent directly to the voice mail box of the boss.

The Boss/Secretary Filtering Enhancement feature takes precedence over the following features:

- **Camp On**
If the Boss/Secretary Filtering Enhancement feature is active on the boss's set, the incoming calls are not camped on this DN, but are sent directly to the secretary's set.
- **Call Waiting**
If a call comes in while the boss is on a call and the Boss/Secretary Filtering Enhancement is active, the call is sent directly to the secretary set.

— **Call Forward and Hunt Override**

If a secretary calls the boss without using the Call Forward and Busy Status (BFS) key, the call goes back to the secretary. If the secretary uses the BFS key when calling the boss's, the call goes to the boss's primary DN.

— **Do Not Disturb**

If the Boss/Secretary Filtering Enhancement feature is active on the boss's set, the Do Not Disturb (DND) is overridden and the call is sent directly to the secretary.

— **Hunting**

If the boss has Hunt configured and the Boss/Secretary Filtering Enhancement feature is active, an incoming call is forwarded to the secretary not sent through the hunt chain. If the secretary's set is busy, the call follows the secretary's hunt list.

— **Make Set Busy**

If the Boss/Secretary Filtering Enhancement feature and the Make Set Busy key is active, the incoming call is sent directly to the secretary, the caller does not receive a busy tone.

— **Private Line**

Private Line calls are filtered by the secretary if the Boss/Secretary Filtering Enhancement feature is active.

Feature packaging

The Boss/Secretary Filtering Enhancement feature, is packaged with the Basic Call Processing package included in the X11 Release 24 system software.

Feature implementation

To configure the Boss/Secretary Filtering Enhancement feature follow these procedures:

- Configure the Lamp Status for the Boss/Secretary Filtering Enhancement feature in LD 15.
- Configure the Boss/Secretary Filtering Enhancement feature in LD 11.

Note: The technician must be aware of the various configurations allowed for the LCD lamp notification states (dark, lit, wink, and flash) to avoid user confusion. The default lamp status states are shown below.

Boss set	Boss set with BFS deactivated	Boss set with BFS activated
Idle	Dark ▸	Wink ▸
Busy	Lit ▸	Flash ▸

LD 15 - Configure the lamp status for the Boss/Secretary Filtering Enhancement feature.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Features and Options data.
CUST:	xx	Customer Number. xx = 0-99 for Options 51C, 61C, 81, and 81C. xx = 0-31 for Option 11C.
...	...	
BSFE	YES	YES = Allow Boss/Secretary Filtering Enhancement feature. (NO) = Deny Boss/Secretary Filtering Enhancement feature.
- ACT_IDLE	(WINK)	Boss's lamp status when BSFE is active and the set is idle: (WINK) = Default lamp status. FLSH = lamp status. LIT = lamp status. DARK = lamp status.

- ACT_BUSY	(FLSH)	Boss's lamp status when BSFE is active and the set is busy: (FLSH) =Default lamp status. WINK = lamp status. LIT = lamp status. DARK = lamp status.
- DACT_IDLE	(DARK)	Boss's lamp status when BSFE is deactivated and the set is idle: (DARK) = Default lamp status. WINK = lamp status. LIT = lamp status. FLSH = lamp status.
- DACT_BUSY	(LIT)	Boss's lamp status when BSFE is deactivated and the set is busy: (LIT) = Default lamp status WINK = lamp status. FLSH = lamp status. DARK = lamp status.
...	...	

LD 11 - Configure the Boss/Secretary Filtering Enhancement feature.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaaa	Type of Meridian 1 proprietary set.
TN	lscu cu	Terminal Number. l = loop, s = shelf, c = card, u = unit for Options 51C-81C. c = card, u = unit for Option 11C.
DES	x..x	Office Data Administration System Designator.
CUST	xx	Customer Number as defined in LD 15.
...	...	
CLS	BFEA	BFEA = Allow Boss/Secretary Filtering Enhancement for set. (BFED) = Deny Boss/Secretary Filtering Enhancement for set.
CLS	BRCA	BRCA = Allow Recall to boss on set basis. (BRCD) = Deny Recall to boss on set basis. Note: This class of service forwards unanswered calls back to the boss after a specified number of rings.
...	...	
KEY	xx BFS l s c u xx BFS c u	Call Forward and Busy Status (BFS) key. xx = Set key number. l = loop, s = shelf, c = card, u = unit for Options 51C-81C. c = card, u = unit for option 11C. The TN can be the same set or any other digital set in the same node. Configure the TN of the same set against the BFS key only if the Class Of Service is BFEA.

Feature operation

To activate the BSFE feature from the boss's set:

- 1 Press the BFS key to active the Boss/Secretary Filtering Enhancement feature.
- 2 Press the specific BFS secretary key to designate the secretary to filter the calls. The designated secretary's BFS key lamp lights on all sets.

To deactivate the BSFE feature from the boss's set:

- 1 Press the BFS key twice.
- 2 The BFS key lamp turns dark on all secretary sets associated with the boss's BFS key.

To operate the BSFE feature from the secretary's set:

- 1 Press the BFS key twice to activate the Boss/Secretary Filtering Enhancement feature.
- 2 Press the Single Call Ringing (SCR) key to answer incoming calls to the boss.
or
Press the BFS key to answer incoming calls to the boss.
- 3 Press the BFS key twice to deactivate the Boss/Secretary Filtering Enhancement feature.

To transfer call from the secretary's set:

- 1 Press the BFS key to autodial the boss's set.
- 2 Press the BFS key to transfer the call back to the boss's DN.
- 3 Press the transfer key to transfer call back to boss's DN.

To transfer call filtering from the boss and secretary sets:

- 1 Press the appropriate Boss to Secretary BFS key to transfer calls to another secretary to filter calls.
- 2 Press BFS twice to forward the calls back to the boss.

To use display - boss/secretary:

- 1** Press Display key.
- 2** Press BFS key. The set display shows the DN number of set filtering the boss's calls.
- 3** The name and number shows up on boss's set on calls being filtered.

Note: When the Boss/Secretary Filtering Enhancement feature is activated on the boss's set, the BFS key flashes on all secretary sets associated with the boss's set. This indicates the boss's calls are being filtered. Each secretary can press the BFS key to display the secretary set filtering the calls.

Bridging

With Bridging, the same DN can appear on up to eight single-line telephones. A maximum of five of these telephones can be equipped with ringers.

Incoming calls ring all telephones with a ringer connected and can be answered at any of the single-line telephones.

Operating parameters

A maximum of five C4A ringers are allowed on one parallel loop.

Feature interactions

Privacy

Privacy is lost when telephones are bridged. Any appearance of the DN can enter the call by going off-hook.

Feature packaging

Bridging is included in base X11 system software.

Feature implementation

No change to existing configuration is required for the Bridging feature.

Feature operation

No specific operating procedures are required to use this feature.

Busy Lamp Field

There are two types of Busy Lamp Field (BLF) modules.

Attendant Blocking of Directory Number

When a DN is blocked due to the Attendant Blocking of Directory Number feature, the Busy Lamp Field/Enhanced Busy Lamp Field lamp corresponding to this DN displays the busy status of the DN as for ringing calls.

QMT3 Lamp Field Array

The QMT3 Lamp Field Array is an add-on module for SL-1 telephones and QCW Attendant Consoles. It displays the status of a specified 150 consecutive Directory Numbers (DNs), defined in LD 15 (Standard Busy Lamp Field [SBLF]). A maximum of two Lamp Field Arrays can be supported per customer. Both Lamp Field Arrays in the customer group display status for the same 150 DNs.

Busy Lamp Field/Console Graphics Module

The Busy Lamp Field/Console Graphics Module (BLF/CGM) is an add-on module for the M1250 or M2250 Attendant Consoles. It can be configured to display the status of a specified 150 consecutive DNs (Standard Busy Lamp Field (SBLF), or all DNs, 100 at a time (Enhanced Busy Lamp Field [EBLF]). By monitoring the status, an attendant can tell a caller if the DN is busy prior to extending the call.

The Enhanced Busy Lamp Field (EBLF) Array, introduced in X11 Release 15, displays the status of all DN's for a customer. The BLF/CGM displays the status of 100 DN's at a time on up to 63 M1250/M2250 Attendant Consoles. Each of the Console Graphics Modules can display a different hundreds group, while up to 20 CGMs can display the same hundreds group simultaneously.

When the attendant extends a call, a hundreds group is displayed after enough digits have been entered to determine the group. After a group has been established, the BLF/CGM shows the status for each DN in that group. Figure 6 shows an example of the EBLF on the BLF/CGM.

The EBLF continues to display the status of the hundreds group until another group is determined or until the module is cleared. The display is updated whenever the status of a DN in that group changes. The BLF is cleared when the attendant dials a new series of digits or releases the call.

Figure 6 shows the Standard Busy Lamp Field (SBLF) display on the CGM. The first and last DN's in the displayed group are listed as START EXT and END EXT. The START and END EXT DN's show the hundreds group displayed. The top row on the CGM designates the tens group. The left side shows the ones group. Figure 6 shows the busy DN's to be 3403, 3408, 3410, 3421, 3482, 3488, 3494, 3500, 3543, and 3549.

Figure 6
Standard Busy Lamp Field on the BLF/CGM

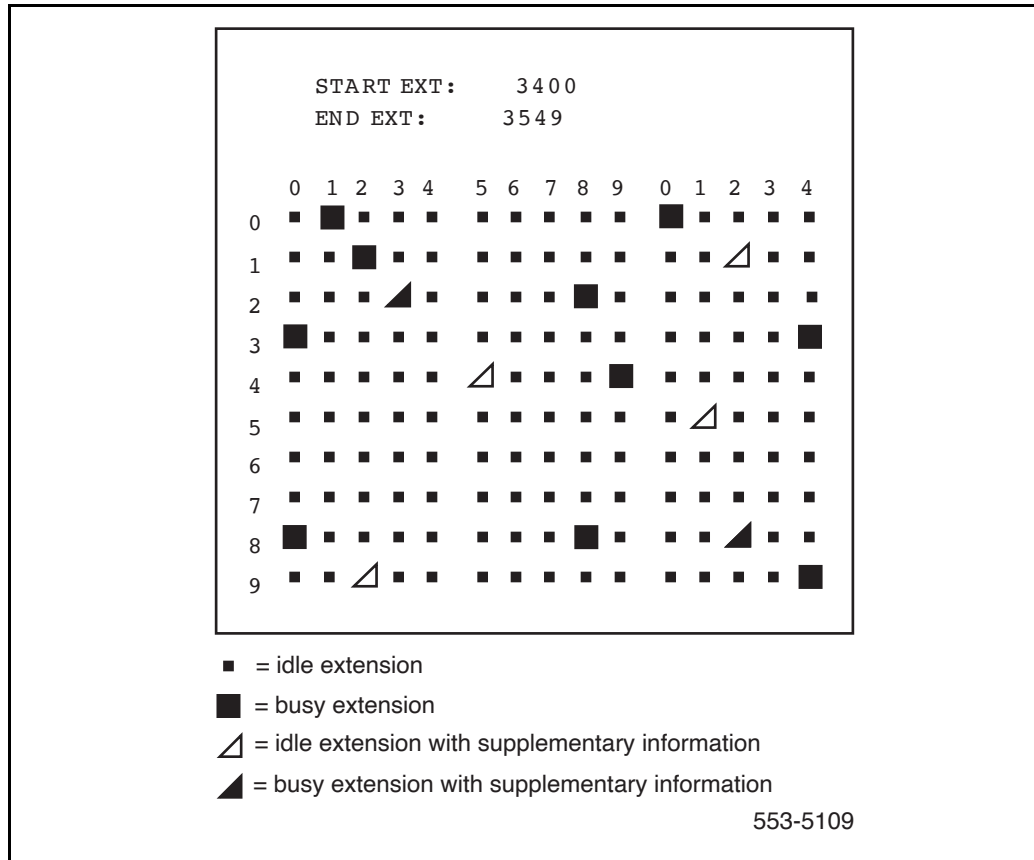
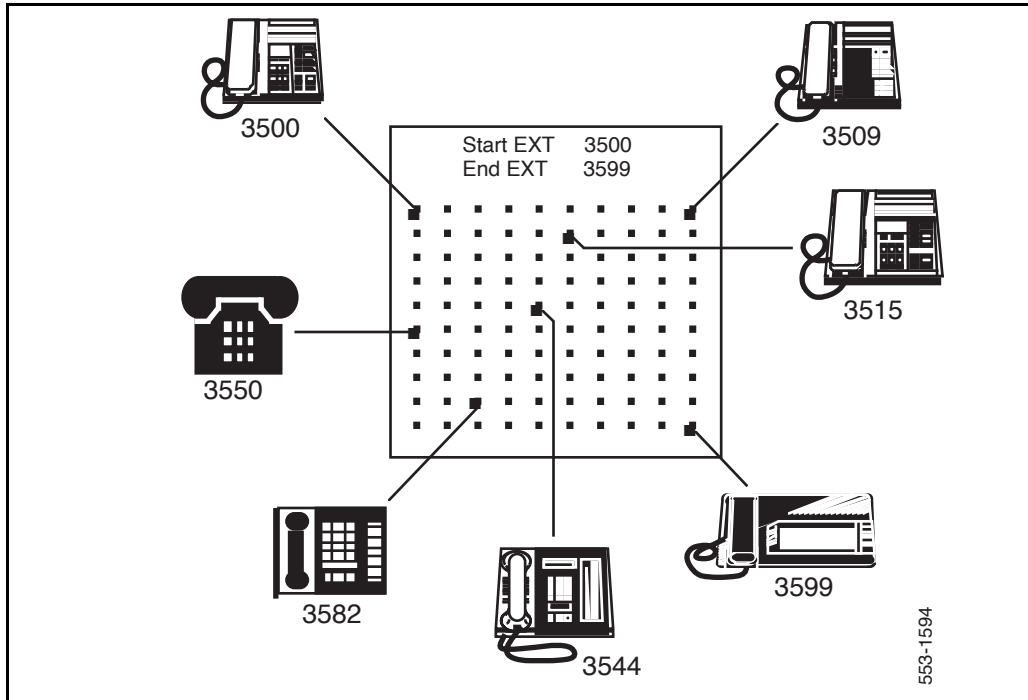


Figure 7 shows a system monitored by the EBLF. Each telephone represents a busy DN, listed beneath the telephone icon. The display screen at the top of the module defines the hundreds group as 35. The CGM displays the busy DNs within that group. The larger squares represent busy telephones within the group, and the smaller squares represent idle DNs. The attendant can quickly see which telephones are busy and which are idle.

Figure 7
Enhanced Busy Lamp Field monitoring (example)



Operating parameters

Enough hundreds groups must be defined to support the maximum number of telephones to be monitored. The maximum number of hundreds is 99.

The EBLF requires an M1250/M2250 Attendant Console equipped with a BLF/CGM. It does not work with the earlier Attendant Consoles using a QMT3 Lamp Field Array.

The SBLF and the EBLF are incompatible.

The EBLF supports mixed dialing plans (4, 5, 6, or 7 digits), but each hundreds group defined must be unique. For example, DNs 25XX and 25XXX cannot be configured in the same system. Any other DN group must begin with something other than 25 because, in this case, the CGM would be updated for DNs 2500 through 2599.

Only 20 Attendant Consoles can be updated for the same hundreds group simultaneously. If more than 20 consoles are monitoring the status of a single hundreds group, only the first 20 are updated. The remaining consoles display the earlier status, and an error message is output at this occurrence. (An unlimited number of consoles can be updated when they display different hundreds groups.)

With X11 Release 16 and later software, when the Make Set Busy key is activated or deactivated, BLF updates only the first DN it finds on the Attendant Console. Lamp audit updates the status of subsequent DNs on the BLF.

Feature interactions

Attendant Blocking of Directory Number

When a DN is blocked due to the Attendant Blocking of DN feature, the Busy Lamp Field/Enhanced Busy Lamp Field lamp corresponding to this DN displays the busy status of the DN as for ringing calls.

Make Set Busy

When a Make Set Busy key is activated, the Busy Lamp Field array will indicate that the first DN only on that set is busy.

Feature packaging

Busy Lamp Field Array (BLFA) is included in base X11 system software.

EBLF requires X11 Release 15 or later software and the BLF/CGM.

Feature implementation

Response to the following prompts in the listed overlays is required for this feature to operate properly. In addition, at least one DN in each hundreds group must be activate.

LD 29 – Estimate the memory required for Enhanced Busy Lamp Field trees.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB	Customer Data Block.
TYNM	EBLF xx yy z	Enhanced Busy Lamp Field, where: xx = number of Customers to get EBLF yy = Average number of Hundreds Groups (HGRP) per customer, and z = Average DN length (4, 5, 6, or 7).
Note: This overlay is required for ST and Option 21 systems.		

LD 15 – Define the Busy Lamp Field/Console Graphics Module options in the Customer Data Block.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(XLF), ILF (XBL), IBL	(Exclude) include Standard Busy Lamp Field. (Exclude) include Enhanced Busy Lamp Field.

- LFTN	l s c u	Lamp Field TN for first display console. Prompted only if OPT = ILF.
- LFTN	l s c u	Lamp Field TN for second display console. Secondary TN if this is the Attendant Console.
- LFFD	xxx...x	First DN for the Lamp Field Array for ILF; last two digits of the first DN must be 00. First DN must start on even 100 (e.g., 3400 is acceptable, but 3450 is not).

LD 12 – Identify which Attendant Consoles have Enhanced Busy Lamp Field on the BLF/CGM.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
EBLF	(BLFD), BLFA	(Deny) allow Enhanced Busy Lamp Field. Prompted only if TYPE = 1250 or 2250.

When the BLF is configured before the telephones are programmed, the procedures in LD 10 and LD 11 are not required. As an alternative to reentering data when the BLF is configured after the telephones, a SYSLOAD associates the DN with the Hundreds Group (HGRP).

LD 10 – Activate DN hundreds groups for EBLF for each DN within each hundreds group.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
DN	xxx...x	Reenter Directory Number (no change necessary).

LD 11 – Activate DN hundreds groups for EBLF for each DN within each hundreds group.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx aaa yyy...y	Reassign Directory Number (no change necessary), where: xx = key number aaa = DN type, and yyy...y = Directory Number.

Feature operation

To display the status of extensions on the BLF/CGM (attendant), follow these steps:

- 1 Press the **SHIFT** key, then the conf. 6/BLF key.
The console is in the BLF mode.
- 2 Press the **Mode** key .
The BLF/CGM screen displays the main menu.
- 3 Dial 0 (zero).
The BLF/CGM displays the SBLF or the EBLF, depending on which option is configured in the system software.

For complete feature operation, see *Busy Lamp Field/Console Graphics Module user guide*.

Call Capacity Report Enhancement

The Call Capacity Report Enhancement (CCRE) feature improves the stability and accuracy of Meridian 1 traffic reports. The enhancements include:

- data collection will be based on 7 24-hour days
- real-time calculation improvements
- floating point arithmetic support

The Call Capacity Report Enhancement feature does not require user operation changes. Meridian 1 traffic reports will contain the same number of fields in the same format as the current TFS004 report.

Call Detail Recording

Call Detail Recording (CDR) records information about selected calls for accounting purposes. For each call, CDR identifies the calling and called parties and notes the time and duration of the call. A record describing the complete call is output by the Meridian 1 system when the call is terminated. The following five recording options are available and can be specified by the customer in any combination for each trunk route:

- all outgoing calls
- all outgoing toll calls
- outgoing answered calls
- outgoing answered toll calls
- all incoming calls

For outgoing calls, all calls seizing a trunk in that route are recorded from the time of trunk seizure, no matter how long or short the call is. If answer supervision is allowed on the Meridian 1 system, calls placed over tandem TIE trunks are billed from the time the call is answered. The caller is not charged the time it takes for dialing, digit outputting, or ringing.

For incoming calls, all calls answered by a telephone or Attendant Console are recorded.

Three output options are available:

- System terminal: CDR system terminal (CTY)
Information is output in ASCII serial format suitable for a system terminal or equivalent device.

- Magnetic tape: CDR Data Link (CLNK)
Information is output in binary format to a QCA11 CDR machine for downstream processing.
- Both system terminal and magnetic tape.

The Meridian 1 system provides access to as many as 16 input/output ports, which can include any combination of designated CDR system terminal (CTY) or CDR Data Link (CLNK) ports. Because each customer on a Meridian 1 can access multiple CDR ports, system terminal and magnetic tape CDR recording machines can be used at the same time for the same customer.

For further information on CDR, please refer to *Call Detail Recording description and formats* 553-2631-100.

Call Forward All Calls

Call Forward All Calls (CFW) automatically forwards incoming calls to another destination, within or outside the Meridian 1 system. Only calls to the Prime DN or any single-appearance DN on the telephone are forwarded. Outgoing calls can still be placed from the telephone when Call Forward is active.

X11 Release 19 and later provides the following additional capabilities. First, it supports selectively activating Call Forward depending on the source of the originating party. With the Internal Call Forward (ICF) feature, the user can cause only internal calls to be forwarded. Second, the Call Forward Reminder Tone (CFRT) presents special dial tones on analog (500/2500 type) telephones with CFW active. One tone indicates that CFW is active; a second indicates that there is a message waiting for the telephone with CFW active.

Call Forward All Calls, as well as Internal Call Forward, is assigned on a per-telephone basis. Meridian 1 proprietary telephones must be equipped with separate key/lamp pairs to allow the activation and deactivation of each feature. Customers can specify the length of the destination number in LD 11. Options are 4, 8, 12, 16, 20, or 23 digits. If you enter another number for the length, the system rounds to the nearest acceptable choice. The default is 16 digits.

When you use Multiple Appearance DNs (MADNs), call redirection is determined based on the Terminal Number (TN) order in your DN block. To determine the TN order, print the DN block from LD 20 or LD 22 (TYPE = DNB). When a call comes in to an MADN, the system begins a search to determine how the call will be handled. Using the TN list you printed, the system performs the following search, beginning at the bottom of the TN list, and working up.

- 1 Searches for the first Prime DN appearance of the MADN with Call Forward All Calls activated.
- 2 If there are no Prime DN appearances, the Call Forward All Calls cannot be activated.

Note: The search does not necessarily determine the lowest numerical TN. The search starts at the bottom of the TN list.

Operating parameters

The forwarding of a call depends on the access restrictions assigned to the telephones and the trunks involved in the call. If call forwarding results in a connection that is not permitted by the assigned access restrictions, the incoming call is not forwarded.

The customer can specify which telephone determines the successful completion of the call: the originating telephone or the forwarding telephone.

Internal Call Forward requires a programmable feature key. Therefore, Internal Call Forward is not supported on BRI telephones.

With X11 Release 19 and earlier, Call Forward status information is lost during a SYSLOAD. With X11 Release 20 and later, LD 17 CFWS allows telephones to have their CFW status saved as part of the data dump routine and then reinstated following a SYSLOAD. For more information, refer to the Call Forward Save module.

Call Forward Reminder Tone does not apply to telephones such as the SL-1 that have a visual indication of active CFW status.

The Reciprocal Call Forward All Calls option prevents the situation whereby an infinite loop is caused in a network-wide Call Forward configuration resulting from telephone A being call forwarded (all calls) to telephone B at another node, which in turn has been call forwarded back to telephone A. A check is provided via the Flexible Orbiting Prevention Timer (FOPT), which prohibits any telephone from call forwarding more than one call off node for a period of 14 seconds.

X11 Release 20 or later allows the Flexible Orbiting Prevention Timer, previously fixed at 14 seconds, to be set during Service Change 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.

The Orbit Prevention protection, however, does not extend to all potential orbiting situations. Improperly engineered networking or multiple switching arrangements can produce orbiting.

Feature interactions

Advice of Charge for EuroISDN

Calls charged with Advice of Charge that are either transferred, extended or redirected to another set via Call Forward All Calls are charged against the last set that answers the call and the controlling set releases. Additionally, the last party that transfers or forwards a call to an ISDN Central Office trunk is charged for both connections.

Attendant Break In

The attendant can override call forwarding on a destination DN by pressing the Break In key before dialing the destination DN. The attendant may not apply Camp-On to a telephone with Call Forward active.

Call Detail Recording on Redirected Incoming Call

The Call Detail Recording on Redirected Incoming Calls feature does not affect how these features operate; 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 Page Network Wide

PAGENET does not block a station set from being programmed to Call Forward All Calls 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 Forward and Busy Status

Call Forward All Calls must be assigned to Party A's telephone to enable the Call Forward Status function, which allows party B to monitor and alter the Call Forward state of party A's telephone.

Call Forward Destination Deactivation

If a user's call forwarded Directory Number (DN) is defined as DN of Set B and set A dials the CFW FFC to activate call forward, then Set A gets forwarded to Set B. Set B can deactivate CFW on set A by dialing the CFDD deactivation FFC.

Call Forward Save

The Call Forward status of each telephone can be saved as part of the data dump routine and reinstated following a SYSLOAD operation.

Call Redirection by Time of Day

Call Forward All Calls takes precedence over Call Redirection by Time of Day.

Call Waiting

Call Waiting Redirection

Call Forward All Calls has precedence over the Call Waiting and Call Waiting Redirection feature.

Calling Party Privacy

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

DPNSS1 Diversion

The Call Forward All Types features on unanswered calls are activated in the following order: Call Forward All Calls, Message Waiting, Call Forward No Answer, Slow Answer Recall. For busy sets the order is: Call Forward All Calls, Hunting, Calling Waiting/Camp On, Message Waiting Busy Forward, Call Forward Busy.

Enhanced Flexible Feature Codes - Customer Call Forward

When the Customer Call Forward (CCFW) feature is active the Call Forward All Calls (CFWAC) feature cannot be activated by Flexible Feature Code, but can be activated by SPRE. When CFWAC is active, CCFW cannot be activated.

CCFW can be deactivated by deactivating CFWAC. CFWAC can only be deactivated by the CCFD FFC if the current CFW DN is the same as the current CCFW DN.

Enhanced Flexible Feature - Outgoing Call Barring

When a set with Outgoing Call Barring active activates Call Forward All Calls) CFWAC with a new CFW DN, the CFW DN is tested against the current barring level. If the DN is not allowed to be dialed, it can also not be used as a Call Forward DN. This is to prevent a set from forwarding to a barred DN and then dialing its own DN to bypass the restrictions.

Flexible Feature Codes (FFCs)

When an 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 #1:

- 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.

Flexible Voice/Data Terminal Number

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.

ISDN QSIG Call Completion

When the Call Forward feature is activated on a local basis and an incoming Call Completion request is received, the Call Completion request is registered against the forwarded DN.

ISDN QSIG Name Display

When an incoming QSIG call, with name display presentation allowed Name Display, is forwarded locally, the calling party's name information is displayed on the forwarding set. With presentation restriction, the calling party's name information is not displayed to the destination set.

Multiple Appearance Redirection Prime

X11 Release 18 and later support Multiple Appearance Redirection Prime (MARP). This affects how call redirection operation is defined. Refer to the MARP module in this document for details.

Paging

Calls that originate on a TIE trunk to a telephone that is redirected to a paging route are blocked.

Phantom Terminal Numbers (TNs)

Call Forward All Calls is used in conjunction with Remote Call Forward (RCFW) to redirect incoming calls from a phantom TN/DN to a valid DN.

Call Forward cannot be overridden on phantom TNs. Overflow tone occurs if an override is attempted.

Recorded Announcement for Calls Diverted to External Trunks (RANX)

If a call is forwarded to an outgoing external Central Office (CO) route with the RANX flag set, RANX is activated.

Recovery on Misoperation of Attendant Console

Call Forward takes precedence over the Misoperation feature.

Ring Again on No Answer (RANA)

If an unanswered call is forwarded to another station by Call Forward All Calls, RANA is applied to the originally dialed station.

SPRE

SPRE access codes cannot be used as CFW DN's. If an attempt is made to program an SPRE access code as a CFW DN, the overflow tone is given at the time of CFW activation.

Station Camp-On

Call Forward takes precedence over Camp-On.

Trunk Access Codes

X11 Release 12 and later provides an option in LD 15 to allow or disallow telephones to program Call Forward All Calls to a Trunk Access Code. See Call Forward External Deny.

Trunk Barring

If an Originating Trunk Connection is forwarded to a barred route, it receives the intercept treatment specified in the Customer Data Block.

Feature packaging

Internal Call Forward requires the 500 Set Dial Access to Features (SS5) package 73 for analog (500/2500 type) telephones, and the Flexible Feature Codes (FFC) package 139. Call Forward Reminder Tone is packaged with the Call Forward All Calls feature.

Feature implementation

On an analog (500/2500 type) type telephone, the user accesses the Call Forward All Calls and Internal Call Forward features by dialing either the SPRE plus the feature code, or the appropriate Flexible Feature Codes (FFCs). On a digital telephone, the user accesses each feature via its feature key.

Activating the features requires service changes to LDs 15, 10/11, and 57.

LD 15 – Define Class of Service for Call Forward All Calls.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB RDR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(CFO), CFF	(CFO) = Calling party Class of Service is active during Call Forward All Calls. CFF = Forwarding party Class of Service is active during Call Forward All Calls.
	(PVCA), PVCD	Prevention of reciprocal Call Forward (allowed) or denied.
- CFTA	(NO), YES	(Deny) allow telephones to Call Forward All Calls to a Trunk Access Code.
- OPT	(CFRD), CFRA	Call Forward Reminder Tone (denied) allowed for PBX telephones.

Note: In LD 56 the XCT Tone Code (XCAD) default value is set to 0. If the XCAD prompt is not changed in LD 56, an Analog 500-type set will not receive Call Forward Reminder Tone (CFRT) even if it has been enabled in LD 15 (OPT = CRFA).

LD 10 – Add/change Call Forward All Calls and Internal Call Forward for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
FTR	CFW xx yyyy...y	Allow Call Forward All Calls, where: xx = maximum number of digits in the CFW DN. Prior to X11 Release 22, valid entries are: 4, 8, 12, (16), 20, and 24. For X11 Release 22 and later, valid entries are any integer in the range of (4)-31. yyyy = number where calls are forwarded. Note: YYYY cannot be entered from the maintenance terminal. When the telephone information is printed in LD 20, yyyy shows the call forward number.
FTR	ICF xx	Allow Internal Call Forward, where: xx = maximum number of digits in the Forward DN. Prior to X11 Release 22, valid entries are: 4, 8, 12, (16), 20, and 23. For X11 Release 22 and later, valid entries are any integer in the range of (4)-31.

LD 11 – Add/change Call Forward All Calls and Internal Call Forward for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.

KEY	xx CFW yy zzzz...z	Define Call Forward All Calls, where: xx = key number; M2317 must use key 22 yy = maximum number of digits in the CFW DN. Prior to X11 Release 22, valid entries are: 4, 8, 12, (16), 20, and 23. For X11 Release 22 and later, valid entries for M2317 and M3000 sets are any integer in the range of (4)-23. For all other Meridian 1 proprietary type sets, valid entries are any integer in the range of (4)-31. zzzz = number where calls are forwarded.
KEY	xx ICF yy zzzz	Define Internal Call Forward, where: xx = key number yy = maximum number of digits in the Forward DN. Prior to X11 Release 22, valid entries are 4, 8, 12, (16), 20, and 23. For X11 Release 22 and later, valid entries are any integer in the range of (4)-31. zzzz = number where calls are forwarded.

LD 57 – Add/change Flexible Feature Codes for Internal Call Forward.

Prompt	Response	Description
REQ	NEW, CHG, OUT	Add, change, or remove an FFC table.
TYPE	FFC	Flexible Feature Code.
CODE	ICFA ICFD ICFV	Access code for Internal CFW Activate. Access code for Internal CFW Deactivate. Access code for Internal CFW Verify.
ICFA	xxxx	Internal CFW Activate Code (ICFD and ICFA may share the same code).
ICFD	xxxx	Internal CFW Deactivate Code (ICFD and ICFA may share the same code).
ICFV	xxxx	Internal CFW Verify Code.

Feature operation

To forward all calls from a Meridian 1 proprietary telephone:

- 1 Press **Forward**.
- 2 Dial the number where calls are to be forwarded.
- 3 Press **Forward**.

To forward internal calls only from a Meridian 1 proprietary telephone:

- 1 Press **Internal Call Forward**.
- 2 Dial the number where calls are to be forwarded.
- 3 Press **Internal Call Forward**.

To cancel Call Forward All Calls:

- Press **Forward**.

To cancel Internal Call Forward:

- Press **Internal Call Forward**.

To forward calls from an analog (500/2500 type) telephone:

- 1 Lift the handset and dial SPRE 74
or lift the handset and dial #1 (2500 telephone)
or lift the handset and dial the Call Forward Allowed FFC.
- 2 Dial the number where calls are to be forwarded.
- 3 Hang up.

Note: If you deactivate Call Forward, then reactivate without changing the number, calls will be forwarded to the previously established CFW DN.

To forward internal calls from an analog (500/2500 type) telephone:

- 1 Lift the handset and dial SPRE 9914
or lift the handset and dial the Internal Call Forward FFC.
- 2 Dial the number where calls are to be forwarded.
- 3 Hang up.

To cancel Call Forward All Calls:

- Lift the handset and dial SPRE 74
or lift the handset and dial #1 (2500 telephone)
or lift the handset and dial the Call Forward Deny FFC.

To cancel Internal Call Forward:

- Lift the handset and dial SPRE 9914
or lift the handset and dial the Internal Call Forward Deny FFC.

Call Forward and Busy Status

The Call Forward and Busy Status feature was designed for an environment where Party A forwards calls to Party B for screening.

When equipped with a Busy/Forward Status (BFS) key-lamp or key-Liquid Crystal Display (LCD) pair, Party B can perform the following:

- monitor, activate, or deactivate Call Forward for Party A
- override Call Forward of Party A, in order to place a call to Party A
- determine whether Party A is busy on a call

The BFS key-lamp or key-LCD pair serves a dual purpose. The Busy Status function indicates to Party B, via lamp or LCD state, whether Party A is busy or not. The Call Forward Status function allows Party B to monitor and alter the Call Forward state of Party A. Therefore, the BFS lamp or LCD state of Party B may indicate that Party A is in any one of the following four possible states:

- Call Forward activated and not busy
- Call Forward activated and busy
- Call Forward deactivated and not busy
- Call Forward deactivated and busy

The BFS key also acts as an Autodial (ADL) key. To use the BFS key as an ADL key to call Party A, Party B goes off-hook and presses the BFS key for Party A.

Busy Status

The Busy Status portion of the feature indicates if Party A is busy for any of the following reasons:

- call active on a Directory Number (DN) key (SCR, SCN, MCR, or MCN)
- has Make Set Busy (MSB) activated
- has Do Not Disturb (DND) activated
- call active on a Group Call (GRC) key
- call active on a Private-line non-ringing (PVN) or Private-line Ringing (PVR) key
- Party A ringing
- if Party A is a Meridian 1 proprietary -type set and has call on Hold
- if Party A is a analog-type (500/2500) set and has a call on permanent Hold

Call Forward Status

The Call Forward portion allows Party B to monitor and alter the Call Forward state of Party A. Party A may be either an analog-type or Meridian 1 proprietary-type set and must have Call Forward All Calls equipped. The Call Forward and Busy Status feature introduces a modification to the Call Forward All Calls feature functionality. The modification is activated or deactivated on a customer-wide basis by the response to OPT in LD 15. The OPT responses are “FKD” (Forward Key Denied) and the default setting “FKA” (Forward Key Allowed).

Operating parameters

Party B must be using a Meridian 1 proprietary (SL-1, M2000-series or Meridian Modular) telephone. Party A may have an SL-1, M1000-series, M2000-series, M3000, Meridian Modular or 500/2500-type telephone, with Call Forward All Calls (CFAC) equipped. The operating parameters are the same as for CFAC.

A station may be monitored by a maximum of 16 other stations using the BFS key.

The monitored and monitoring stations must all belong to the same customer.

Feature interactions

Attendant and Network-Wide Remote Call Forward

When the call forward status of a BFS station is changed from a telephone or attendant-based Remote Call Forward feature, the BFS lamp(s) associated with that station are updated accordingly.

Autodial

Party A can use the BFS key as an Autodial key to dial Party B.

Call Forward All Calls

To enable the Call Forward Status function, Call Forward All Calls must be assigned to Party A's telephone.

Calling Party Privacy

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outputted to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Phantom Terminal Numbers (TNs)

Attempting to define a BFS key for a phantom TN results in an error message at the beginning of the phantom loop.

Feature packaging

Call Forward and Busy Status is included in base X11 system software.

Feature implementation

LD 15 – Respond to the OPT prompt with either FKA, the default, (Forward Key Allowed), or FKD (Forward Key Denied) to select the Call Forward All Calls mode of operation.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CDB RDR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
...		
NCOS	...	
- OPT	(FKA), FKD	Forward Key (Allowed) Denied — determines whether Call Forward keys on user sets for this customer are operational.

LD 11 – For each telephone set to be given a Busy/Forward Status (BFS) key, respond to the KEY prompt with 0-69 BFS III s cc uu where 0-69 is the key number and III s cc uu is the TN of the monitored telephone set.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	xxxx	Type of data block.
...		
LANG	...	
KEY	0-69 BFS III s cc uu	Key number (0-69), Busy/Forward Status (BFS), Terminal Number (TN) of set to be monitored (III s cc uu).
...		

LD 20 – This overlay is modified to print the new BFS key type and related information.

Prompt	Response	Description
REQ	PRT	Request: Print data block.
TYPE	xxxx	Type of data block.
TN	...	

LD 21 – This overlay is modified to include the FKA or FKD setting as part of the OPT setting printout.

Prompt	Response	Description
REQ	PRT	Request: Print data block.
TYPE	CDB	Type of data block: Customer Data Block.
CUST	xx	Customer number.

Feature operation

Call Forward Status

With FKA, the default, selected Party A's Call Forward (CFW) key-lamp or key-LCD pair operation is unaffected and depressing Party B's BFS key will result in one of the following:

- If Party A does not currently have Call Forward activated, Party A has Call Forward activated to Party B's DN and Party A's CFW lamp or LCD is activated.
- If Party A already has Call Forward activated to Party B's DN, Party A has Call Forward deactivated and Party A's CFW lamp or LCD is deactivated.
- If Party A already has Call Forward activated to a DN other than Party B's, Call Forward is left as is.

With FKD selected Party A's CFW key-lamp or key-LCD pair operation is modified so that the pair is usable as an indicator only, the key is disabled, and depressing Party B's BFS key will result in one of the following:

- If Party A has Call Forward active to the DN of a BFS key equipped set other than Party B, Call Forward is left as is.
- If Party A has Call Forward active to a remote DN and Call Forward was activated by a remote FFC, the existing Call Forward DN is overridden and all new calls are forwarded to Party B's DN.
- If Party A has Call Forward active to Party B's DN, Party A's Call Forward is deactivated and Party A's CFW lamp or LCD is deactivated.
- If Party A does not have Call Forward active, Call Forward is activated to Party B's DN and Party A's CFW lamp or LCD is activated.

BFS lamp or LCD states

Party B's BFS lamp or LCD reflects the status of Party A's set in terms of both the Busy or Idle and the Call Forward states. The following table gives the possible BFS lamp or LCD states for the various states Party A can be in:

Party A's set	Party A's Call Forward	
	Deactivated	Activated
Idle	Dark	Wink = Fast Flash
Busy	Lit	Flash

Where:

Dark – indicates lamp or LCD is off.

Wink – indicates lamp or LCD is winking at 60 impulses per minute (ipm) (0.875 seconds on, 0.125 seconds off).P402402

Lit – indicates lamp or LCD is on

Flash – indicates lamp or LCD is flashing at 30 ipm (0.5 seconds on, 0.5 seconds off).

Call Forward Busy

Call Forward Busy (CFB) automatically routes incoming Direct Inward Dialing (DID) calls to the Attendant Console when a telephone is busy. This capability is allowed or denied in the Class of Service (FBA/FBD) of the telephone.

Operating parameters

On incoming DID calls, Hunting takes precedence, followed by Call Waiting, then Call Forward Busy. In busy situations, the call hunts if the telephone has Hunting specified.

Feature interactions

Call Detail Recording on Redirected Incoming Calls

The Call Detail Recording on Redirected Incoming Calls feature does not affect how these features operate; 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 All Calls takes precedence over Call Forward Busy.

Call Waiting for Meridian 1 proprietary telephones

If Class of Service allows CFB and Call Waiting Allowed, and the telephone has a Call Waiting key, calls do not forward to the attendant when the telephone is busy and another call is waiting.

Call Waiting for analog (500/2500 type) telephones

If a telephone has CFB and Call Waiting Allowed Class of Service, calls are forwarded to the attendant when the telephone is busy and has another call waiting.

Calling Party Privacy

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Dial Access to Group Calls

Call Forward Busy cannot be applied to a Group Call.

Flexible Voice/Data Terminal Number

Voice calls directed to a call processing busy dynamic voice/data TN are redirected via 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.

Hunting

When a telephone is busy, an incoming call hunts only if Hunting is allowed for that telephone. If all the steps in the hunt group are busy, and Call Waiting is not allowed, the call forwards to the Attendant Console.

Night Service

When the system is in Night Service, DID calls forwarded by Call Forward Busy are routed to the specified night number. If the night telephone is busy, subsequent calls receive busy tone.

Recovery on Misoperation of Attendant Console

Call Forward takes precedence over the Misoperation feature.

Station Camp-On

For DID calls only, Call Forward Busy takes precedence over Camp-On.

Trunk Barring

If an Originating Trunk Connection is forwarded to a barred route, it receives the intercept treatment specified in the Customer Data Block.

Feature packaging

Call Forward Busy is included in base X11 system software.

Feature implementation

LD 15 – Add/change a Call Forward Busy Incoming Call Indicator (ICI) on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- ICI	xx CFB	Add a Call Forward Busy ICI key; xx = 0-19.

LD 10 – Allow/deny Call Forward Busy on an Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(FBD), FBA	(Deny) allow Call Forward Busy.

LD 11 – Allow/deny Call Forward Busy on Meridian 1 proprietary digital telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
CLS	(FBD), FBA	(Deny) allow Call Forward Busy.

Feature operation

No specific operating procedures are required to use this feature.

Call Forward by Call Type

Call Forward by Call Type (CFCT) routes calls receiving a no answer or busy signal to separately defined DN's based on the type of incoming call. The two types of incoming calls are internal and external.

An internal call is defined as a station-to-station call, a Direct Inward System Access (DISA) call, or an incoming call over a trunk route class marked as internal. An external call is an incoming call over a trunk route class marked as external. The trunk route data block (LD 16) allows routes to be defined as internal or external for this feature.

Four options are available at the customer level for Call Forward No Answer: Flexible Call Forward No Answer DN (FDN), Attendant Recall (ATT), Call Forward denied for all telephones (NO), and Hunting (HNT). Call Forward by Call Type (CFCT) is enabled only when the FDN and HNT options are chosen. If Call Forward by Call Type (CFCT) is not activated, the four options function as they did prior to X11 Release 10.

In LD 15 Call Forward No Answer is defined by FNAT for external non-DID calls and by FNAL for internal calls. FNAD continues to define Call Forward No Answer for Direct Inward Dialing (DID) trunk calls.

CFCT is allowed or denied for each telephone in LD 10 or LD 11 with Class of Service (CFTA/CFTD). If CFCT is allowed (CFTA), the forwarding destination is also defined in LD 10 or LD 11.

Once enabled, CFCT requires no intervention. How the system initiates Call Forward by Call Type is described below.

When a call is presented to a telephone, the telephone is checked for the appropriate Class of Service (Hunting Allowed (HTA), Call Forward No Answer (FNA), Call Forward by Call Type (CFTA)). The incoming call is then checked to determine if it is a telephone, DISA, or trunk call. If it is a trunk call, the trunk route is checked to determine whether the call should be treated as an internal or external call. After these checks, internal calls are forwarded to the FDN or Hunt DN of the telephone. External calls are forwarded to the External Flexible DN (EFD) or External Hunt (EHT) DN of the telephone.

The order in which the system handles no answer and busy calls is an important consideration when implementing this feature. The order of precedence is listed below.

Calls to telephones that do not answer:

- Call Forward All Calls
- Message Waiting
- Call Forward No Answer
- Attendant Recall

Calls to busy telephones:

- Call Forward All Calls
- Hunting
- Call Waiting or Camp-On
- Message Waiting Forward Busy
- Call Forward Busy

Operating parameters

Attendant Administration does not support the entry of the new EFD and EHT Class of Service required for Call Forward by Call Type.

The following trunk routes can be defined as internal or external call types for CFCT: CO, DID, FX, ATVN, CCA, TIE, WATS, and CSA.

Incoming DISA calls are always treated as internal calls irrespective of the trunk route class mark defined for the incoming trunk.

If an incoming call has been modified by Call Forward All Calls or Hunting, the Class of Service and forwarding DN are obtained from the dialed DN. This applies when Call Forward No Answer specified at the customer level is HNT or FDN.

Feature interactions

Attendant

An attendant-extended call is classified internal or external by the originating telephone or class mark of the trunk type. This is the case whether or not the attendant has released before forwarding occurs.

Automatic Timed Recall

Calls eligible for Flexible Call Forward No Answer treatment, and handled by Call Forward by Call Type, use the Call Forward No Answer timer in the Customer Data Block as the recall timer for attendant extended calls. Irrespective of the relative timeout for Automatic Timed Recall, the ringing continues as long as allowed by the Call Forward No Answer Timer.

Call Forward All Calls

If a call is unanswered at the forwarded DN, the telephone that has Call Forward All Calls activated is checked for the Class of Service and the call forward DN. If a chain of call forwarding occurs, the Class of Service and the forward DN for Call Forward No Answer are obtained from the first telephone in the chain. This applies when FDN and HNT have been specified for Call Forward No Answer at the customer level.

Note: Prior to X11 Release 10, when HNT was specified for Call Forward No Answer, the Class of Service and Hunt DN for Call Forward No Answer were obtained from the last telephone in the chain.

Call Forward, Break-In and Hunt Internal or External Network Wide

If the Internal/External definition in LD 15 is set to YES, a call is treated as internal or external on a network wide basis.

Call Forward No Answer

The sequence for forwarding unanswered calls is Call Forward All Calls, Message Waiting, Call Forward No Answer, then Attendant Recall (if the call is attendant-extended). The same sequence is used when Call Forward by Call Type is active for the customer.

Call Forward Save

The Call Forward status of each telephone can be saved as part of the data dump routine and reinstated following a SYSLOAD operation.

Call Redirection by Time of Day

Call Forward by Call Type (CFCT) takes precedence over 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.

Call Transfer

Network Call Transfer

Calls modified by Call Transfer and Network Call Transfer receive CFCT treatment. If party A (telephone or trunk) calls party B, and B transfers to party C, the forwarding DN and Class of Service are obtained from party C.

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

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Conference

Calls modified by Conference receive CFCT treatment for the conferenced telephone. If party A calls party B, and B tries to conference in party C, the forwarding DN and Class of Service are that of C. For example, Joan and Bob are in conversation, and they try to conference in Mack. Mack is not at his desk, so the attempted conference call is sent to the destination associated with Mack's telephone.

Direct Inward Dialing (DID)

Eligibility of a DID call for Call Forward by Call Type is determined by allowing or denying the type of call in the Customer Data Block (FNAD prompt). The decision to treat a DID call as internal or external is made on a trunk route basis.

Message Center

Message Center uses the Flexible Call Forward No Answer DN (FDN) of the called telephone to route no answer calls. If CFCT is enabled, unanswered internal calls use the FDN to route a call. Unanswered external calls use the External Flexible DN (EFD) to route a call.

Multiple Appearance Directory Numbers (MADNs)

Call redirection parameters like Call Forward No Answer are derived from the TN data block of the prime appearance of the called MADN. If there is more than one prime appearance, the parameters are selected from the last TN in the DN block.

If more than one prime appearance of a MADN exists, the following information must be considered prior to configuring call redirection parameters for MADNs.

The DN Block organizes MADN information in numerical TN order. The TN with the highest numerical value (000-0-06-03) is placed at the beginning of the list. The list then continues in descending order with the lowest numerical TN (000-0-03-01) at the end of the list. Service change activity affects the organization of the DN list as described in the following paragraphs.

- If a telephone undergoes Service Change, its TN is moved to the beginning of the DN list, irrespective of the numerical value. This telephone remains at the beginning of the list until another service change or a SYSLOAD.
- If a DN appears on an analog (500/2500 type), and Meridian 1 proprietary telephones, the analog (500/2500 type) telephones are listed in numerical TN order at the top of the list. Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A Service Change to an analog (500/2500 type) telephone moves its TN to the beginning of the list. A Service Change to a Meridian 1 proprietary telephone moves its TN to the end of the list.
- A SYSLOAD restructures the list back to numerical TN order, with an analog (500/2500 type) telephones at the top and Meridian 1 proprietary telephones at the bottom. Call redirection parameters continue to be derived as described in the preceding paragraphs.

Recovery on Misoperation of Attendant Console

Call Forward takes precedence over the Misoperation feature.

Second Level Call Forward No Answer

After a DN is rung and Call Forward by Call Type is activated, a forwarded call is allowed Second Level Call Forward No Answer. This is based on the originating party's call type if the currently ringing telephone has Second Level Call Forward No Answer activated.

Trunk Barring

If an Originating Trunk Connection is forwarded to a barred route, it receives the intercept treatment specified in the Customer Data Block.

Feature packaging

Call Forward by Call Type is included in base X11 system software.

Feature implementation

LD 15 – Enable Call Forward by Call Type for a customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB RDR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- FNAD	(HNT), ATT, NO, FDN	Treatment for incoming DID calls.
- FNAT	(HNT), ATT, NO, FDN	Treatment for incoming external calls.
- FNAL	(HNT), ATT, NO, FDN	Treatment for incoming internal calls.
- CFNA	1-(4)-15	Number of ringing cycles for CFNA.

LD 16 – Define a trunk route as internal or external for Call Forward by Call Type.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB	Customer Data Block.
CUST	xx	Customer number.
ROUT	xxx	Route number.
RCLS	(EXT), INT	Route class marked as (external) or internal.

LD 10 – Enable Call Forward by Call Type for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
HUNT	xxxx	Hunt DN for internal calls.
CLS	(CFTD), CFTA	(Deny) allow Call Forward by Call Type Telephone. Must have Hunting (HTA) and Call Forward No Answer (FNA) allowed.
FTR	EFD xxxx EHT xxxx FDN xxxx	Flexible Call Forward No Answer DN for external calls. Hunt DN for external calls. Flexible Call Forward No Answer DN for internal calls.

LD 11 – Enable Call Forward by Call Type for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
FDN	xxxx	Flexible Call Forward No Answer DN for internal calls.
CLS	(CFTD), CFTA	(Deny) allow Call Forward by Call Type Telephone. Must have Hunting (HTA) and Call Forward No Answer (FNA) allowed.
EFD	xxxx	Flexible Call Forward No Answer DN for external calls.

HUNT	xxxx 000	Hunt DN for internal calls. Short Hunt for internal calls.
EHT	xxxx 000	Hunt DN for external calls. Short Hunt for external calls.
LHK	xx	Last hunt key number for internal and external calls

Feature operation

No specific operating procedures are required to use this feature.

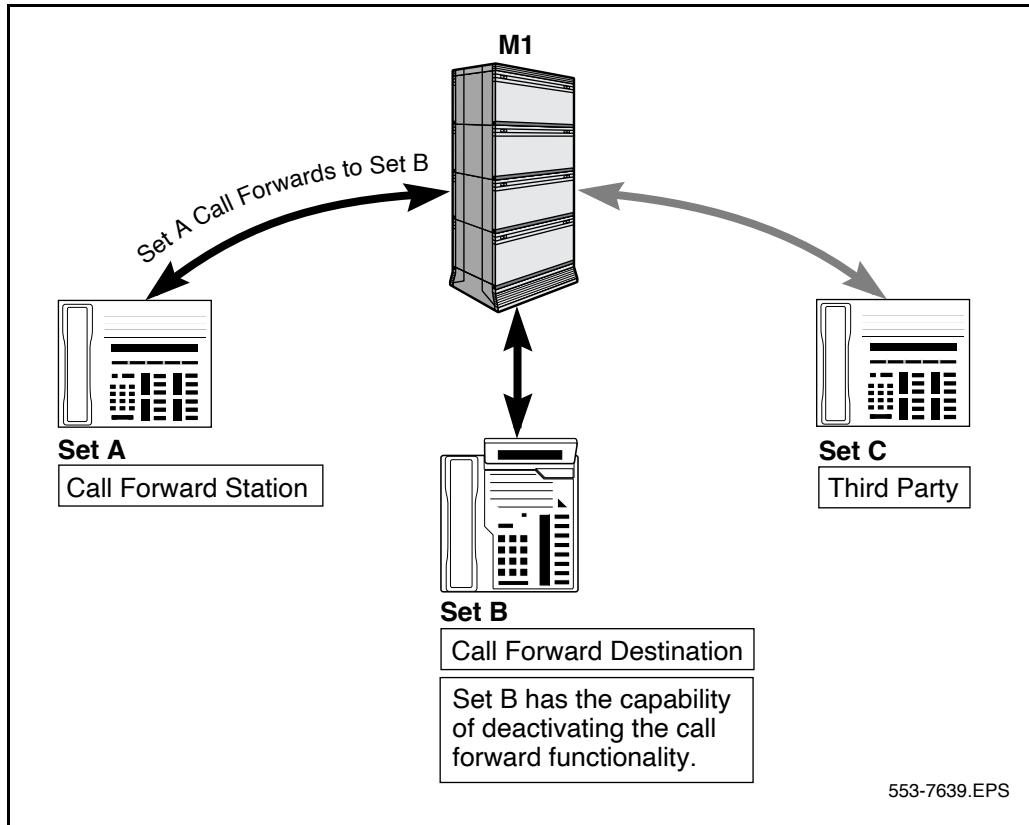
Call Forward Destination Deactivation

The existing Call Forward All Calls feature allows users to divert incoming calls from a telephone set. The activation/deactivation of Call Forward All Calls must occur from the originating telephone. In Release 15, Flexible Feature Codes and Remote Call Forward features were introduced. These features allowed users the extended flexibility to activate/deactivate Call Forward All Calls from within the Meridian 1, or outside the local network using Direct Inward System Access.

Call Forward Destination Deactivation (CFDD) permits the call forwarded destination to deactivate the Call Forward All Calls functionality on the call forward station. As illustrated in Figure 8, if set A is call forwarded to set B, then Set B can deactivate call forward.

This feature also allows a user to deactivate call forward by using Remote Call Forward deactivate Flexible Feature Code.

Figure 8
Call Forward Destination Deactivation Capability



Operating parameters

This feature is supported by Meridian 1 Options 11C, 51C, 61C, 81 and 81C.

Call Forward Destination Deactivation is only supported on Call Forward. This feature is not supported on Internal Call Forward.

The existing Call Forward All Calls features allows users to program a call forward station within a Meridian 1 switch or Public Switching Telephone Network. The Call Forward Destination Deactivation feature is designed for stand alone application only. Therefore, both the destination and originator must belong to the same customer on the Meridian 1 switch.

The call forwarded destination can deactivate the Call Forward All Calls functionality. However, the call forwarded destination cannot activate the call forward functionality from the originating set unless using the RCFA FFC.

CFDD can be activated on Meridian 1 proprietary, ISDN Basic Rate Interface and Analog (500/2500 type) sets by dialing the CFDD FFC. An analog 500-type set with a dial pulse Class of Service cannot dial an octothorpe (#) as the end of dial delimiter. To activate CFDD, the call forwarded destination of an analog 500-type set has to dial the string of digits (as defined in LD 15) for the end of dial delimiter.

If the string to indicate end of dialing (STRG prompt in LD 15) is defined, then analog (500/2500 type), 16-button DTMF, ISDN BRI and Meridian 1 proprietary sets must dial string digits as an end of dial delimiter to activate CFDD.

An Automatic Call Distribution (ACD) agent can only activate this feature from their personal Directory Number key. This feature cannot be activated on the ACD in calls key.

If the call forward station has a Prime DN and Secondary DN defined, then the Call Forward Destination Deactivation feature only considers the Prime DN to forward a call. Therefore, during the feature operation, the call forwarded destination's dialed DN of Set A is compared with the call forward station's Prime DN.

Feature interactions

Call Forward All Calls

If a user's call forwarded Directory Number (DN) is defined as DN of Set B and set A dials the CFW FFC to activate call forward, then Set A gets forwarded to Set B. Set B can deactivate CFW on set A by dialing the CFDD FFC.

Call Forward, Remote

Remote Call Forward (RCFW) and Call Forward Destination Deactivation (CFDD) provide the same functionality but are activated differently. CFDD does not require the call forward station's control password to deactivate the call forward functionality on the call forward station.

The call forwarded destination can use the Remote Call Forward deactivation FFC as well as CFDD to deactivate the Call Forward All Calls functionality on the call forward station.

Meridian Mail

Meridian Mail cannot deactivate the CFW functionality on the call forward station by using CFDD FFC.

Feature packaging

Call Forward Destination Deactivation (CFDD) requires Flexible Feature Code (FFC) package 139.

Feature implementation

The Call Forward All Calls feature is configured in LD 10 for Analog (500/2500 type) telephones and LD 11 for Meridian 1 proprietary telephones.

LD 57 – Configure Flexible Feature Codes for Call Forward Destination Deactivation.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Codes data block.
CUST	xx	Customer number.
FFCT	(NO), YES	Flexible Feature Confirmation Tone. YES = confirmation tone is required.
CODE	DEAF	Deactivate Feature.
- DEAF	xxxx	Enter Flexible Feature Code on a set.
CODE	CFWA	Call Forward All Calls Activate Code.
- CFWA	xxxx	Enter Flexible Feature Code to activate.
CODE	CFWD	Call Forward All Calls Deactivation Code.
- CFWD	xxxx	Enter Flexible Feature Code to deactivate.
CODE	CFWV	Call Forward All Calls Verify Code.
- CFWV	xxxx	Enter Flexible Feature Code to verify.
CODE	CFDD	Call Forward All Calls Destination Deactivation Code.
- CFDD	xxxx	Enter Flexible Feature Code.

Feature operation

To enable the Call Forward Destination Deactivation feature, complete the following:

- 1 Go off-hook on the “call forward to” Directory Number of the call forwarded set and listen for dial tone.
- 2 Dial the CFDD FFC followed by DN of the call forward originator and end of dial delimiter.
- 3 Response provided.

The following responses are provided to the user of the call forwarded destination.

- 1 If originator’s call forward DN is the same as active DN of destination then the call forward feature on originator is deactivated. If the confirmation tone in LD 57 is enabled, then a confirmation tone or speech is provided to the destination set. Otherwise, silence is provided.
- 2 If the originator’s call forward DN does not match the active DN of the destination, then an overflow tone is provided to the destination set.
- 3 If the Call Forward All Calls functionality on the originator set is already deactivated, then an overflow tone is provided to the destination set.
- 4 If the originator does not have call forward all calls defined, then an overflow tone is provided to the destination set.

Deactivating Multiple Appearance DN

The Call Forward Destination Deactivation feature operation remains the same. However, if the call forward station is a Multiple Appearance DN (MADN) set, then the station’s Prime DN is considered to find the Call Forward All Calls functionality for deactivation.

If more than one MADN call forward stations have Call Forward All Calls defined and the call forward DN on one or more MADN call forward stations matches the active DN of Set B, then the call forward functionality on one or more MADN call forward stations is deactivated.

Any one of MADN call forwarded destination station is allowed to deactivate the call forward function on the call forward station by using the CFDD FFC.

Call Forward External Deny

This enhancement provides the option to restrict, on a per-telephone basis, the DN that can be programmed for Call Forward All Calls to internal DNs only. Internal DNs are defined as:

- DNs that terminate on an analog (500/2500 type) telephone
- DNs that terminate on a Meridian 1 proprietary telephone
- DNs that terminate on a data terminal defined in LD 10 or LD 11
- Attendant DNs or Centralized Attendant Service (CAS) local attendant DNs
- Listed DNs (LDNs), and
- Message Center DNs as defined in LD 23.

External DNs include (but are not limited to) trunk access codes, Coordinated Dialing Plan (CDP) steering codes, Basic and Network Alternate Route Selection (BARS/NARS) access codes, Electronic Switched Network (ESN) Location Codes, non-message center Automatic Call Distribution (ACD) numbers, Call Park numbers, and Direct Inward Services Access numbers.

When Call Forward External Deny is enabled for a telephone:

- A user trying to forward calls from an analog (500/2500 type) telephone to an external DN receives overflow tone. The telephone is not call forwarded.
- A user trying to forward calls from a Meridian 1 proprietary telephone to an external DN receives overflow tone and the lamp associated with the Call Forward key of the telephone flashes. The telephone is not call forwarded.

- A user trying to forward calls from a Meridian digital or a display telephone to an external DN receives overflow tone. The telephone is not call forwarded and one of the following messages is displayed:

Release and try again (M2317 telephones)

Release, check, and try again (M3000 telephones)

- A user trying to forward calls from a data module to an external DN does not receive overflow tone. Calls are not forwarded and one of the following messages is displayed:

Invalid data forward number (M2317 telephones)

Data calls not forwarded (M3000 telephones)

Operating parameters

External DNs cannot be used with Call Forward All Calls if Call Forward External Deny is enabled for the telephone.

Both ESN access codes and CDP steering codes are considered external DNs, and cannot be used as a Call Forward All Calls DN if Call Forward External is denied for the telephone.

The number of digits specified in LD 10 or LD 11 for the Call Forward DN must be equal to or greater than the number of digits of any other internal DN.

Attendant Administration cannot change Call Forward External Deny Class of Service.

Feature interactions

Automatic Call Distribution (ACD)

If Call Forward External Deny (CFXD) is enabled, Call Forward to an ACD DN is allowed only if the ACD DN is a message center.

Call Forward All Calls

This feature overrides other Call Forward All Calls parameters. For example, if Call Forward to Trunk Access Code (CFTA) is allowed for the customer, but Call Forward External Deny (CFXD) is enabled for the telephone, CFXD takes precedence and call forwarding to a trunk access code is denied.

Calling Party Privacy

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Network Call Forward

Call Forward External Deny restricts a telephone from being forwarded unconditionally to a number that is not on the home switch. Therefore, Call Forward External Deny and the Integrated Services Digital Network Primary Rate Interface (ISDN PRI) feature Network Call Forward are mutually exclusive.

Recovery on Misoperation of Attendant Console

Call Forward takes precedence over the Misoperation feature.

Trunk Barring

If an Originating Trunk Connection is forwarded to a barred route, it receives the intercept treatment specified in the Customer Data Block.

Feature packaging

Call Forward External Deny is included in base X11 system software.

Feature implementation

LD 10 – Allow/deny Call Forward External Deny for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	CFXA	Allow Call Forward to an external DN CFXD = Deny Call Forward to an external DN (default).

LD 11 – Allow/deny Call Forward External Deny for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
CLS	CFXA	Allow Call Forward to an external DN. CFXD = Deny Call Forward to an external DN (default).

Feature operation

No specific operating procedures are required to use this feature.

Call Forward/Hunt Override Via Flexible Feature Code

Call Forward Override provides all telephone users (having a specific Class of Service) and attendants with the ability to override Intercept Computer Call Forward (ICP-CFW), Call Forward All Calls, Call Forward No Answer, Hunting and Make Set Busy by entering a Flexible Feature Code. In order to use this feature, the originating set must have Call Forward Hunt Allowed (CFHA) Class of Service. When this feature is enabled if override is attempted, and the called party is idle, the set is rung regardless of any diversion. If the dialed set is busy and has Hunt active, the calling party will terminate on the wanted set and receive a busy indication. Sets without Call Forward/Hunt Override denied (CFHD) Class of Service will not be able to use the Call Forward/Hunt Override (CFHO) Via Flexible Feature Code (FFC) feature.

Call Forward/Hunt Override Via FFC works in network environments with Meridian 1 nodes and Meridian Customer Defined Network (MCDN) links.

Operating parameters

The Call Forward/Hunt Override FFC can only be used in predial mode from a set (for instance, it has to be dialed before dialing the DN that has Call Forward All Calls, Intercept Call Forward, Call Forward No Answer, Internal Call Forward, Hunt, or Make Set Busy active).

The Call Forward/Hunt Override FFC can only be dialed from its own node (for instance, it has to be dialed before any trunk access code).

On an ABCD set the Call Forward/Hunt Override FFC can only be configured as a predial FFC (ABCD sets are a type of German telephone).

Call Forward/Hunt Override FFC can only be used against extensions with one of the following type: HOT/MCN/MCR/SCN/SCR/Basic Rate Interface (BRI) DNs and PBX sets.

It is not possible for BRI extensions to dial a Call/Forward Hunt Override FFC.

The Call Forward/Hunt Override via FFC feature can only be used in standalone and MCDN environments. If no MCDN links are involved, no information about Call Forward/Hunt Override will be passed on to other nodes.

To get the functionality of Call Forward/Hunt Override Via FFC in an MCDN environment these enhancements must be integrated in the originating node, terminating node and any intermediate nodes.

Feature interactions

Attendant Blocking of DN

Using Call Forward/Hunt Override FFC after activation of ABDN is not allowed. Any attempt will be canceled and overflow tone will be returned.

Automatic Call Distribution (ACD)

ACD DNs are not overridden by Call Forward/Hunt Override Via FFC. Any attempt will be canceled and access denied treatment will be returned.

Individual DNs on an ACD set are overridden by Call Forward/Hunt Override Via FFC with the same limitations as for other sets.

Barge-in

Busy Verify

Break-in

Using Call Forward/Hunt Override Via FFC after activation of Barge-in, Busy Verify or Break-in is not allowed. Attempts will be canceled and overflow tone will be returned.

Using post-dial Break-in after dialing the Call Forward/Hunt Override FFC is possible after encountering a busy set, if Break-in is enabled.

Basic Rate Interface (BRI)

BRI sets are not supported; any attempt to dial Call Forward/Hunt Override from a BRI set will be ignored and access denied treatment will be returned.

BRIT

BRI TIE trunks in a Meridian Customer Defined Network (MCDN) are supported.

Secretarial Filtering

Call Forward All Calls

Call Forward No Answer

Call Forward and Busy Status

Internal Call Forward/Make Set Busy

These features are overridden by the Call Forward/Hunt Override Via FFC feature, but there are no changes to the features themselves.

Call Transfer

A set can activate Call Forward/Hunt Override Via FFC when initiating a transfer. If the transfer is completed while ringing, the Call Forward/Hunt Override will still be active and passed on to the transferred party.

Call Waiting

Call Waiting can be used even if the Call Forward/Hunt Override Via FFC feature has been activated. When a busy set with Call Waiting configured is encountered, it will terminate on Call Waiting.

Call Waiting Redirection

There is no interaction with the Call Waiting treatment component of the Call Waiting Redirection feature. However, Call Forward/Hunt Override via Flexible Feature Code does override CFNA, and thus the CFNA treatment given to unanswered Call Waiting calls by the Call Waiting Redirection feature is overridden by the CFHO feature. The incoming call will continue to be given Call Waiting treatment as if the Call Waiting Redirection feature is disabled when the CFHO feature is enabled by the calling party.

Calling Party Privacy

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 (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Camp-on

When a busy set is encountered, it is possible to Camp-on to the set, even if Call Forward/Hunt Override Via FFC has been activated.

Digital Private Network Signaling System One (DPNSS1)

DPNSS1 is only supported as an incoming trunk transferred to a MCDN environment using Call Forward/Hunt Override Via FFC.

Direct Inward System Access (DISA)

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

Do Not Disturb (DND)

This feature is not overridden by the Call Forward/Hunt Override Via FFC feature.

Flexible DN (FDN)

External Flexible DN (EFD)

It is not possible to store the Call Forward/Hunt Override FFC as an FDN or EFD.

Group Call

It is not possible to use the Call Forward/Hunt Override FFC as a Group Call DN.

Group Hunt

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.

Hunt

This feature is overridden by the Call Forward/Hunt Override Via FFC feature. If a set activating Call Forward/Hunt Override Via FFC encounters a busy set no hunt steps will be performed; the call will terminate on the DN and busy tone will be returned.

Hunt DN/External Hunt (EHT) DN

It is not possible to store the Call Forward/Hunt Override FFC as a Hunt or EHT DN.

Idle Extension Notification (IEN)

This feature can be used even if the Call Forward/Hunt Override Via FFC feature is activated. When a busy set is encountered, it is possible to place an IEN request against the set.

Intercept Computer (ICP) Call Forward

This feature is overridden by the Call Forward/Hunt Override Via FFC feature. The Call Forward/Hunt Override FFC replaces the ICP Override FFC.

Last Number Redial

The Call Forward/Hunt Override FFC and the dialed DN are stored under Last Number Redial.

Multiple Appearance Multiple Call Arrangements (MCAs)

Multiple Appearance Single Call Arrangements (SCAs)

If the Call Forward/Hunt Override FFC is used against an MCA (MCR/MCN) or SCA (SCR/SCN) DN it will override any active forward and terminate on all idle appearances. If all appearances are busy, busy treatment will be returned.

Primary Line Directory Number (PLDN)

It is not possible to store the Call Forward/Hunt Override FFC as a PLDN.

Phantom DN

This feature is not overridden by the Call Forward/Hunt Override Via FFC feature. If Call Forward/Hunt Override Via FFC is used against a phantom TN the call will be canceled and overflow tone will be given.

Phantom TN

This feature is not overridden by the Call Forward/Hunt Override FFC. If a Call Forward/Hunt Override FFC is used against a Phantom TN, the call will be canceled and overflow will be given.

Priority Override

It is possible to use Priority Override after using the Call Forward/Hunt Override FFC and encountering a busy set.

Radio Paging

If Radio Paging is activated in a call where Call Forward/Hunt Override has been used, the Call Forward/Hunt Override feature will be deactivated.

Ring Again

Network Ring Again

Using the Ring Again feature is possible after using the Call Forward/Hunt Override FFC and encountering a busy signal. Ring Again can be placed against the set for which the Call Forward/Hunt Override FFC was used (for instance, the set with CFW active should be rung by the Ring Again feature).

Ring Again No Answer

Network Ring Again No Answer

Using the Ring Again No Answer feature is possible after using the Call Forward/Hunt Override FFC and encountering an idle set that does not answer. Ring Again No Answer can be placed against the set for which the Call Forward/Hunt Override FFC was used (for instance, the set should be rung by the Ring Again No Answer feature).

Single Digit Access (SDA)

It is not possible to store Call Forward/Hunt Override FFCs in an SDA list.

Semi-automatic Camp-on (SACP)

This feature can be used even if the Call Forward/Hunt Override Via FFC feature is activated. When encountering a busy set, it is possible to activate SACP, if it is applicable.

Speed Call

The Call Forward/Hunt Override FFC cannot be stored in a speed call list.

Feature packaging

In a standalone environment, the Flexible Feature Codes (FFC) software package 139 must be provisioned to activate this feature.

For network environments, Network Attendant Service (NAS) package 159 must also be provisioned. Attendant Overflow Position (AOP) package 56 must be restricted, as it is mutually exclusive with Network Attendant Service.

Feature implementation

LD 57 – Define FFC for Call Forward/Hunt Override.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	FFC	Flexible Feature Code.
...		
CODE	CFHO	Call Forward/Hunt Override Via FFC.
CFHO	nnnn	Call Forward/Hunt Override FFC.

LD 10 – Set Class of Service for the Forward/Hunt Override Via FFC feature for analog (500/2500 type) sets.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	500	Type of telephone set.
...		
CLS	(CFHD), CFHA	Call Forward/Hunt Override Via FFC is (denied) or allowed.

LD 11 – Set Class of Service for the Forward/Hunt Override Via FFC feature for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	xxxx	Type of telephone set.
...		
CLS	(CFHD), CFHA	Call Forward/Hunt Override Via FFC is (denied) or allowed.

LD 18 – Configure ABCD key for the Forward/Hunt Override Via FFC feature.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	ABCD	Modifying 16-button DTMF.
...		
PRED	YES	Function table for pre-dial.
A	CFHO*FFC*	CFHO is assigned to key A.
B	CFHO*FFC*	CFHO is assigned to key B.
C	CFHO*FFC*	CFHO is assigned to key C.
D	CFHO*FFC*	CFHO is assigned to key D.

Feature operation

Standalone

To activate the Call Forward/Hunt Override feature, the user dials the FFC for Call Forward/Hunt Override and the DN of the wanted party. If the set is idle, the set is rung regardless of any diversion (for example, Call Forward All Calls, Intercept Call Forward, Call Forward No Answer, or Hunt) or Make Set Busy on the set.

If the set(s) have displays, the display(s) are updated. If the display on the originating set is updated when the call is answered, the Call Forward/Hunt Override FFC will no longer be displayed.

If the dialed set is busy and Hunt is active, the calling party will terminate on the wanted set and will receive busy indication.

If the dialed set is idle, but does not answer within the defined number of ringing cycles for CFNA, the call is not forwarded (that is, it continues to ring).

If the dialed set is busy, the attendant can activate Camp-on, if Camp-on is applicable. In addition, Ring Again can be placed against a set for which Call Forward/Hunt Override was used and a busy set was encountered.

Network

The user gets the same functionality in a Meridian Customer Defined Network (MCDN) as in standalone environments. The Call Forward/Hunt Override information is transmitted from the originating node to the terminating node using the Network Attendant Service (NAS) feature.

Activation of the service is call dependent; network-wide Call Forward/Hunt Override is part of the NAS feature.

Call Forward, Internal Calls

The Internal Call Forward (Internal CFW) feature operates with X11 Release 19 and allows you to selectively forward only internal calls to the Internal CFW DN.

Internal CFW is activated/deactivated on a per-telephone basis and is user programmable when Internal CFW is activated. On a Meridian 1 proprietary telephone, the Internal CFW feature (ICF) key is the only access method. On an analog (500/2500 type) type telephone, Internal CFW can be accessed by either dialing SPRE and the Internal CFW feature code (9914), or by the appropriate Flexible Feature Codes (FFCs).

All internal calls terminating on the primary (or any single appearance) DN of an Internal CFW active telephone are automatically forwarded to the programmed Internal CFW DN (refer to the operating parameters section for information on primary and secondary, and single and multiple appearance DNs).

An internal call is defined by the Internal CFW feature as one of the following:

- an extension-to-extension call
- a Direct Inward System Access (DISA) call
- an attendant-originated call
- a conference call
- a Group Call feature initiated call

- an incoming trunk call over a trunk route classified as internal (LD 16 where RCLS = INT)
- an incoming Integrated Services Digital Network (ISDN) trunk call using private numbering.

Non-internal calls are not affected by the Internal CFW feature.

Operating parameters

Call Forward All Calls takes precedence over Internal CFW, but is not a prerequisite for the Internal CFW feature. For example, if a telephone is already CFW All Calls active, it will not be allowed to activate Internal CFW at the same time. Internal CFW can only be activated if CFW All Calls is explicitly deactivated.

Also, if Internal CFW is active when trying to activate CFW All Calls, Internal CFW will automatically be deactivated.

Internal CFW operation is consistent with the CFW All Calls feature. Therefore, when a Meridian 1 proprietary telephone activates Internal CFW, the following DNs will become Internal CFW activated:

- the primary DN (key 0), regardless of whether the DN is multiple appearance or not, and
- all secondary DNs that are single appearance.

Consequently, if all the appearances of a multiple appearance DN are on non-primary Meridian 1 proprietary telephone keys, calls to these DNs will never receive Internal CFW treatment.

When an analog (500/2500 type) telephone activates Internal CFW, regardless of whether the DN is multiple appearance or not, Internal CFW becomes activated.

Internal CFW supports only the voice line on digital telephones that have both voice and data options.

On 2317 and M3000 telephones, the CFW programming screen (invoked by pressing the CFW softkey), is not displayed when the ICF key is pressed. Instead, the screen displays the previously programmed ICF number.

If an Internal CFW call is rejected, a display message is given if the telephone is digital and has a digit display module (this display message is the same as that given to a failed CFW All Calls activation request). Otherwise, overflow tone is given.

Internal CFW is not maintained through a SYSLOAD.

Internal CFW is not supported on Basic Rate Interface (BRI) telephones.

Feature interactions

Attendant Administration

This feature does not support Internal CFW.

Attendant Busy Verify

When the attendant is using this feature to call a telephone that is Internal CFW active, the call will not receive Internal CFW treatment.

Attendant-Extended Calls

When the attendant extends a call on its SRC key to a telephone that is Internal CFW active, the call on the SRC key will only receive Internal CFW treatment if it is an internal call.

Attendant Night Service

When a call to the attendant is redirected to the Attendant Night DN that is defined on an Internal CFW active telephone, the call will only receive Internal CFW treatment if it is an internal call.

Attendant Overflow

If Attendant Overflow redirects an internal call to a telephone that is Internal CFW active, the call will remain in the attendant queue, and will not receive Internal CFW treatment.

Call Forward All Calls

Call Forward Reminder Tone

If Call Forward Reminder Tone Allowed (CFRA) is in effect, whenever an analog (500/2500 type) telephone with Internal CFW active goes off hook to originate a call, the telephone sounds the reminder tone. The reminder tone is either Call Forward Dial Tone (CFDT) or Call Forward/Message Waiting Dial Tone (CFMW).

If the customer option is set to Call Forward Reminder Tone Denied (CFRD), whenever an analog (500/2500 type) telephone with internal CFW active goes off hook to originate a call, the telephone sounds either the normal dial tone (DIAL) or the Message Waiting Dial Tone (MWDt).

Call Forward, Break-In and Hunt Internal or External Network Wide

If a treated call is a transfer call and the transferring call is on the treating node, the transferred party will be considered. However, when the transferring party is not on the treating node, the transferring party will determine the treatment given.

Call Redirection by Time of Day

Call Forward, Internal Calls takes precedence over Call Redirection by Time of Day.

Call Waiting

Call Waiting Redirection

Internal CFW takes precedence over Call Waiting.

Calling Party Privacy

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Camp-On

Internal CFW takes precedence over Camp-On.

Do Not Disturb

Internal CFW takes precedence over Do Not Disturb.

Hunting

Internal CFW takes precedence over Hunting.

Flexible Voice/Data Terminal Number

Voice calls directed to a dynamic voice/data Terminal Number are forwarded, if this feature is enabled. Data calls, to a dynamic voice/data TN, are not forwarded.

Phantom Terminal Numbers (TNs)

Internal CFW cannot be enabled on a phantom TN.

Recorded Announcement for Calls Diverted to External Trunks (RANX)

The RANX feature supports call forward to an outgoing external Central Office (CO) trunk if the trunk has the RANX flag set and is located in a node with a RAN trunk.

Recovery on Misoperation of Attendant Console

Call Forward takes precedence over the Misoperation feature.

Remote Call Forward

Remote CFW Activate (RCFA), Remote CFW Deactivate (RCFD), and Remote CFW Verify (RCFV) FFCs can be used only to access CFW All Calls; they cannot be used to access Internal CFW.

Trunk Barring

If an Originating Trunk Connection is forwarded to a barred route, it receives the intercept treatment specified in the Customer Data Block.

Feature packaging

Internal CFW requires the following packages:

- Basic Call Processing (BASIC) package 1 (CFW package required but does not have to be enabled)
- 500 Set Dial Access to Features (SS5) package 73 for access to analog (500/2500 type) telephones
- Flexible Feature Codes (FFC) package 139 to implement FFC

Feature implementation

LD 10 – Add/change Internal CFW for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	500	Telephone type.
FTR	ICF 4-(16)-23 XICF	Allow Internal CFW for the specified telephone and the maximum forward DN length. Remove Internal CFW from the telephone.

LD 11 – Add/change CFW Internal Calls for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	NEW CHG	Add new data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
KEY	xx ICF 4-(16)-23 <nnnn>	Define an Internal CFW feature key for the telephone. The command consists of: xx = key number. ICF = feature mnemonic. 4-23 = the maximum forward DN length. nnnn = forward DN.
	xx null	Remove function/feature from a key.

LD 57 – Add/change Internal CFW for analog (500/2500 type) telephones using FFC.

Prompt	Response	Description
REQ	NEW, CHG, OUT	Add, change, or remove data.
TYPE	FFC	Flexible Feature Code.
CODE	ICFA ICFD ICFV	Access Code for Internal CFW Activate. Access Code for Internal CFW Deactivate. Access Code for Internal CFW Verify.
ICFA	xxxx	Internal CFW Activate code.
ICFD	xxxx	Internal CFW Deactivate code.
ICFV	xxxx	Internal CFW Verify code.

Feature operation

Meridian 1 proprietary telephone

To forward internal calls from a Meridian 1 proprietary telephone:

- 1** Press the ICF key.
- 2** Dial the number where calls are to be forwarded.
- 3** Press the ICF key.

To cancel Internal CFW from a Meridian 1 proprietary telephone:

- Press the ICF key.

Analog (500/2500 type) telephone

To forward internal calls from an analog (500/2500 type) telephone:

- 1** Lift the handset and dial SPRE 9914 (Internal CFW feature code)

— *or* —

Lift the handset and dial the Internal CFW Activate (ICFA) FFC.

- 2** Dial the number where calls are to be forwarded.

To cancel Internal CFW from an analog (500/2500 type) telephone:

- Lift the handset and dial SPRE 9914 (Internal CFW feature code)

— *or* —

Lift the handset and dial the Internal CFW Deactivate (ICFD) FFC.

Call Forward No Answer/Flexible Call Forward No Answer

Call Forward No Answer automatically forwards unanswered calls to another DN. The customer can specify the number of rings (1 to 15) before the system invokes Call Forward No Answer. The default is four rings.

Four options are available at the customer level for Call Forward No Answer:

- deny for all telephones
- route all unanswered calls to the attendant
- route all unanswered calls to the Hunt number defined for the telephone
- route all unanswered calls to the Flexible Call Forward No Answer DN defined for the telephone

Flexible Call Forward No Answer allows the customer to specify, on a per-telephone basis, where an unanswered call should be routed. This is independent of the Hunt number assigned to the telephone. This capability is implemented on a per-customer basis and can be specified for Direct Inward Dialing (DID) and non-DID call types. When activated, a call to a telephone that does not answer within the specified number of ring cycles is forwarded to the Flexible Call Forward No Answer DN (FDN) associated with that telephone.

The Flexible Call Forward No Answer operation applies only to individual DN calls of analog (500/2500 type) telephones, and not to Automatic Call Distribution (ACD) calls.

A call is forwarded under the following conditions:

- The Class of Service of the dialed telephone is Forward No Answer allowed.
- Flexible Call Forward No Answer is enabled at the customer level.
- The call has rung the specified number of times.
- The Call Forward No Answer DN (FDN) is valid and has been assigned.

System or telephone features such as Hunting and Call Forward All Calls may result in the presentation of a call to a telephone that is different from the dialed DN. In these cases, 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.

When you use Multiple Appearance DNs (MADNs), call redirection is determined based on the Terminal Number (TN) order in your DN block. To determine the TN order, print the DN block from LD 20 or LD 22 (TYPE = DNB). When a call comes in to a MADN, the system begins a search to determine how the call will be handled. Using the TN list you printed, the system performs the following search, beginning at the bottom of the TN list and working up.

- 1 Search for the first Prime DN appearance of the MADN with Call Forward All Calls activated.
- 2 If there are no Prime DN appearances, the TN at the bottom of the list controls call redirection.

Note: The search does not necessarily determine the highest or lowest numerical TN.

Operating parameters

Calls are forwarded one step only. For Call Forward No Answer enhancements, refer to the Call Forward, Second Level module.

Incoming calls on private lines with the Restricted Call Modification option enabled are not forwarded.

Flexible Call Forward No Answer DN (FDN) can be assigned to telephones with Message Waiting Allowed Class of Service. This is irrespective of the telephone's Class of Service and how forward no answer is specified in the Customer Data Block. Message Center always uses the FDN associated with the telephone to route unanswered calls.

Feature interactions

Advice of Charge for EuroISDN

Calls charged with Advice of Charge that are either transferred, extended or redirected to another set via Call Forward No Answer are charged against the last set that answers the call and the controlling set releases.

Attendant Administration

Attendant Administration can assign and change a Flexible Call Forward No Answer DN with the function key on the Attendant Console.

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Call Forward No Answer feature. If the blocked DN of the set has the Call Forward No Answer feature active when the SACP key is pressed to ring the DN, the DN will ring until answered or disconnected. No Call Forward No Answer will be done for the Attendant Blocking of DN call.

Automatic Call Distribution

The Flexible Call Forward No Answer operation does not apply to Automatic Call Distribution (ACD) calls.

Automatic Timed Recall

Flexible Call Forward No Answer timing takes precedence over Automatic Timed Recall timing. Irrespective of the relative time-out intervals for each feature, ringing continues as long as allowed by Call Forward No Answer.

Call Forward All Calls

Suppose that party A calls party B, and party B has programmed Call Forward All Calls to party C. Flexible Call Forward No Answer will forward a No Answer call at party C to the FDN associated with party B, the dialed DN.

Call Page Network Wide

PAGENET does not block a station set from being programmed to Call Forward No Answer 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 (CRTOD)

Call redirection parameters for Call Forward No Answer (CFNA) are obtained from the originally dialed Directory Number. When CRTOD is activated, unanswered calls given CRTOD treatment are forwarded with CFNA according to the time of day. No changes are made to the existing CFNA feature.

Call Waiting

If a call to a telephone gets CFNA treatment to another telephone that is busy, Call Waiting and Camp-On do not apply. The call will attempt to terminate on the original DN again.

Call Waiting Redirection

Per existing Call Forward No Answer feature operation, the call redirection parameters for CFNA are obtained from the originally dialed DN for redirected calls.

Existing Network CFNA treatment is applied to calls receiving Call Waiting treatment on sets with CFNA and the Call Waiting Redirection feature enabled if the Call Waiting call is not answered before the expiration of the CFNA timer and the CFNA DN is on another node.

Calling Party Privacy

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 (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Camp-On

When the Call Forward No Answer timer expires for a ringing camped-on call, the call is given Attendant Recall treatment instead of Call Forward No Answer treatment.

Dial Access to Group Calls

Call Forward No Answer cannot be applied to a Group Call.

Directory Number

An LDN ICI has a higher priority than a CFNA ICI. When a call is forwarded to an LDN via Flexible DN, the call is presented on an LDN ICI.

Directory Number Delayed Ringing

The Directory Number Delayed Ringing (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.

Electronic Lock Network Wide/Electronic Lock on Private Lines

For Call Forwarding, the COS and NCOS used for the forwarding call can be taken from either the forwarding set or from the forwarded set, depending on the option defined in the Customer Data Block.

For example, set B call forwards all calls to an external trunk. Set A calls set B. If OPT = CFF in LD 15 (Call Forward forwarded to party's COS and NCOS), the COS and NCOS of set B are used for forwarding the call to the trunk. If OPT = CFO (Call Forward originating party's COS and NCOS), the COS and NCOS of set A are used for forwarding the call to the trunk.

Meridian Mail Operator Revert

Prior to X11 Release 13.32, Operator Revert was used to transfer a call from an ACD Message Center (Meridian Mail). The originally dialed number was not passed on to the person that received the transferred call.

With X11 Release 13.32 and later the Called Party ID can be passed along from the ACD Message Center when Operator Revert is activated. The attendant can now activate the Message Waiting key for the Called Party while active on the redirected call by pressing the Message Indicator key.

For example, Party A calls Party B, which Call Forward No Answers to Meridian Mail. Party A dials 0 and is transferred to a message center with "live" agents. The agent receiving the call sees information for Party B along with the information for Party A, the calling party.

Multi-Party Operations

If a call is mishandled during transfer, and the customer option for Ringing No Answer is anything other than Standard, the optional treatment has priority over Call Forward No Answer options.

Multiple Appearance Redirection Prime

X11 Release 18 and later supports Multiple Appearance Redirection Prime (MARP). This feature affects call redirection operation. Refer to the MARP module in this document for details.

- If a DN is assigned as a Prime DN on a telephone and as a secondary DN on one or more telephones, the DN list is still organized as described in the preceding paragraphs. If only one prime appearance of a DN exists, however, call redirection parameters are derived from the TN of the prime appearance telephone, even though it may not be at the end of the list. A prime appearance is always the first TN used when the system looks for call redirection instructions.

- If a DN appears on analog (500/2500 type), and Meridian 1 proprietary telephones, the analog (500/2500 type) telephones are listed in numerical TN order at the top of the list. Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves its TN to the beginning of the list. A service change to a Meridian 1 proprietary telephone moves its TN to the end of the list.
- A SYSLOAD restructures the list back to numerical TN order with analog (500/2500 type) telephones at the top and Meridian 1 proprietary telephones at the bottom. Call redirection parameters continue to be derived as described in the preceding paragraphs.

Night Service enhancements

Any call which has been presented to the Attendant Overflow Position cannot be removed from the console and requeued by pressing the Make Set Busy (MSB) key. The call will only be removed if the Attendant Forward No Answer feature is active, and the Attendant Forward No Answer Timer has timed out. In this case, the call is requeued and the Attendant Overflow Position is idled.

Recall to Same Attendant

If the attendant does not answer a call and the Attendant Forward No Answer feature is equipped, the console is forced into the Position Busy state and the call routed to the first available idle attendant.

Recovery on Misoperation of Attendant Console

Call Forward takes precedence over the Misoperation feature.

Ring Again on No Answer (RANA)

If an unanswered call is forwarded to another station by Call Forward No Answer, RANA is applied to the originally dialed station.

Trunk Barring

If an Originating Trunk Connection is forwarded to a barred route, it receives the intercept treatment specified in the Customer Data Block.

Feature packaging

Call Forward No Answer/Flexible Call Forward No Answer is included in base X11 system software.

Feature implementation

LD 15 – Define Call Forward No Answer for a customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- ICI	xx CFN	Attendant Incoming Call Indicator for Call Forward No Answer, where: xx = key number (00-19).
TYPE	RDR	Release 21 gate opener.
- FNAD	(HNT) ATT FDN NO	Forward No Answer DID calls to the Hunt number. Forward No Answer DID calls to the attendant. Forward No Answer DID calls to the Flexible CFNA DN. No Answer DID calls are not forwarded.
- FNAT	(HNT) ATT FDN NO	Forward No Answer external calls to the Hunt number. Forward No Answer external calls to the attendant. Forward No Answer external calls to the Flexible CFNA DN. No answer external calls are not forwarded.
- FNAL	(HNT) ATT FDN NO	Forward No Answer local calls to the Hunt number. Forward No Answer local calls to the attendant. Forward No Answer local calls to the Flexible CFNA DN. No Answer local calls are not forwarded.
- CFNA	1-(4)-15	Number of ringing cycles before No Answer calls are forwarded (default is 4). Note: In X11 Release 9 and earlier, the FNAN prompt takes the place of the FNAT and FNAL prompts.

LD 10 – Add/change Flexible Call Forward No Answer for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(FND), FNA	(Deny) allow Call Forward No Answer.
FTR	FDN xxxx...x	Flexible Call Forward No Answer DN (if the DN Expansion package is equipped, the DN can have up to 13 digits).

LD 11 – Add/change Flexible Call Forward No Answer for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
FDN	xxx...x	Flexible Call Forward No Answer DN (if the DN expansion package is equipped, the DN can have up to seven digits).
CLS	(FND), FNA	(Deny) allow Call Forward No Answer.

LD 10 – Implement Call Forward No Answer to the Hunt DN on Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
HUNT	xxxx	Hunt DN where a No Answer call is to be routed (if the DN Expansion package is equipped, the DN can have up to 10 digits).
CLS	(FND), FNA	(Deny) allow CFNA.

LD 11 – Implement Call Forward No Answer to the Hunt DN on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(FND), FNA	(Deny) allow CFNA.
HUNT	xxxx	Hunt DN where a No Answer call is to be routed (if the DN Expansion package is equipped, the DN can have up to 10 digits).

Feature operation

No specific operating procedures are required to use this feature.

Call Forward No Answer, Second Level

Second Level Call Forward No Answer enhances Flexible Call Forward No Answer by forwarding unanswered calls twice. The following example best illustrates this enhancement.

Party A places a call to extension 5000, which does not answer. Extension 5000 has Call Forward No Answer (CFNA) allowed and extension 6000 defined as its CFNA number. The call forwards to extension 6000. This is the first level CFNA.

Extension 6000 also does not answer the call. This telephone has a Call Forward No Answer and Second Level Call Forward No Answer allowed Class of Service (FNA and SFA). As it has a CFNA number of 7000, it forwards there. This is the second level of Call Forward No Answer. Note that the forwarding DN is always obtained from the currently ringing telephone.

If extension 7000 does not answer the call, one of two things may occur:

- If the original call is a Direct Inward Dialing (DID) or internal call, the forwarded call continues to ring until answered or the calling party disconnects.
- If the original call is extended by the Attendant Console, Attendant Recall occurs.

Second Level Call Forward No Answer uses the same customer-level timer as Flexible Call Forward No Answer to determine the number of rings before forwarding a call.

Telephones with a message waiting allowed (MWA) Class of Service should have the Message Center DN defined as their FDN. Calls to these telephones forward to the Message Center and are not eligible for Second Level Call Forward No Answer.

Call Forward No Answer Second Level for Message Waiting Allowed Telephones, X11 Release 15 and later enables an SFA Class of Service to be defined on telephones with a Message Waiting Allowed (MWA) Class of Service. Thus, a message waiting indication can be activated at the originally dialed DN for Second Level CFNA calls terminating at a message center.

Requirements at the dialed DN for first-level CFNA are as follows:

- Flexible Call Forward No Answer or Hunting is allowed at the customer level for the incoming call type (DID, non-DID, or internal).
- The telephone has an FNA Class of Service.
- The terminating call has rung for the number of rings specified for CFNA or DFNA in the Customer Data Block (LD 15).
- The forwarding DN (Flexible Call Forward No Answer DN [FDN], Coordinated Dialing Plan DN [CDP DN], External Flexible DN [EFD], Hunting [HNT], or External Hunt [EHT]) must be distinct from the ringing DN and be a valid number within the system.

Requirements at the originally called telephone DN for Second Level Call Forward No Answer are as follows:

- Flexible Call Forward No Answer or Hunting is allowed at the customer level for the incoming call type (DID, non-DID, or internal).
- The telephone has SFA and FNA Class of Service.
- Call Forward No Answer has occurred only once prior to ringing this telephone.
- The forwarding DN (FDN, EFD, Hunt, or EHT) must be distinct from the ringing DN and must be a valid number within the system.

The order of precedence for activation of first level Call Forward No Answer is as follows:

- Call Forward All Calls
- Message Waiting
- Call Forward No Answer, and
- Attendant Recall.

The order of precedence for activation of Second Level Call Forward No Answer is as follows:

- Call Forward All Calls
- Second Call Forward No Answer (CFNA calls only), and
- Attendant Recall.

Operating parameters

A maximum of two levels of Call Forward No Answer are allowed for an unanswered call.

Calls directed to an attendant or Automatic Call Distribution (ACD) Message Center cannot have Second Level Call Forward No Answer.

Attendant Administration cannot change the SFA/SFD Class of Service. Error messages are generated if changes made to the Forward No Answer or Hunt Class of Service conflict with the SFA/SFD Class of Service.

Feature interactions

Call Detail Recording on Redirected Incoming Calls

The Call Detail Recording on Redirected Incoming Calls feature does not affect how these features operate; 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

Second Level Call Forward No Answer uses the final (ringing) telephone in the chain to obtain Class of Service and forwarding DN information.

First level treatment operates in the following manner. Suppose that Party A calls Party B, and Party B has programmed Call Forward All Calls to Party C. Flexible Call Forward No Answer will forward a No Answer call at Party C to the forwarding directory number associated with Party B, the dialed DN.

Call Forward by Call Type (CFCT)

To implement CFCT for Second Level Call Forward No Answer eligible calls, the originating party's call type is checked. If it is internal, the call is forwarded to the Flexible Call Forward No Answer DN (FDN). If it is external, the call is forwarded to the External Flexible DN (EFD).

Call Forward No Answer

Second Level Call Forward No Answer applies to the Hunt and Flexible Call Forward No Answer options. This is implemented by defining the FNAD, FNAT, or FNAL prompts in LD 15 as FDN or HNT. If the attendant option is defined, an unanswered call goes to the attendant queue and is not eligible for Second Level Call Forward No Answer.

Note: The FNAN prompt is replaced by two new prompts, FNAT and FNAL, in X11 Release 10 and later.

Call Redirection by Time of Day (CRTOD)

Existing Second Level Call Forward No Answer allows unanswered calls to receive Call Forward No Answer treatment twice. CRTOD parameters are obtained from the last rung Directory Number. A maximum of two levels of CFNA is allowed for an unanswered call.

Call Waiting Redirection

The existing Second Level CFNA treatment is applicable to Call Waiting calls redirected by CFNA (first level) with the Call Waiting Redirection feature which are still not answered at the last rung DN.

Calling Party Privacy

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemmed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Directory Number Delayed Ringing

The Directory Number Delayed Ringing (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.

**Distinctive
New Distinctive Ringing**

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

Flexible Call Forward No Answer

If Second Level Call Forward No Answer is disabled, Flexible Call Forward No Answer operates as described.

Hunting

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.

Message Centers

There are three types of Message Centers:

- Automatic Call Distribution (ACD)
Calls forwarded to an ACD Message Center are queued, so that no CFNA timeout occurs.

- Attendant
Calls forwarded to an Attendant Message Center are queued, so no CFNA timeout occurs.
- DN
An indirect call forwarded to a DN Message Center and not answered by an operator is forwarded to a second level if SFA for DN-MC.

Note: It is recommended that DN Message Center stations be denied CFNA, Call Forward Busy (CFB), Call Forwarding (CFW), and Call Hunting (HUNT).

Multiple Appearance Directory Numbers (MADNs)

Call redirection parameters like Hunt and Call Forward No Answer are derived from the TN data block (LD 20 TNB) of the prime appearance of the called MADN. If there is more than one prime appearance, the parameters are selected from the last TN in the DN block for the DN (LD 22 DNB).

If more than one prime appearance of a MADN exists, the following information must be considered prior to configuring call redirection parameters for MADNs.

The DN Block organizes MADN information in numerical TN order. The TN with the highest numerical value (000-0-06-03) is placed at the beginning of the list. The list then continues in descending order with the lowest numerical TN (000-0-03-01) at the end of the list. Service change activity affects the organization of the DN list as described in the following paragraphs.

- If a telephone undergoes Service Change, its TN is moved to the beginning of the DN list, irrespective of the numerical value. This telephone remains at the beginning of the list until another Service Change or a SYSLOAD.
- If a DN is assigned as a Prime DN on a telephone and as a secondary DN on one or more telephones, the DN list is still organized as described in the preceding paragraphs. If only one prime appearance of a DN exists, however, call redirection parameters are derived from the TN of the prime appearance telephone, even though it may not be at the end of the list. A prime appearance is always the first TN used when the system looks for call redirection instructions.

- If a DN appears on an analog (500/2500 type), and Meridian 1 proprietary telephones, the analog (500/2500 type) telephones are listed in numerical TN order at the top of the list. Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves its TN to the beginning of the list. A Service Change to a Meridian 1 proprietary telephone moves its TN to the end of the list.
- A SYSLOAD restructures the list with analog (500/2500 type) telephones at the top and Meridian 1 proprietary telephones at the bottom. Call redirection parameters continue to be derived as described in the preceding paragraphs.

Recovery on Misoperation of Attendant Console

Call Forward takes precedence over the Misoperation feature.

Slow Answer Recall

When a Call Forward No Answer call is unanswered at a telephone eligible for Second Level Call Forward No Answer, and the call was extended by an attendant, Second Level Call Forward No Answer takes precedence over Slow Answer Recall. If the telephone has a Second Level Call Forward No Answer Denied Class of Service, the system performs Slow Answer Recall for the unanswered call.

Trunk Barring

If an Originating Trunk Connection is forwarded to a barred route, it receives the intercept treatment specified in the Customer Data Block.

Feature packaging

Call Forward No Answer Second Level is included in base X11 system software.

Feature implementation

LD 15 – Assign Message Center to allow the Message Waiting indication.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener
CUST	xx	Customer number.
- OPT	(MCX), MCI	(Exclude) include Message Center.

LD 10 – Add/change Second Level Call Forward No Answer for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(FND), FNA (MWD), MWA (SFD), SFA	(Deny) allow Forward No Answer. (Deny) allow Message Waiting. (Deny) allow second level CFNA Note: To implement SFA in X11 Release 14 and earlier, specify both FNA and MWD. X11 Release 15 and later allow SFA to be implemented with an MWA Class of Service.
FTR	FDN xxxx...x	Flexible Call Forward No Answer DN.

LD 11 – Add/change Second Level Call Forward No Answer for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
FDN	xxx...x	Flexible Call Forward No Answer DN.
CLS	(FND), FNA (MWD), MWA (SFD), SFA	(Deny) allow Forward No Answer. (Deny) allow Message Waiting. (Deny) allow Second Level CFNA Note: To implement SFA in X11 Release 14 and earlier, specify both FNA and MWD. X11 Release 15 and later allow SFA to be implemented with an MWA Class of Service.

Feature operation

No specific operating procedures are required to use this feature.

Call Forward Save

This feature enables sets to have their Call Forward (CFW) status saved as part of the data dump routine, thereby allowing the set to have its CFW status reinstated following a SYSLOAD. Whether a set has Call Forward activated following a SYSLOAD is dependant on the response to the Call Forward Save (CFWS) prompt in LD 17, and the status of the CFW as of the last successful data dump:

- If CFWS is set to NO (the default), no sets will have their CFW saved and all sets will have CFW set to the default (deactivated) following a SYSLOAD; or
- If CFWS is set to YES, all sets will have their CFW status saved and set to the state they were in as of the last successful data dump following a SYSLOAD.

Operating parameters

There are no feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

Call Forward Save is part of X11 base software.

Feature implementation

LD 17 – Add or change Call Forward Save on data dump.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CFN PARM	Configuration Data Block. Release 19 gate opener.
...		
MSCL	...	
- CFWS	(NO), YES	Call Forward Save on SYSLOAD.

Feature operation

If CFWS = YES, the Call Forward status of every set is saved at data dump.
Should a SYSLOAD occur, all sets are returned to the Call Forward state that they were in as of the last successful data dump.

Call Hold, Deluxe

Deluxe Call Hold (DHLD) offers two options: Individual Hold and Exclusive Hold.

Individual Hold indicates only those calls placed on hold on Meridian 1 proprietary telephones in a multiple appearance, single call arrangement. When a user puts a call on hold, normal hold (winking) is indicated at the user's telephone only. A slow flicker is shown at all other telephones with the multiple appearance.

With Exclusive Hold Class of Service, multiple appearances of a line remain exclusive to the user's telephone, even when the call is put on hold. While hold (winking) is indicated at the telephone holding the call, the Directory Number (DN) lamp is steadily lit on all other appearances of the held call. The Privacy Release key must be used for access by other appearances of the DN. Telephones with the Exclusive Hold capability can be held at any single-line, SL-1, or Meridian digital telephone with an appearance.

Operating parameters

Exclusive Hold has priority over Individual Hold. If a telephone is equipped with Exclusive Hold, the other telephones receive the Exclusive, not Individual, Hold indication.

Feature interactions

Attendant Administration

Deluxe Hold (DHLD) cannot be administered through the Attendant Administration feature.

Attendant Break-In

The attendant cannot break in to a call on hold.

Call Park on Unsupervised Trunks

A Disconnect Timer applies to held calls on all trunks on the route. All answered calls in the held state will be disconnected if left in that state for an extended period.

Called Party Control on Internal Calls

The calling party and called party can put either party on hold. However, the calling party cannot release the call while the called party is on hold. The called party is permitted to release the call.

Calling Party Privacy

When a user takes an incoming trunk call with the Privacy Indicator off of hold, no Calling Party Number or Name will be displayed on the set.

Enhanced Override

Forced Camp-On

Priority Override

Neither held calls nor telephones with calls on hold may be camped on or overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-on or Priority Override.

Mixed DNs

If a call is put on Exclusive Hold in a mixed Directory Number (DN) group, other telephones with an appearance of the DN that go off hook are not included in the call, nor do they receive any tone. Privacy Release cannot be used with exclusively held calls in a mixed-appearance DN group.

Multiple Appearance Directory Number

If two or more Meridian 1 proprietary sets of the same Directory Number are in conference due to privacy release or privacy override, then only one set can hold the call at a given time.

Feature packaging

Deluxe Hold (DHLDD) package 71 has no feature package dependencies.

Feature implementation

LD 15 – Enable/disable Individual Hold for the customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(IHD), IHA	(Disable) enable Individual Hold.

LD 10 – Enable/disable Exclusive Hold for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XHD), XHA	(Disable) enable Exclusive Hold.

LD 11 – Enable/disable Exclusive Hold for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(XHD), XHA	(Disable) enable Exclusive Hold.

Feature operation

No specific operating procedures are required to use this feature.

Call Hold, Individual Hold Enhancement

Individual Hold Enhancement (IHE) expands the functionality of the Individual Hold feature. This enhancement is part of Deluxe Call Hold. Individual Hold Enhancement provides, in a single line Multiple Appearance Directory Number (MADN) environment, the following options:

- Lamp Option
- Release Option

With the Lamp Option allowed (HLP A), if one of the single line MADNs is on hold, all other appearances of the same single line MADN now remain steadily lit.

With the Lamp Option denied (HLP D), the existing Individual Hold functionality is retained.

With the Release Option allowed (HRL A), if the user presses the Hold key while another member of the same single line MADN is still active on the call, the set that put the call on hold is now disconnected from the call.

With the Release Option allowed (HRL A), if the user is the only active member of the single line MADN on the call, pressing the hold key puts the call on hold as per the existing operation.

With the Release Option denied (HRL D), the existing Individual Hold functionality is retained.

Table 29 shows the lamp status of a single line MADN when the Lamp (HLPD/HLPD) and Release (HRLA/HRLD) Options are configured in Overlay 15.

Table 29
Lamp Status of a single line MADN with Lamp (HLPD/HLPD) and Release (HRLA/HRLD)
Options configured

OPT in LD 15	Held or Disconnected Appearance	Other Appearances
IHA, HLPD, HRLD (See Note 1)	wink (held appearance)	flicker
IHA, HLPD, HRLD	wink (held appearance)	steadily lit
IHA, HLPD, HRLA (See Note 2)	steadily lit (disconnected appearance)	steadily lit
IHA, HLPD, HRLA (See Note 3)	wink (held appearance)	flicker
IHA, HLPD, HRLA (See Note 2)	steadily lit (disconnected appearance)	steadily lit
IHA, HLPD, HRLA (See Note 3)	wink (held appearance)	steadily lit
Note 1: In this situation, the existing functionality of Individual Hold is retained. Note 2: In this situation, a single line MADN member is disconnected from the active call. Another member of the same single line MADN remains active on the call. Note 3: In this situation, a single line MADN member places a call on hold. No other member of the same single line MADN is active on the call.		

Operating parameters

For Individual Hold Enhancement to be activated, Individual Hold Allowed (IHA) and the Lamp (HLP/HLPD) and Release (HRLA/HRLD) Options must be defined in the Customer Data Block. Also, a single line MADN must be defined for the sets.

The Lamp Option applies to Meridian 1 proprietary sets with a call on hold and to analog (500/2500 type) sets which perform the Permanent Hold operation.

If the single line MADN member is an analog (500/2500 type) set, the lamp option only applies when Permanent Hold is initiated from that set.

The Release Option only applies when two or more parties with the same single line MADN are active in a conference call.

The Release Option (HRLA/HRLD) only applies to Meridian 1 proprietary sets with a Hold key or to Meridian 1 proprietary sets with Automatic Hold enabled (CLS = AHA) in Overlay 11.

For Meridian 1 proprietary sets with the Release Option allowed (HRLA), the Conference (A03/A06) and Transfer (TRN) keys are ignored if more than one single line MADN is active on a Conference call.

For analog (500/2500 type) sets, Transfer, Conference, and Permanent Hold work as per the existing operation.

Feature interactions

Automatic Call Distribution

When an Individual Directory Number (IDN) on an Automatic Call Distribution (ACD) set is configured as a single line MADN, both the Lamp and Release Options of the Individual Hold Enhancement feature are applicable to that IDN.

Multi-Party Operations

Call Join

If a conference is set up using Call Join, Individual Hold Enhancement still functions.

When the Lamp Option is allowed (HLPa) and the user presses the Hold key on an active single line MADN in Call Join operation, the lamps of all other appearances of the same single line MADN are steadily lit.

When the Release Option is allowed (HRLA) and the user presses the Hold key on an active single line MADN in order to enlarge a conference using the Call Join feature, the following occurs:

- The call is disconnected if another member of the same single line MADN is still active on the call.
- The call is placed on hold if the active single line MADN is the only active member of the single line MADN on the call.

Conference (A03/A06, C6A)

With the Release Option allowed (HRLA), the Conference key is ignored on the Meridian 1 proprietary set, when more than one Multiple Appearance Directory Number (MADN) is active in the conference.

Exclusive Hold

The Exclusive Hold feature takes precedence over the Lamp Option of the Individual Hold Enhancement feature. The lamps on all other single line appearances of the MADN are steadily lit while the call is held on one of the single line MADNs. When the Lamp Option is enabled (HLPa), the existing Exclusive Hold functionality is retained.

With the Release Option allowed (HRLA) and more than one single line MADN active in a conference, the call is disconnected when the hold key is pressed.

Permanent Hold on an analog (500/2500 type) set

When an analog (500/2500 type) set puts a call on Permanent Hold, the lamp status remains steadily lit on all other members of the same single line MADN if the customer has the Lamp Option allowed.

With the Release Option configured, if an analog (500/2500 type) set with the same single line MADN initiates Permanent Hold, the call is not dropped even if other appearances are active on this call. This is as per the existing functionality.

Switch Hook Flash

When a single line MADN member uses Switch Hook Flash to place a call on hold, all other appearances of the same single line MADN remain lit as per the existing operation.

When an analog (500/2500 type) set with the same single line MADN initiates hold by Switch Hook Flash, the existing functionality is retained.

Transfer (TRN)

For Meridian 1 proprietary sets with the Release Option allowed (HRLA), the transfer feature is disabled on the single line MADN, while more than one appearance is active in the conference.

For analog (500/2500 type) sets, transfers work as per the existing operation.

Feature packaging

Individual Hold Enhancement requires Deluxe Call Hold (DHLD) package 71.

Feature implementation

LD 15 – Configure Individual Hold Allowed, the Individual Hold Lamp Option and the Individual Hold Release Option in the Customer Data Block.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Features and options data.
CUST	xx	Customer number.
OPT	IHA	Individual Hold Allowed.
	HLPA	Individual Hold Lamp Option Allowed. HLPD = Individual Hold Lamp Option Denied (default).
	HRLA	Individual Hold Release Option Allowed. HRLD = Individual Hold Release Option Denied (default).
...		

LD 10 – Ensure that Call Transfer Allowed (XFA), Enhanced Hot Line Denied (EHTD), Exclusive Hold Denied (XHD), and Permanent Hold (PHD) are configured.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	Analog (500/2500 type) set data block.
TN	I s c u c u	Terminal Number. For Option 11C.
...		
CLS	XFA EHTD XHD	Call Transfer Allowed. Enhanced Hot Line Denied. Exclusive Hold Denied.
...		

FTR	PHD	Permanent Hold.
...		

LD 11 – Ensure that Privacy Override Allowed (POA) and Exclusive Hold Denied (XHD) are configured.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	xxxx	Telephone type where xxxx is: SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2616, 2317, or 3000.
TN	I s c u c u	Terminal Number. For Option 11C.
...		
CLS	POA XHD	Privacy Override Allowed. Exclusive Hold Denied.
...		
KEY	xx SCR yyyy	Single Call Ringing key, where: xx = key number SCR = Single Call Ringing yyyy = DN KEY may also be defined as HOT (Two-way), PVN, PVR, or SCN.

Feature operation

With the Release Option allowed (HRLA), the user of a single line MADN disconnects from an active call by

- pressing the release key or
- pressing the hold key to disconnect from the active call while another member of the same single line MADN is still active on the call.

However, if a user is the only active member of the single line MADN on the call with the Release Option allowed (HRLA), pressing the hold key puts the call on hold as per the existing operation.

With the Release Option denied (HRLD), the existing functionality is retained. Therefore, the user must press the release key to disconnect from the active call. When the hold key is pressed, the call is not released.

Call Hold, Permanent

Permanent Hold holds an active call on a 2500 telephone without attendant assistance. Calls cannot be originated or received while in the Permanent Hold mode. Incoming calls receive a busy signal if Hunting is not defined for the called telephone.

If the telephone user goes on hook after activating Permanent Hold, the telephone periodically receives a one-second ring burst as a reminder that the call is on hold. This interval is defined at the customer level.

Operating parameters

Permanent Hold is allowed only when a call is active and if the Class of Service allows transfer.

If Busy Verify is attempted on a telephone with a call on Permanent Hold, busy tone is received.

Override cannot be used on a telephone with a call on Permanent Hold.

Permanent Hold cannot be activated during a Conference call.

Two Meridian 1 parties, connected trunk to trunk, can activate Permanent Hold at the same time if they both have the feature defined. After being placed on Permanent Hold, the second party can flash the switchhook and dial #4 to hold the call. After flashing the switchhook, any dialing sequence other than the access code results in overflow tone.

Permanent Hold is not supported on station-to-station calls.

If the telephone activating Permanent Hold is part of a mixed arrangement with another 2500, or Meridian 1 proprietary telephone, the following events occur:

- If a different telephone with the same DN goes off hook, that telephone connects to the held party.
- When Permanent Hold is activated, the DN lamp on the Meridian 1 proprietary telephone remains steadily lit.

If the telephone activating Permanent Hold goes off hook, it is automatically reconnected to the held call.

If the held party disconnects, the hold reminder ring stops.

Feature interactions

Attendant Break-In

The attendant cannot break in to a call on hold.

Audible Reminder of Held Call (ARCH)

If Audible Reminder of Held Call (ARCH) is enabled in LD 15, the Audible Reminder of Held Call (ARCH) timer takes precedence over the Permanent Hold timer.

Call Park on Unsupervised Trunks

A Disconnect Timer applies to held calls on all trunks on the route. All answered calls in the held state will be disconnected if left in that state for an extended period.

Calling Party Privacy

When a user takes an incoming trunk call with the Privacy Indicator off of hold, no Calling Party Number or Name will be displayed on the set.

Enhanced Override

Forced Camp-On

Priority Override

Neither held calls nor telephones with calls on hold may be camped on or overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-on or Priority Override.

Privacy

A call placed on Permanent Hold has Privacy removed. Privacy is reinstated when the call is removed from Permanent Hold.

Feature packaging

Special Service for 2500 Sets (SS25) package 18 includes Permanent Hold and has no feature package dependencies.

Feature implementation

LD 15 – Set Permanent Hold reminder ring timer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB TIM	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- PHDT	1-(30)-63	Permanent Hold reminder ring timing in two-second increments (i.e., 30 = 60 seconds).

LD 10 – Enable/disable Permanent Hold for 2500 telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	XFA	Allow transfer.
FTR	PHD	Enable Permanent Hold.

Feature operation

To place a call on hold, follow these steps:

- 1** While on an active call, flash the switchhook or press the Link key.
- 2** Dial #4, or the Flexible Feature Code (FFC), if enabled.
- 3** Hang up.
 The Permanent Hold timer begins.

To retrieve a held call, lift the handset.

Call Park

Call Park (CPRK) places a call in a parked state, similar to hold, where it can be retrieved by any Attendant Console or telephone. A parked call must have an access ID, also known as a Park DN. This is done by parking the call on a System Park DN or on any telephone Directory Number (DN) in the system. A parked call does not occupy a DN, nor is there a lamp to indicate its presence.

Up to 50 System Park DNs are available per customer. There is no limit to the number of DNs that can be used as a Call Park access ID. However, only one call at a time can be parked against any particular telephone or System Park DN.

In addition, the system can offer a default access ID. If System Call Park is defined, the default access ID for the following equipment is the next available System Park DN for the equipment:

- Attendant Consoles
- SL-1 telephones
- M3000 telephones, and
- Meridian Digital Telephones equipped with digit display or display screens.

If System Park DNs are not defined for the customer, the default access ID is the DN of the telephone where the call was parked. An attendant must press the Park key and enter a DN if System Park DNs are not defined.

Park the call, then page the person called. The person called then picks up the call directly or through the attendant. Call Park also enables the telephone that originally receives the call to park it so that another telephone can retrieve it later. The telephone placing the call in Park is free to make or answer other calls.

Calls can be parked from telephones or Attendant Consoles with the Park key/lamp pair or Special Prefix (SPRE) code. Parked calls not retrieved within a specified time (30 to 240 seconds) are recalled to the telephone that parked it. Music for parked calls can be provided if Music (MUS) package 44 is installed.

If a call is parked on a System Park DN, it is recalled to the attendant who parked it if the parking attendant is idle. If the parking attendant is busy, the call is presented to any idle attendant.

If a call is parked on a telephone DN, the recall is placed in the attendant queue and presented to any available attendant. In all cases, parked calls recalled to the attendant appear on the Recall Incoming Call Identification (ICI) key, if defined.

The Park DN of the most recently parked call can be redisplayed on Meridian 1 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.

Operating parameters

Call Park is not available for calls on Dial Intercom keys or for calls on analog (500/2500 type) telephones designated as Dial Intercom telephones.

Call Park is not permitted when Privacy Release or Conference is active.

Calls parked from Meridian 1 proprietary telephones and analog (500/2500 type) telephones are recalled to the telephone that parked the call.

When a Multiple Appearance Single Call telephone mix (the same DN appears on Meridian 1 proprietary telephones, and single-line telephones) is parked, other appearances are not automatically bridged to the parked call when going off hook. The call can be retrieved by another Multiple Appearance DN (MADN) telephone only by dialing the Call Park retrieval code and the DN.

Remote access (e.g., Centralized Attendant Service or Direct Inward System Access) for parked parties is not permitted.

Private lines, attendant DNs, Automatic Call Distribution (ACD), and Direct Inward System Access (DISA) DNs are not valid park numbers.

Trunks without disconnect supervision cannot be parked.

Parked calls are not retained during initialization or SYSLOAD.

Parked calls cannot be accessed with the Automatic Call Distribution (ACD) In-calls key. If parked access from Automatic Call Distribution (ACD) positions is required, a DN key must be provided.

A parked call recall cannot be placed on hold by the attendant.

A call transferred to the attendant by the Conference key on a Meridian 1 proprietary telephone cannot be parked by the attendant. A call transferred to the attendant by the Transfer key on a Meridian 1 proprietary telephone can be parked by the attendant.

Feature interactions

AC15 Recall: Transfer from Meridian 1

If party Z parks the call initiated by party X (an external caller), then the AC15 Recall: Transfer from Meridian 1 cannot be used to call party Y. Party Z can neither park, selectively, one member of a split trunk nor park a whole split trunk. This avoids a recall to an attendant on the recall originating node that would not be able to send a recall to toggle from one party to another.

Advice of Charge for EuroISDN

When a set parks a call charged with Advice of Charge, the calling party continues to be charged until the call is answered by another set.

Access Restrictions and Class of Service

A call can be parked on any DN, regardless of its Class of Service. Access to a parked call is governed by the same Class of Service restrictions for normal trunk-to-telephone call processing. Table 30 details the restrictions. These restrictions can be overridden with the Authorization Code.

Table 30
Accessing telephone Class of Service

Parked call type	Accessing telephone Class of Service		
	FRE	FR1	FR2
Telephone	allowed	allowed	allowed
CO/FX/WATS	denied	denied	denied
DID Trunk	denied	denied	denied
TIE trunk	allowed	allowed	denied

Attendant Blocking of Directory Number

It is not possible to park an Attendant Blocking of DN call. If a Call Park call recalls to a blocked DN, the recall will be treated as if the DN is in a ringing state.

Attendant Break-In

The attendant cannot break in to a parked call.

Automatic Call Distribution (ACD)

Calls parked by ACD agents are recalled to the ACD DN queue and presented to any available agent.

Automatic Redial (ARDL)

When an ARDL call is not accepted by the calling party, the Call Park (PRK) key is ignored if pressed.

Busy Lamp Field

A busy lamp field can be equipped to display the status of System Park DNs.

Call Detail Recording (CDR)

Call Detail Recording (CDR) records for Call Park are similar to the start and end records generated when a call is transferred or terminated. When a call is parked, a Call Detail Recording (CDR) start record is generated if one has not already been generated by another feature. A CDR record is not generated when the parked call is accessed. A CDR end record is generated when the trunk call is terminated or when a parked call disconnects.

Call Detail Recording on Redirected Incoming Calls

There is no interaction with Call Detail Recording on Redirected Incoming Calls, as there is no “N” record generated in a Call Park scenario.

Call Forward

A recalled parked call to telephones with Call Forward, Call Forward Busy, or Call Forward No Answer (CFNA) is not forwarded.

Call Page Network Wide

A station set or Attendant Console that parks an external PAGENET uncontrolled call is not blocked. However, an external PAGENET controlled call is blocked.

Call Park on Unsupervised Trunks

A 14-second Disconnect Timer applies to parked calls on all trunks on the route. All answered calls in the parked state will be disconnected if left in that state for an extended period.

Call Waiting

A recall of a parked call is not presented in the Call Waiting mode. If an internal telephone is in the parked state, Call Waiting to that telephone is not provided.

Centralized Attendant Service (CAS)

Call Park is limited to the local Meridian 1 for systems equipped with CAS. Call Park cannot be accessed from release-link trunks.

**Conference
Call Transfer**

A parked call can be accessed after Conference or Call Transfer is activated.

Console Presentation Group (CPG)

If the attendant who parked a call on the System Park DN is busy when that call is recalled and the parking attendant does not belong to the same CPG specified for the tenant of the calling station, the parked call is presented to an idle attendant in the same CPG specified for the calling station. If no attendant in that CPG is available to receive the recall, the parked call is queued until one of the attendants in the CPG becomes idle.

Dial Access to Group Calls

Call Park cannot be applied to a Group Call.

Do Not Disturb (DND)

Calls can be parked on telephone DNs that are in the Do Not Disturb mode (DND). Telephones in the Do Not Disturb (DND) mode can park a call or access a parked call. Recall of a parked call to a DND telephone is recalled to the attendant.

INIT ACD Queue Call Restore

Parked calls are restored by ACDR as new incoming calls to the ACD DN.

Make Set Busy

Recall of a parked call to a telephone in the Make Set Busy mode is intercepted by the attendant.

Multi-Tenant Service

If the attendant who parked a call on the System Park DN is busy when that call is recalled and the parking attendant does not belong to the same Console Presentation Group (CPG) specified for the tenant of the calling station, the parked call is presented to an idle attendant in the same CPG specified for the calling station. If no attendant in that CPG is available to receive the recall, the parked call is queued until one of the attendants in the CPG becomes idle.

M1250/M2250 Attendant Console

The Call Park access code and the Park DN are displayed for parked call recalls.

Privacy Release

When a call from a Meridian 1 proprietary telephone is parked, that telephone cannot activate Privacy Release. For example, Party A calls Party B. Party B parks the call. Party A cannot activate Privacy Release.

Private Line Service

Private lines cannot park a call.

QCW4 Attendant Console

When a parked call returns to the console, the console shows an attendant display (DLEN in LD 12) of eight digits with only the Special Prefix (SPRE) code and the Park DN when a parked call recalls to the console. (Press the Display Destination key twice for the Park DN.) An attendant display of 16 digits shows the SPRE, the Call Park access code, and the Park DN for parked call recalls.

Recall After Parking

This enhancement to Call Park causes a parked call to be recalled to the attendant or night DN if the attendant is in Night Service, rather than to the parking telephone, if not answered within a customer-defined period of time (two-minute maximum). The call may be external or internal.

The recall to the attendant appears on the Recall ICI key. If the attendant is in Night Service, the recall occurs to the night DN. If the night DN is busy, the call is queued if it is an external call.

Speed Call**Autodial**

Speed Call or Autodial can be programmed to park calls or access parked calls.

Traffic measurements

TFC007 is included for Call Park. It provides traffic measurements for the following:

- system park usage
- system park overflow
- telephone park usage
- park access

- park recall, and
- average waiting time.

Feature packaging

Call Park (CPRK) package 33 has no feature package dependencies.

Feature implementation

LD 15 – Enable or disable Call Park.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(CPD), CPA	(Disable) enable Call Park.

LD 50 – Add/change or print Call Park. This overlay must be defined for Call Park operation.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CPK	Call Park data block.
CUST	xx	Customer number.
CPTM	30-(45)-240	Parked call recall time in seconds (the default is 45 seconds).
SPDN	(0)-50 xxxx	Number of contiguous System Park DNs and the first System Park DN. The default 0 (zero) disables System Park DN capability, but allows Telephone Park DNs. If the DN Expansion package is equipped, the System Park DN can have up to seven digits.
MURT	0-511	Music route number for parked calls.

LD 10 – Allow or deny access to Call Park for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XFD), XFA	(Deny) allow access to Call Park.

LD 11 – Add or change a Call Park key on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx PRK	Add a Call Park key (key number must be 17 for the M2317 and 31 for the M3000).

LD 12 – Add or change a Call Park key on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250, 2250	Attendant Console type.
TN	l s c u	Terminal Number.
KEY	xx PRK	Add a Call Park key (key number can be 00-19 on the M2250).

Feature operation

To park a call with the Park key, follow these steps:

- Press **Park** twice.
If there is a System Park extension, the call is parked on it. Otherwise, it is parked on your extension.

To park a call on an extension other than the System Park extension, follow these steps:

- 1 Press **Park**.
- 2 Enter the extension number.
- 3 Press **Park** again.

To park a call using SPRE codes, follow these steps:

- 1 Press **Transfer** or **Conference**.
- 2 Dial SPRE 71.

You can dial an extension number to park the call, or you can use the System Park extension, chosen automatically. It shows on your telephone's display, if equipped.

- 3 Press **Transfer** or **Conference** again.

To retrieve a parked call, follow these steps:

- 1 Select a free extension.
- 2 Dial SPRE 72.
- 3 Dial the extension where the call is parked.

Call Park on Unsupervised Trunks

This enhancement to the Call Park feature allows Central Office (CO), FEX, and Wide Area Telephone Service (WATS) trunks, without disconnect supervision, to be call-parked. All other trunk types without disconnect supervision cannot be parked. The Disconnect Timer (DCTI) is used to prevent phantom calls from ringing beyond the set time. Answered calls in the held, parked, camped-on, or ringing state are disconnected when the DCTI times-out.

This enhancement also allows Direct Inward System Access (DISA) on CO, FEX, and WATS trunks without disconnect supervision. DISA on unsupervised trunks does not intercept to the attendant, but is subject to Timed Forced Disconnect Timer, which prevents the CO trunk from being seized if the far end hangs up.

Operating parameters

The Disconnect Timer applies not only to Call Park but also to all trunks on the route. All answered calls in the held, parked, ringing, or Camp-On states will be disconnected if left in that state for an extended period (this even applies to calls in a call waiting queue type).

Feature interactions

Attendant Calls Waiting Indication

If all the attendants are busy and a Call Park Recall occurs, the recall is placed in the calls waiting queue. If the recalled station is busy when the recall occurs, the Disconnect Timer (DCTI) temporarily suspends timing until the recall is presented. After the recall is presented, the Disconnect Timer continues timing for the remainder of the period.

Automatic Call Distribution (ACD)

If all the ACD agents are busy and a Call Park Recall occurs, the recall is placed in the ACD DN queue.

Feature packaging

Call Park on Unsupervised Trunks is included in Direct Inward System Access (DISA) package 22.

Feature implementation

LD 16 – Respond to the DCTI prompt as follows:

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
...		
DCTI	(0)-511	Time, in seconds, that an extension is allowed to ring or be on hold or Call Park before the trunk is disconnected. 0, the default, or <CR> means that the condition goes on indefinitely. Respond with a value equal to the number of seconds a set is to ring after recall, plus the value of the Call Park Recall Timer (which is defined in LD 50 in response to the CPTM prompt). The value stored, which will be the closest lower multiple of four, is echoed back upon entry.

Feature operation

Feature operation for Call Park on Unsupervised Trunks is the same as that for Call Park.

Call Party Name Display

Call Party Name Display (CPND) identifies the calling or called number in addition to the DN. The identifier (for example, the name) associated with a DN on telephones with an alphanumeric display is defined in LD 95.

Whenever the calling party's DN displays on the terminating telephone, the calling party's name also appears. Likewise, on an internal call, the called party's name is appended to the displayed DN on the originator's telephone, as soon as a valid DN is completely dialed.

X11 Release 13 enhancements display the DN and name of the originally dialed party for redirected calls. A Class of Service, DNDA/DNDD (Dialed Name Display Allowed or Denied), is assigned on a per-telephone basis. The terminating telephone must have DNDA to display the name of the originally dialed party.

The M1250/M2250 Attendant Console can extend a call to a DN requested by a calling party. The CPND enhancement enables the M1250 Attendant Console to display the incoming call information on one line and the outgoing call information on the next line when extending an incoming call.

X11 Release 16 Multi-Language CPND displays the party's name in Roman/English or Katakana (Japanese alphabet) characters on Meridian modular telephones. The names are stored in the database under each character set and the language is specified with the Meridian modular program keys.

Two languages can be stored in the database for any given name. For this enhancement to work fully, both telephones involved must have the same name in the same languages. (E.g., John Smith calls Anne Jones. Both John and Anne must have Katakana in their database for the name to appear in Katakana characters. If John has Katakana enabled, but Anne does not, Anne sees the English version.)

Entering Katakana, or any other non-ASCII Roman characters, requires a system terminal that supports eight-bit, no-parity Input/Output.

The maintenance terminal must support ISO 8859-1 Latin 1 for the Roman character mode.

Call Party Name Display assignment

A CPND name string can be assigned to internal DNs associated with any of the following:

- analog (500/2500 type) telephones
- Single-call/multiple-call SL-1 telephones
- Trunk access codes
- Attendant DNs
- Automatic Call Distribution (ACD) DNs
- Dial Intercom Group member numbers

As a customer option for multiple appearance DNs (MADNs), the assigned CPND name can be linked with its member telephone's designator (DES field in the TN block) to further identify the party of a shared DN.

Call Party Name Display composition

A CPND name is the name used to identify a DN, entered in ASCII alphanumeric character format. The maximum CPND length is the smaller of two values: the maximum length configured in LD 95 or 27 characters, including spaces and special characters.

The ASCII characters supported are A-Z, 0-9, space, Hex 20-127, and the following special characters:

" () - # ,

Prior to X11 Release 19, the CPND name was usually entered as first name, a space, and last name (such as Mary Smith). Beginning with X11 Release 19, the NAME prompt in LDs 10, 11, and 95 accepts first name, a comma as a separator, and last name (such as Mary,Smith). X11 Release 19 supports CPND names in the older format, treating the entire name string as the first name. See Table 31 for examples.

Table 31
Response formats for CPND NAME prompt

Entered Data	Displayed Result
Sue Smith <CR>	Sue Smith
Sue,Smith <CR>	Sue Smith
Sue <CR> Sue, <CR>	Sue (Trailing comma is ignored.)
Sue,Smith, Dept. 410 <CR>	Sue Smith, Dept. 410
Sue Smith, Joe Brown <CR>	Sue Smith, Joe Brown

The default in X11 Release 19 is to accept the names as entered, replacing the comma with a space. Hence, a value entered as Mary,Smith displays as Mary Smith.

Note: Do not enter leading spaces. LD 95 ignores them. When CPND information is printed (using LD 10/11 or LD 20), the printout reflects what is in the database, not what appears on the telephone display.

In addition to the caller's name, a reason field can be provided to indicate the cause of a redirection. This is a customer option and the actual mnemonics are service changeable. The following call redirections have a reason displayed:

- Call Forward All Calls
- Call Forward No Answer
- Hunting/Call Forward Busy
- Call Transfer with Network Call Redirection

- Attendant Alternative Answering
- Call Pickup

Display Devices and Capabilities

The M3000 Touchphone has a display line of 35 characters, 27 available for displaying DN-related information.

The M2317 has a display line of 40 characters, 33 available for displaying DN-related information.

If there are more characters than the telephone's display allows, the system deletes letters to make the name fit.

The M1250 and M2250 Attendant Consoles are equipped with four lines of LCD alphanumeric display. Each line has 40 characters, and lines 2 and 3 are used to display DN-related information. If the number of characters displayed is more than 40, an arrow appears in the upper right corner of the display. The arrow alerts the user that more information can be retrieved using the scrolling keys. For complete information, refer to the *M1250/M2250 Attendant Console User Guide*.

The call type, originating or terminating telephone, and the Class of Service all affect the display and CPND information. Three Classes of Service are associated with the display function. CPND conforms to whichever Class of Service is configured for the telephone.

- Automatic Digit Display (ADD)
- Digit Display Selection (DDS)
- Touchphone Digit Display (TDD)

No user interaction is required to display information on the call. On the M2317 telephone, however, the user can press the SAVE # softkey to save the name and number of the calling party. This applies to all outgoing and answered incoming calls.

Operating parameters

CPND is not displayed if a live call is not involved (e.g., while programming a Speed Call key).

Attendant Administration does not support the entry of CPND class marks for digital telephones.

CPND is not displayed on the calling telephone while making an outgoing trunk call.

CPND is not supported on data calls.

CPND is not available on QCW Attendant Consoles.

In X11 Release 13 and later, CPND applies only to redirected calls on M2008, M2016, M2216, M2616, M3000, and M2317 telephones.

For M2008, M2016, M2216, M2616, M3000, and M2317 telephones, CPND is provided on a per-telephone basis, depending on the Class of Service.

DNDA (Dialed Name Display Allowed) and NDD (No Digit Display) Class of Service are mutually exclusive.

Multi-Language CPND operates on Meridian modular telephones only.

An individual DN can have Roman/English, or Katakana, or both programmed in the database if MLIO is equipped.

If the call destination is a trunk or a telephone type other than Meridian modular, the name is translated into the ASCII equivalent.

Multi-Language CPND applies to DNs on local switches only. CPND for Integrated Services Digital Network (ISDN) calls is displayed in English only.

The CPND feature uses JIS X 0201-1976, the RCode for Information Interchanges, also known as JIS-Roman, which specifies the upper and lower case letters, numbers, punctuation and symbols, and Katakana.

Feature interactions

Attendant Recall

Attendant Recall using the Attendant Recall key or a switchhook flash results in both source and destination information being displayed. No redirection reason is displayed, however. In this type of recall, the party that pressed the Attendant Recall key or switchhook is the destination party.

Attendant Recall using Call Transfer or Conference displays the recalling party's DN and CPND information on the attendant's source line. No redirection reason is displayed. If the recall is done with the Transfer key the third party's DN and CPND information are displayed on the source line when the transfer is complete.

Autodial and Speed Call

No name information displays during the programming of Autodial and Speed Call numbers.

Automatic Call Distribution (ACD) Dialed Number Identification Services (DNIS)

If an incoming trunk call from a route with DNIS is presented to a display telephone, the identification digits follow the regular trunk access code and member number. It precedes the CPND name for the DNIS incoming trunk group.

ACD Routing by DNIS

With X11 Release 17 and later, when an incoming trunk call from a route with Routing by DNIS is presented to a display telephone, the identification digits follow the regular trunk access code and member number. It precedes the CPND name for the DNIS DN.

Automatic Wake Up (AWU)

All display information associated with Automatic Wake Up programming is directed to line three of the display. Names are appended to DNs appearing on line three if they are different from those on line two, or if no DN appears on line two. There is no DN information on line two if the attendant has initiated the AWU process while not on an active call. No DES information is appended, since AWU operates on a DN basis.

Calls held or reestablished

When a call is put on hold, the holding telephone's display clears. The held telephone's display does not change. When the telephone reestablishes the call, the display returns the original DN and name.

Call Pickup

For Call Pickup, the X11 Release 13 enhancement to CPND applies when the call is answered.

Call Park

Upon valid operation of the Park key, or dial-access if used, CPND shows the SPRE code and the Park Access ID. Because the Park Access Code is displayed, no CPND name is displayed. The only time that the digit display shows the actual DN of the parked party is when the parked party has been retrieved, put on hold, and then retrieved from hold.

Call Transfer

When the Transfer key is pressed during an active call, the display clears. The call is in a held state. The DN and name of the transferred telephone appear on the display when the DN is dialed. When the transfer is complete, the transferring telephone's display clears because the telephone is now disconnected. The transferred telephone's display changes to show the name of the newly connected party.

Centralized Attendant Service (CAS)

When an attendant in the CAS mode extends a call to a remote station, the display shows only the source line.

Conference

When pressed during an active call, or to set up a conference, the Conference, Connect, or Join Parties key clears the display. The telephones involved in the conference have blank displays. If the conference returns to a two-way only call, each telephone displays the DN and name of the other telephone.

Dial Intercom

The display on telephones connected by Dial Intercom shows the group member's DIG number plus CPND information.

Display Key

When pressed during a call, the Display key clears the display until pressed again. The original display reappears. When the telephone is inactive and the DSP key is pressed, followed by a function key like Autodial, no CPND information is displayed.

End-to-End Signaling

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.

ISDN

On incoming ISDN calls, the Calling Line ID number can be displayed instead of a DN on the source party line. With X11 Release 14, CPND applies to telephones configured for ISDN when redirection is supported, and only when all parties involved are located on the same switch. X11 Release 16 allows calls to redirect across a Meridian 1 network with Network Call Redirection. The CPND is maintained through the redirection.

ISDN QSIG Name Display

Call Party Name Display interacts with ISDN QSIG Name Display, depending on the Name Display configuration in LD 16 for BRI or LD 17 for PRI. When a QSIG network is interacting with an MCDN network providing network capability ND3, both the MCDN and QSIG Name Display feature function on the same level.

Listed Directory Number

CPND is not supported for LDNs. If the LDN is an incoming trunk route, the CPND assigned to the route access code is displayed.

Manual Signaling (Buzz)

If the Signal key is pressed to buzz another telephone, no digit or name display appears on the telephone.

Meridian 911

The Calling Party Name Display feature can be used to configure and display the incoming 911 route name.

Multiple Appearance DN (MADN)

On ST and 21 systems, with X11 Release 17 and lower, the number of DN appearances restricts the number of letters/digits allowed for CPND. These engineering guidelines must be followed:

- 11 or fewer appearances allows 27 digits/letters in the name
- 12 appearances allows 23 digits/letters in the name
- 13 appearances allows 20 digits/letters in the name
- 14 appearances allows 16 digits/letters in the name
- 15 appearances allows 14 digits/letters in the name
- 16 appearances allows 11 digits/letters in the name
- 17 appearances allows 9 digits/letters in the name, and
- 18 appearances allows 8 digits/letters in the name.

M3000 Touchphone

Local Directory Translation CPND and the M3000 Touchphone DN-to-name translation are mutually exclusive. If CPND name display is allowed (CLS = CNDA), the DN-to-name translation must be disallowed.

Override

When Overriding an established call, the displays of the other telephones show the DN and name of the overriding party.

Slow Answer Recall

Slow Answer Recall results in displays showing source and destination information. If a redirection occurs, the reason is displayed.

Voice Call

The telephone originating a Voice Call displays the called DN's CPND. The called telephone shows the caller's DN and name on its display.

Feature packaging

Call Party Name Display (CPND) package 95 requires:

- Digit Display (DDSP) package 19
- M2000 Digital Sets (DSET) package 88
- M3000 Digital Sets (TSET) package 89 or
- M2317 Digital Sets (DLT2) package 91
- Aries Digital Sets (ARIE) package 170

Multi-Language CPND requires Multi-Language TTY Input/Output (MLIO) package 211.

If the designator field is to be used for multiple-appearance DNs, CPND requires:

- Office Data Administration System (ODAS) package 20

For Hotel/Motel applications configuring CPND, CPND requires:

- Background Terminal Facility (BGD) package 99
- Multi-Language TTY Input/Output (MLIO) package 211 to support eight-bit, no-parity system terminals

Feature implementation

Before name strings can be assigned to various telephones, the CPND data block must be created in LD 95. The number and size of CPND name strings is limited by available space in the Protected Data Store, so it is recommended that you initially use a small number for the maximum character length.

Enable CPND and add names to the CPND data block

LD 95 – Create the CPND data block.

Prompt	Response	Description
REQ	NEW	Create CPND database (or open existing database).
TYPE	CPND	CPND data block.
CUST	xx	Customer number.
CNFG	<CR>	Standalone memory.
MXLN	5-(17)-27	Maximum number of characters allowed in each name string. Once defined, this value can be changed only by removing the CPND data block and recreating it.
STAL	(NO), YES	Static allocation of name storage. Must be YES if Background Terminal is equipped, or whenever name strings change frequently.
- DFLN	5-MXLN	Average default character string length. Suggested default is 13 or the maximum length given to MXLN, whichever is less. Prompted if STAL = YES.
DES	(NO), YES	(Do not) allow designator for MADNs.
RESN	(NO), YES	(Do not) allow display of reason for redirecting calls.
- CFWD	aaaa, (F)	Mnemonic for Call Forward All Calls display.
- CFNA	aaaa, (N)	Mnemonic for Call Forward No Answer display.
- HUNT	aaaa, (B)	Mnemonic for Hunt/Call Forward Busy display.
- PKUP	aaaa, (P)	Mnemonic for Call Pickup display.
- XFER	xxxx, (T)	Mnemonic for Call Transfer display for NCRD.
- AAA	aaaa, (A)	Mnemonic for Attendant Alternative Answering.

LD 95 – Add names to the CPND data block.

Prompt	Response	Description
REQ	NEW	Open CPND data block to add new entries.
TYPE	NAME	Create a new name string.
LANG	(ROM), KAT, <CR>	Store the name in Roman or Katakana. <CR> stores the name in English.
CUST	xx	Customer number.
DIG	0-2045, 0-99	Dial Intercom Group number and member number. Each time a name string is assigned to a Dial Intercom Group member, the DIG prompt repeats, until a carriage return is entered to go to the DN prompt.
	<CR>	Bypass Dial Intercom Group and go to the DN prompt to assign names on a DN basis.
- NAME	aaaa,bbbb	CPND name string; maximum of 27 characters.
- XPLN	xx	Expected Length.
	<CR>	Range must be between the Input Name length and the MXLN, or it defaults to DFLN.
		Set XPLN to average default character string length (DFLN) or the actual length (NAME), whichever is longer.
DN	xxx...x	DN to which name string is linked.
- NAME	aaaa,bbbb	CPND name string; maximum of 27 characters.
- XPLN	xx	Expected Length.
	<CR>	Range must be between the Input Name length and the MXLN, or it defaults to DFLN.
		Set XPLN to average default character string length (DFLN) or the actual length (NAME), whichever is longer.
DCNO	xxx	IDC conversion table number (0-254).
IDC	nnn	Existing complete or partial IDC number. Prompted only when DCNO is valid.
NAME	aaaa,bbbb	CPND name string; maximum of 27 characters.

LD 10 – Allow names to be assigned to analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
FTR	CPND	Allow CPND name assignment on this telephone.

LD 11 – Allow names to display on M2008, M2016, M2216, M2616, M3000, and M2317.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = 2008, 2016, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
CLS	(CNDD), CNDA (DNDD), DNDA	(Deny) allow display of CPND entries. (Deny) allow display of CPND originally dialed entries.

LD 12 – Allow names to display on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	1250, 2250, ATT	Console type.
TN	I s c u	Terminal Number.
CPND	(CNDD), CNDA	(Deny) allow CPND name assignment.
DNDI	(DNDD), DNDA	(Deny) allow display of originally dialed CPND entries.

Change or remove names in the CPND data block

LD 95 – Open the CPND data block to change or remove entries.

Prompt	Response	Description
REQ	CHG, OUT	Change, or remove an existing entry.
TYPE	NAME	Change, or remove an existing CPND name string.
CUST	xx	Customer number.
LANG	ROM, KAT, ALL	Change or remove the name in Roman or Katakana. ALL is used to remove all names stored for the DIG.
DIG	0-2045, 0-99 ALL, <CR>	Dial Intercom Group number and member number. Each time a name string is assigned to or removed from a Dial Intercom Group member, the DIG prompt repeats, until a carriage return is entered to go to the DN prompt. ALL removes all entries for that DIG. <CR> bypasses DIG and goes to the DN.
- NAME	aaaa,bbbb <CR>	CPND name string for this DIG; maximum of 27 characters. Leave this entry unchanged.
DN	xxx...x ALL <CR>	DN of name string being changed or removed. Remove all DN-defined entries. Return to REQ prompt.
- NAME	aaaa,bbbb	CPND name string; maximum of 27 characters.
DCNO	xxx	IDC conversion table number (0-254).
- IDC	nnn	Existing complete or partial IDC number. Prompted only when DCNO is valid.
NAME	aaaa,bbbb	CPND name string; maximum of 27 characters.

Print entries from the CPND data block**LD 95** – Print information associated with entries in the CPND data block.

Prompt	Response	Description
REQ	PRT	Print entries in the CPND data block.
TYPE	NAME	CPND name strings.
CUST	xx	Customer number.
LANG	ROM, KAT	Print names in Roman or Katakana.
PAGE	(NO), YES	Page headers and page numbers for multiple DNs and DIGs.
DIG	ALL	Print information on all entries defined by Dial Intercom Groups.
	0-2045, 0-99	Dial Intercom Group and member number. The DIG prompt repeats until a carriage return is entered.
	<CR>	Bypass Dial Intercom Group and go to the DN prompt to print information on a DN basis.
DN	ALL	Print information on all DN entries.
	xxxx	DN to print information from. DN prompt repeats until a carriage return is entered.
	<CR>	Return to REQ prompt.
DCNO	xxx	IDC conversion table number (0-254).
- IDC	nnn	Existing complete or partial IDC number. Prompted only when DCNO is valid.
	ALL	All names defined are printed.
SHRT		Short form.
	(NO)	Prints one IDC per single line.
	YES	Prints several IDCs on single line.

Add or change CPND name entry for a telephone

LD 10/11 – Add or change CPND name.

Prompt	Response	Description
REQ	NEW, CHG	Add or change CPND name information.
TYPE	aaaa	Telephone type.
TN	l s c u	Terminal number.
CUST	xx	Customer number.
CPND	NEW, CHG, OUT	Add, change, or remove the CPND information.
CPND_ LANG	(ROM), KAT	Use Roman or Katakana characters.
NAME	aaaa,bbbb	CPND name; maximum of 27 characters.
XPLN	xx	Expected name length.
DISPLAY _FMT	(FIRST) LAST	First name; Last name (John Doe). Last name; First name (Doe John).

Feature operation

No specific operating procedures are required to use this feature.

Calling Party Privacy Override

Calling Party Privacy Override (CPPO) enhances the functionality of the Calling Party Privacy (CPP) feature. With Calling Party Privacy Override, calling party information can be selectively unblocked on a per-call basis.

The Calling Party Privacy (CPP) feature enables the Meridian 1 system to permanently block the Calling Party Number and Name from being displayed on the terminating set across the Public Switched Telephone Network (PSTN). This permanent blocking occurs when Class of Service is set to Calling Party Number and Name per-line blocking allowed (CLBA). When Class of Service is set to Calling Party Number and Name per-line blocking denied (CLBD), the user can block the Calling Party Number and Name on a per-call basis. To block the calling party information on a per call basis, the user dials a Calling Party Privacy Flexible Feature Code (FFC) prior to dialing the destination number.

With the Calling Party Privacy Override feature, a Private Branch Exchange (PBX) user can selectively unblock calling party information on a per-call basis when Class of Service is set to CLBA. The user unblocks the calling party information by dialing a Calling Party Privacy Override Flexible Feature Code prior to dialing the destination number. When the CPPO Flexible Feature Code is dialed before the destination number, the user's calling party information is displayed on the terminating set. The default for the Calling Party Privacy Override Flexible Feature Code is “*82” for Meridian 1 proprietary sets and “1182” for analog (500/2500 type) sets. The Calling Party Privacy Override Flexible Feature Code is defined in Overlay 57.

CPPO is provisioned on a trunk route basis. Any trunk type¹ that can support an outgoing call can request the CPPO feature.

When the CPPO Flexible Feature Code is dialed prior to the normal dialing sequence, the call is marked as a CPPO call. The CPPO Flexible Feature Code is then removed from the dialed digits stored in the call register. If the outgoing trunk route provisions CPPO, then the Privacy Override Indicator is sent to the far end, and the Calling Party Number and Name information is displayed on the receiving telephone. If the outgoing trunk route does not provision CPPO, the call does not carry the Privacy Override Indicator.

The following example illustrates Calling Party Privacy Override functionality:

- 1 Set A, a Meridian 1 proprietary set with Class of Service set to CLBA, goes off-hook.
- 2 Set A dials the Calling Party Privacy Override Flexible Feature Code, defined in Overlay 57. Calling Party Privacy Override is initiated.
- 3 Set A dials the destination number for Set B.
- 4 The call rings on Set B.
- 5 The calling party information of Set A is presented on the display screen of Set B.

Outgoing calls

For an outgoing non-ISDN trunk call, the Privacy Override Indicator is defined on the outgoing trunk route. The CPPO Flexible Feature Code is outpulsed to the far end provided that the outgoing trunk route provisions CPPO. If CPPO is not provisioned on the trunk route, then the call does not carry the Privacy Override Indicator.

1. For non-ISDN trunks, only Central Office Trunk (COT), Direct Inward Dial (DID), Foreign Exchange (FEX), and Wide Area Telephone (WATS) trunks are supported. However, all ISDN trunk routes support the CPPO feature.

For an outgoing ISDN call from one Meridian 1 to another, the Privacy Override Indicator is represented when the Presentation Indicator field is set to “Presentation Allowed” in the Calling Party Number Information Element (IE) and the Call Party Name Display (CPND) Indicator field is set to “Presentation Allowed” in the Display IE.

For an outgoing ISDN call to the Central Office, the Privacy Override Indicator is represented when the Presentation Indicator field is set to “Presentation Allowed” in the Calling Party Number IE and when the CPND information is included in the Display IE.

Incoming calls

An incoming ISDN call is recognized as a CPPO call (that is, it carries the Privacy Override Indicator) if the Presentation Indicator field is set to “Presentation Allowed” in the Calling Party Number IE and if the CPND Indicator is set to “Presentation Allowed” in the Display IE (if it exists¹).

When an incoming call is on a non-ISDN route, the Meridian 1 does not receive the Privacy Override Indicator.

Tandem Calls

Incoming ISDN calls

ISDN to ISDN tandem

For an incoming call tandeming through the Meridian 1, any incoming Privacy Override Indicator is only repeated to the outgoing trunk route that also has CPPO provisioned.

When an incoming ISDN trunk call is tandemed through an ISDN trunk to a Meridian 1 switch, the Presentation Indicator or the CPND Indicator, received from the incoming ISDN trunk, is tandemed to the outgoing ISDN trunk.

1. Call Party Name Display (CPND) information is optional for ISDN calls.

When an incoming ISDN trunk call is tandemed through an ISDN trunk to a CO, the Presentation Indicator received from the incoming ISDN trunk is tandemed to the outgoing ISDN trunk. If the Display IE with the CPND Indicator set to "Presentation Allowed" is received from an incoming ISDN trunk, the Display IE, containing the Call Party Name, is sent across in the SETUP message tandemed to the outgoing ISDN trunk.

ISDN to non-ISDN tandem

When an incoming ISDN trunk call is tandemed to a non-ISDN trunk, the incoming call is treated as a CPPO call only if both the CLID and CPND Indicators are set to "Allowed". Otherwise, the call is treated as a CPP call.

Incoming non-ISDN calls

For incoming non-ISDN calls, the Meridian 1 does not receive the Privacy Override Indicator.

When a call on an incoming non-ISDN route is tandemed on the Meridian 1, the call is tandemed based on how the CPP flag (TCPP) prompt is defined in the Route Data Block for the outgoing route.

When TCPP is set to YES, an incoming non-ISDN call tandemed to this route is treated as a CPP call.

When TCPP is set to NO, an incoming non-ISDN call tandemed to this route is treated as a CPPO call.

Non-ISDN to ISDN tandem

Even though a Privacy Override Indicator is not provided for an incoming non-ISDN trunk call, if the outgoing route has TCPP set to NO, the Presentation Indicator field in the Calling Party IE is set to "Presentation Allowed".

Non-ISDN to non-ISDN tandem

A Privacy Override Indicator is not provided for an incoming non-ISDN trunk call. If the outgoing route has TCPP set to NO, the Privacy Override Indicator defined for that route is outputted, provided that the outgoing route provisions CPPO.

Operating parameters

Central Office Trunks (COT), Foreign Exchange (FEX), Wide Area Telephone Service (WATS), and Direct Inward Dial (DID) are the only trunk route types (including ISA service routes) that can output the Privacy Override Indicator for an outgoing non-ISDN call. All ISDN trunk routes provision the CPPO feature.

A non-ISDN trunk route does not provision the CPPO feature if the Output Pulse Asterisk and Octothorpe (OPAO) package (package 104) is configured. During SYSLOAD, the CPPO database is removed from the non-ISDN trunk routes if the OPAO package is configured.

The Privacy Override Indicator, defined for a non-ISDN trunk route (dial-pulse or digitone), consists of any four arbitrary digits from 0-9. The asterisk (*) or octothorpe (#) cannot be part of the Privacy Override Indicator for dial-pulse trunks. For digitone trunks, the asterisk (*) can only be the first digit of the Privacy Override Indicator Flexible Feature Code.

The asterisk and octothorpe are not outputted if the OPAO package is configured. The asterisk signals a 3-second pause and the octothorpe indicates end-of-dialing. The octothorpe cannot be used in a Privacy Override Indicator.

Privacy Override Indicators are not received from the CO or non-ISDN DID trunks.

The CPPO Flexible Feature Code cannot conflict with any internal DN, including the Special Prefix (SPRE) code.

When a user dials the Flexible Feature Code defined for the CPPO feature and if CPPO is not provisioned on the outgoing trunk route, the call proceeds without carrying the Privacy Override Indicator.

The CPPO feature does not affect whether or not the Calling Party Number and Name information is displayed for internal calls within the Meridian 1 system, even if the originator requests CPPO.

All incoming non-ISDN calls with the Privacy Override Indicator terminate on the Meridian 1. If the Privacy Override Indicator is not defined in the Flexible Feature Code for CPPO, an overflow tone (unrecognized digits) is provided to the user.

If the Stored Number Redial (SNR)/Last Number Redial (LNR) feature is used by the originator of a CPPO call to store the dialed digits, the CPPO Flexible Feature Code is stored against the SNR/LNR database. If the user removes that CPPO Flexible Feature Code and then the SNR/LNR feature is used to re-initiate the call, overflow tone is returned to the user.

ISDN implementation for this feature includes DMS100/250, SL-100, AT&T4, AT&T5, TR-1268 (NI-2), Meridian Customer Defined Network (MCDN) Private Networks, EuroISDN, QSIG, and BRI trunks.

The CPPO feature is supported on the following International PRI (IPRI) connectivities: Ericsson AXE-10 CO Connectivity (Australia), Ericsson AXE10-CO Connectivity (Sweden), French Numeris CO Connectivity, Japan D70 CO Connectivity, Swissnet 2 CO Connectivity, SYS-12 CO Connectivity, 1TR6 CO Connectivity (Germany), and Asia Pacific ISDN Phase 2.

The CPPO feature supports the following North American connectivities: DMS100/250, S1100, Lucent #4 ESS (ESS4), Lucent #5 EES (ESS5), and TR-1268 (NI-2).

CPPO does not support R2MFC signaling.

Feature interactions

Attendant Consoles

A CPPO call can be originated from any Meridian 1 Attendant Console. Attendant Consoles request CPPO by preceding the normal dialing sequence with the Flexible Feature Code for CPPO.

Attendant Consoles can also initiate a CPPO call using the Autoline key. An outgoing trunk call, initiated by pressing the Autoline key, carries the Privacy Override Indicator if the CPPO Flexible Feature Code, followed by the normal dialing sequence, is stored against the Autoline key. The CPPO Flexible Feature Code is counted against the maximum number of digits (currently 31) stored against the Autoline key.

The CPPO Flexible Feature Code can also be stored against the Autoline key. An outgoing CPPO call can then be initiated by pressing the Autoline key followed by manually dialing the destination number.

An outgoing CPPO call can also be initiated by dialing the CPPO Flexible Feature Code followed by pressing the Autoline key, on which the normal dialing sequence of digits for the destination number is stored.

Autodial

An outgoing trunk call, initiated by pressing the Autodial key, carries the Privacy Override Indicator if the CPPO Flexible Feature Code followed by the normal dialing sequence is stored against the Autodial key. The CPPO Flexible Feature Code is counted against the maximum number of digits (currently 31) stored against the Autodial key.

The CPPO Flexible Feature Code can be stored against the Autodial key. In this case, an outgoing CPPO call can be initiated by pressing the Autodial key followed by manually dialing the normal sequence of digits for the destination number.

An outgoing CPPO call can also be initiated by dialing the CPPO Flexible Feature Code followed by pressing the Autodial key on which the normal dialing sequence of digits for the destination number is stored.

Automatic Call Distribution

Calls placed by means of Enhanced Automatic Call Distribution (ACD) Routing, Enhanced Interflow, Enhanced Night Call Forward, Enhanced Network Routing, and Network ACD recognize the originator's CPPO request.

Automatic Call Distribution MAX

If the CPP package is equipped, ACD MAX reports include the Calling Line Identification (CLID) for incoming ISDN calls that have the CLID Presentation Indicator set to "Allowed".

Basic Rate Interface

Although Basic Rate Interface (BRI) networking is not supported in North America, CPPO treats BRI trunk calls in the same manner as an ISDN trunk call.

Call Detail Recording

Call Detail Recording (CDR) records continue to include the Calling Party Number even if the caller has requested CPPO. When the CDR record is generated, the CPPO Flexible Feature Code dialed by the originator is included in the DIGIT field (if it displays the dialed digits).

The CPPO Flexible Feature Code dialed by the originator is not included in the DIGIT field if it displays the outpulsed digits. The Privacy Override Indicator, outpulsed by an outgoing non-ISDN trunk route that provisions CPPO, is included in the outpulsed digits.

Call Pickup Network Wide

When an incoming trunk call with the Privacy Override Indicator is picked up by a remote set (the requesting party), the Calling Party Number and Name is displayed on the requesting set.

Call Hold

When an incoming trunk call with the Privacy Override Indicator is taken off hold, the Calling Party Number and Name information is displayed on the set.

Call Forward All Types

Hunt

Network Hunt

The existing call redirection functionality is not changed by this feature.

When an incoming ISDN trunk call with the Privacy Override Indicator is forwarded into the public or private networks, the Privacy Override Indicator is tandemmed to the far end to allow the display of the Calling Party Number and Name, provided that the outgoing trunk route on the tandem node has CPPO provisioned.

When an incoming ISDN call with Calling Party Number and Name set to "Presentation Allowed" is forwarded to a set within the same node, the Calling Party Number and Name is displayed on the terminating set.

When an incoming non-ISDN trunk call is forwarded onto a trunk¹, the outgoing trunk call from the tandem node carries the Privacy Override Indicator, provided that the outgoing trunk route on the tandem node has CPPO provisioned. Also, the TCPP prompt in the Route Data Block must be set to NO.

The CPPO Flexible Feature Code can be stored on the forwarding Directory Number (DN), including the forwarding DN for Call Forward All Calls, Hunt DN and Flexible Call Forward No Answer DN (FDN).

If CPPO is requested on the forwarding DN and the call is forwarded across an ISDN link, the outgoing SETUP message includes the Redirecting Number IE (if it exists) with the Presentation Indicator set to “Presentation Allowed”.

If CPPO is requested on the forwarding DN and the call is forwarded across a non-ISDN link, no Privacy Override Indicator is outpulsed to the terminating node if the originating set did not request CPPO. This is because no Redirecting Number information is sent across a non-ISDN link.

When an internal call is forwarded into the public or private networks, if the originator requests CPPO and the outgoing trunk route provisions CPPO, the Privacy Override Indicator is sent to the far end to allow the display of the Calling Party Number and Name.

Call Pickup

With CPPO activated, when an incoming trunk call with the Privacy Override Indicator is picked up locally, the Calling Party Number and Name information is displayed on the terminating set.

Call Transfer

As per existing operation, if an incoming non-ISDN call is transferred or an incoming ISDN call is transferred to a non-ISDN trunk, the Connect Party Number and Name information is not passed to the terminating node. The CPPO feature does not change this operation.

1. A Privacy Override Indicator is not expected on this route.

When an incoming call with the Privacy Override Indicator is transferred across the MCDN network or to a local set, the originator's calling party information is displayed on the final terminating set.

Calling Line Identification Restriction

Basic Rate Interface (BRI) sets do not support the Flexible Feature Code (FFC) feature. CPPO can only be requested by applying the existing Calling Line Identification Restriction (CLIR) Service option. This is done by setting the soft key "ID PRES" (if it exists) to "Allowed" or the Presentation of CLID to far end on outgoing calls (PRES) prompt to YES in Overlay 27. Then an outgoing ISDN/non-ISDN trunk call carries the Privacy Override Indicator if the outgoing trunk route provisions CPPO. However, if the Calling Party Number Information Element (IE) with the Presentation Indicator set to "Presentation Denied" is included in the SETUP message generated by the Basic Rate Interface (BRI) terminal, then the BRI terminal does not allow CPPO. This is because the Presentation Indicator, generated by the BRI terminal, always overwrites the Calling Line Identification Restriction (CLIR) service option.

Calling Party Privacy

If the user requests both Calling Party Privacy and Calling Party Privacy Override, then the feature last requested takes precedence. The Flexible Feature Code dialed last determines the type of call.

If a set with Class of Service set to CLBA requests CPPO by dialing the CPPO Flexible Feature Code, then the call is treated as a CPPO call. If a set with Class of Service set to CLBD requests CPP by dialing the CPP Flexible Feature Code, then the call is treated as a CPP call.

If a user dials the Flexible Feature Code for CPPO followed by the Flexible Feature Code for CPP, then the call is treated as a CPP call. If a user dials the Flexible Feature Code for CPP followed by the Flexible Feature Code for CPPO, then the call is treated as a CPPO call.

Calling Party Privacy and Call Forward

Set A, requesting CPPO, calls Set B. Set B Call Forwards All Calls to Set C. The CPP Flexible Feature Code is part of the forwarding DN. Set A's number and name is displayed on Set C as the Calling Party Number and Name; although, no redirecting number is displayed on Set C. The tandem node sends the Display IE with the Presentation Indicator set to "Allowed" and the Redirecting Number IE with the Presentation Indicator set to "Restricted".

Set A, requesting CPP, calls Set B. Set B Call Forwards All Calls to Set C. The CPPO Flexible Feature Code is part of the forwarding DN. Set B's number is displayed on Set C as the Redirecting Number; although, no Calling Party Number and Name is displayed on Set C. The tandem node sends the display IE with the Presentation Indicator set to "Restricted" and the Redirecting Number IE with the Presentation Indicator set to "Allowed".

Calling Party Privacy and Call Transfer

Set A, requesting CPPO, calls Set B. Set B answers the call, requests CPP, and initiates a transfer to Set D. After the transfer is complete, Set A's Calling Party Number and Name is displayed on Set D. The request made by the connected party takes precedence over the transferring party while displaying the Connect Party Number and Name.

Set A, requesting CPP, calls Set B. Set B answers the call, requests CPPO, and initiates a transfer to Set D. After the transfer is complete, Set A's Calling Party Number and Name is not displayed on Set D. The request made by the connected party takes precedence over the transferring party while displaying the Connect Party Number and Name.

Conference

The CPPO feature passes the Privacy Override Indicator to the terminating set in order to display the Calling Party Number and Name, if the Conference feature is used for the purpose of performing a transfer.

Display of Calling Party Denied

When the CPP package is equipped, the CPPO feature takes precedence over the Display of Calling Party Denied (DPD) feature for allowing the Calling Party Number and Name to be displayed. For example, when an outgoing ISDN call is marked as a CPPO call, then the outgoing SETUP message includes the Calling Party Number IE with the Presentation Indicator set to "Presentation Allowed" and the Display IE with the CPND Indicator set to "Presentation Allowed". This enables both the Calling Party Number and Name to be displayed on the terminating set, regardless of whether the DPD feature allows or denies the display of the Calling Party Number and/or Name.

E.164 ESN Numbering Plan Enhancement

CPPO can be requested for ESN calls by preceding the dialing sequence with the Flexible Feature Code defined for the CPPO feature. The CPPO Flexible Feature Code is counted against the maximum number of digits (currently 31) allowed for the destination DN.

Feature Group D

When an incoming Feature Group D (FGD) call terminates at a Meridian 1 switch locally, the received 10-digit Automatic Number Identification (ANI) is displayed on the terminating set if the Show ANI Digits on Terminal Displays (SHAN) field is set to YES in the FGD data block that is associated with the incoming trunk route. If the originator requests CPPO, the end office sends the 10-digit ANI to the PBX.

If an incoming FGD call is routed to another switch via ISDN Primary Rate Interface (PRI) or ISDN Signaling Link (ISL), the outgoing SETUP message includes the 10-digit ANI (if it exists) as the Calling Party Number (CLID) with the Presentation Indicator set to "Presentation Allowed". This occurs if the incoming call requests CPPO. CPPO takes precedence over the SHAN field that is defined in the FGD data block and is associated with the incoming trunk route to allow the 10-digit ANI display.

Hot Line

Hot line calls carry the Privacy Override Indicator if the CPPO Flexible Feature Code followed by the normal dialing sequence is stored in the Hot Line DN. The CPPO Flexible Feature Code is counted against the maximum number of digits (currently 31) allowed for the Hot Line DN.

Last Number Redial

The Last Number Redial (LNR) feature stores the CPPO Flexible Feature Code in the LNR database if the CPPO Flexible Feature Code was included in the last number dialed by the user. The outgoing redialed calls also send the Privacy Override Indicator to the far end.

Incoming Trunk Programmable Calling Line Identification

When the incoming trunk route is a non-ISDN route, the billing number (CLID) assigned by the incoming trunk route is passed to the CO with the Presentation Indicator field set to “Presentation Allowed”, if the outgoing ISDN trunk route has the TCPP prompt set to NO.

When the incoming trunk route is an ISDN route, the “Allowed” Presentation Indicator is tandemed to the outgoing trunk route. If the Presentation Indicator is set to “Presentation Allowed” or no Calling Party Number IE is received on the incoming trunk route, the billing number assigned by the incoming trunk route is passed to the CO with the Presentation Indicator field set to “Presentation Allowed”, if the incoming trunk route has the Billing Number Display (BDSP) prompt set to YES or NO.

ISDN Signaling Link

CPPO treats an ISDN Signaling Link (ISL) call in the same manner as an ISDN trunk call.

Malicious Call Trace

An incoming call to a set with the Malicious Call Trace (MCT) feature activated includes the Terminal Number (TN) of the calling party in the MCT record, whether or not the caller has requested CPPO.

Meridian 911

An incoming 911 call with Automatic Number Identification (ANI) information always displays the ANI digits on the terminating set or passes the ANI information to the Meridian 911.

Meridian Interactive Voice Response

An incoming ISDN call with the CLID Presentation Indicator set to “Allowed” sends the CLID to the Meridian Interactive Voice Response (IVR) if the CPP package is equipped.

Meridian Link

If the CPP package is equipped, an incoming ISDN call with the CLID Presentation Indicator set to “Allowed” includes the CLID in the Application Module Link (AML) messages sent to the Meridian Link module.

Meridian Mail

When an incoming ISDN call with the CLID Presentation Indicator set to “Allowed” terminates on Meridian Mail, the CLID passed to Meridian Mail is recorded. The call is treated by Meridian Mail as an external call.

Calls placed by means of Through Dial can request Calling Party Privacy Override. These calls involve the person accessing Meridian Mail (mailbox user or incoming caller) dialing 0 followed by any telephone number. The caller is able to dial a CPPO Flexible Feature Code plus the normal dialing sequence, following the 0. The asterisk (*) or octothorpe (#), as part of the CPPO Flexible Feature Code, are rejected by Meridian Mail. Therefore, the CPPO Flexible Feature Code can only consist of seven digits (0-9).

Meridian MAX

If the CPP package is equipped, an incoming ISDN call with the CLID Presentation Indicator set to “Allowed” sends the CLID to Meridian MAX.

Network Call Redirection

If a set receives a call and is then redirected to the public network on an ISDN trunk that supports call redirection, then the redirecting IE in the outgoing SETUP message has the Presentation Indicator set accordingly. For instance, if the call that had requested CPPO is redirected, the outgoing SETUP message has the Presentation Indicator set to “Allowed”.

Network Message Center

An incoming trunk call with the Privacy Override Indicator displays the Calling Party Number and Name on the Message Center operator’s terminal.

Network Ring Again

A call placed by means of the Network Ring Again feature recognizes the CPPO request from when the call was originally dialed.

Nortel Symposium Call Center

As per existing operation, an incoming CPPO call routed to Nortel Symposium Call Center contains the CLID.

Private Line Service

The Private Line Service feature output pulses the Privacy Override Indicator only if it is dialed by the originator. The asterisk (*) is output pulsed to the far end only if it is an Outpulse Asterisk and Octothorpe (OPAO) call. Otherwise, the asterisk (*) signals a three-second pause.

Remote Virtual Queuing

The Remote Virtual Queuing feature has automatic re-try capabilities that are used when congestion is encountered within the network. The same Calling Party Privacy Override considerations are provided to the “re-tries” as were provided to the originally dialed call.

Ring Again – Busy Trunk

A call that is automatically redialed by the Ring Again - Busy Trunk feature recognizes the CPPO requested when the call is originally dialed.

Speed Call

System Speed Call

When an outgoing trunk call is initiated by dialing a Speed Call code, the Speed Call code carries the Privacy Override Indicator if the CPPO Flexible Feature Code followed by the normal dialing sequence is stored in the Speed Call Entry represented by the Speed Call code. The CPPO Flexible Feature Code is counted against the maximum number of digits (currently 31) allowed per Speed Call list entry.

The user can also store the CPPO Flexible Feature Code in the Speed Call Entry (or Speed Call key). An outgoing CPPO call can be initiated by dialing the Speed Call code (or pressing the Speed Call key), followed by manually dialing the digits.

Stored Number Redial

In the Stored Number Redial (SNR) programming mode, the user can store the CPPO Flexible Feature Code, followed by the normal dialing sequence in the SNR database. The outgoing calls originated by the Stored Number Redial feature send the Privacy Override Indicator to the far end. The CPPO Flexible Feature Code is counted against the maximum number of digits (currently 31) allowed by the SNR feature.

During an active call on a Meridian 1 proprietary set, the Stored Number Redial feature stores the CPPO Flexible Feature Code in the SNR database if the CPPO Flexible Feature Code is included in the number dialed by the originator. The outgoing redialed calls also send the Privacy Override Indicator to the far end.

Trunk Anti-Tromboning

When trunks are removed, due to the Trunk Anti-Tromboning (TAT) operation, an ISDN call recognizes the CPPO/CPD requested by the originator.

Trunk Optimization Before Answer

An optimized call, due to Trunk Optimization Before Answer (TRO) operation, recognizes the CPPO/CPD requested by the originator.

Virtual Network Services

CPPO treats Virtual Network Services (VNS) trunk calls in the same manner as ISDN trunk calls. For instance, CPPO does not affect the existing VNS operation. If CPPO was requested when originating a call, the Presentation Indicator field of CLID is set to "Presentation Allowed".

VISIT

The VISIT which connects to a set receives the Calling Party Number or Name, since an incoming CPPO call sends the Calling Party Number or Name to the set for display.

Feature packaging

The Calling Party Privacy Override feature requires the following package:

- Calling Party Privacy (CPP) package 301, which has the following dependency:
 - Flexible Feature Codes (FFC) package 139.

For Calling Party Name Display, Calling Party Name Display (CPND) package 95 is required. ISDN package 145 is required for ISDN routes.

Note: Non-ISDN trunks must restrict the Outpulse Asterisk and Octothorpe (OPAO) package 104 to provision the Calling Party Privacy Override feature.

Feature implementation

LD 16 – Configure Privacy Override Indicators for a Non-ISDN route.
Configuration procedures require that the following conditions are met:

- CPPO is configurable on COT, DID, FEX, WAT and ISA routes.
- OAPO package 104 is restricted or unequipped.
- Route is either OGT (outgoing) or IAO (incoming and outgoing)..

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number as defined in LD 15.
ROUT	xxx	Route number. xxx = 0-511 for Options 51C, 61C, 81 and 81C. xxx = 0-127 for Option 11C.
...		
CPP	YES	Calling Party Privacy/Privacy Override (CPP/CPPO) flag. Enable CPP/CPPO feature and configure parameters. (NO) = CPP/CPPO feature is disabled is the default.
- TCPP	(NO) YES	CPP/CPPO flag treatment for an incoming non-ISDN trunk call tandemed to this trunk route. Outgoing call will carry the Privacy Override Indicator (default). Outgoing call will carry the Privacy Indicator.
- DTPI	(*67) nnnn	Digitone Trunk Privacy Indicator nnnn = 0-9999, an asterisk (*) can be entered as the first digit.
- DPPI	0-(1167)-9999	Dial-pulse Trunk Privacy Indicator
- DTPO	(*82) nnnn	Digitone Trunk Privacy Indicator nnnn = 0-9999, an asterisk (*) can be entered as the first digit.
- DPPO	0-(1182)-9999	Dial-pulse Trunk Privacy Indicator

LD 16 – For an ISDN trunk route set the TCPP flag in RDB to tandem non-ISDN calls on to this route. Configuration procedures require that the following conditions are met:

- The CPP package 301 is equipped.
- Route is either OGT (outgoing) or IAO (incoming and outgoing).

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number as defined in LD 15.
ROUT	xxx	Route number. xxx = 0-511 for Options 51C, 61C, 81 and 81C. xxx = 0-127 for Option 11C. Note: All ISDN trunk routes are CPPO configurable.
...		
CPP	YES	Calling Party Privacy/Privacy Override (CPP/CPPO) flag. Enable CPP/CPPO feature and configure parameters. (NO) = CPP/CPPO feature is disabled is the default.
- TCPP	(NO) YES	CPP/CPPO flag treatment for an incoming non-ISDN trunk call tandemed to this trunk route. Outgoing call will carry the Privacy Override Indicator (default). Outgoing call will carry the Privacy Indicator.

LD 57 – Define the Flexible Feature Code for the Calling Party Privacy Override feature.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FFC	Flexible Feature Code.
CUST	xx	Customer number as defined in LD 15.
FFCT	(NO) YES	Flexible Feature Confirmation Tone denied. Flexible Feature Confirmation Tone allowed.
...		
CODE	CPP	CPP Flexible Feature Code
- CPP	xxxx	Calling Party Privacy code xxxx = 0-9999, an asterisk (*) can be entered as the first digit. The Flexible Feature Code may be up to 4 digits, or up to 7 digits with the Directory Number Expansion (DNXP) package (150).
- CPP	xxxx	Change the CPP code or enter a <CR> to accept.
CODE	CPPO	CPPO Flexible Feature Code
- CPPO	xxxx	Calling Party Privacy Override code xxxx = 0-9999, an asterisk (*) can be entered as the first digit. The Flexible Feature Code may be up to 4 digits, or up to 7 digits with the Directory Number Expansion (DNXP) package (150).
- CPPO	xxxx	Change the CPPO code or enter a <CR> to accept.

LD 10/11 – Activate Calling Party Number and Name per-line blocking.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaaa	Type of set.
TN	l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u= unit for options 51C, 61C, 81 and 81C. c = card, u = unit for option 11C.
DES	d...d	Designator The response d...d represents an Office Data Administration System (ODAS) Station Designator of 1-6 alphanumeric characters.
CUST	xx	Customer number as entered in LD 95.
...		
CLS	CLBA	Activate Calling Party Number and Name per-line blocking. CLBD = Deactivate Calling Party Number and Name per-line blocking (default).

Feature operation

For a user to override the Calling Party Number and Name per-line blocking allowed (CLBA) Class of Service, the following steps must be performed.

- 1** The user goes off hook.
- 2** The user initiates a call by dialing the Calling Party Privacy Override Flexible Feature Code, defined in LD 57.
- 3** The user dials the destination number.

Call Pickup

Call Pickup allows telephones to be arranged in groups consisting of any combination of analog (500/2500 type), and Meridian 1 proprietary telephones.

Telephones can be specified as Call Pickup allowed or Call Pickup denied. If the telephone's Class of Service is Call Pickup allowed, the user can answer calls made to any telephone within the Call Pickup group. If the telephone's Class of Service is Call Pickup denied, but the telephone is assigned to a Call Pickup group, the user cannot answer calls directed to other telephones. Calls to the denied telephone, however, can be answered by other members of the group.

Meridian 1 proprietary telephones can dial-access this feature, or be equipped with a Call Pickup key. An associated lamp is not required.

Central Office (CO) Trunk Priority, X11 Release 13 and later releases, provides CO trunk calls priority over other calls within the distinctive ringing and normal ringing queues. If the CO Trunk Priority is implemented, calls are answered in the following order:

- Distinctive Ringing Queue CO call (Priority 1)
- Distinctive Ringing Queue non-CO call (Priority 3)
- Normal Ringing Queue CO call (Priority 2)
- Normal Ringing Queue non-CO call (Priority 4)

Operating parameters

Prior to X11 Release 13, Call Pickup groups were limited to 255 per customer. With X11 Release 13 and later releases, the number of Call Pickup groups is increased to 4095. The number of members assigned to each group is unlimited, depending on available system memory.

Feature interactions

Advice of Charge for EuroISDN

Calls charged with Advice of Charge that are either transferred, extended or redirected to another set via Call Pickup are charged against the last set that answers the call and the controlling set releases.

Automatic Call Distribution (ACD)

Automatic Call Distribution (ACD) DN's are not supported by Call Pickup.

Call Detail Recording on Redirected Incoming Calls

When an incoming call is picked up, the answering set is identified in the Terminating ID. This operation remains the same.

Call Park

An analog (500/2500 type) telephone user on a call can pick up a call by parking the existing call, then activating the Call Pickup feature.

Calling Party Privacy

If an incoming trunk call with the Privacy Indicator is picked up locally, the display of the calling Party Number and Name are not displayed on the terminating set.

Directed Call Pickup (DCP)

Call Pickup can be assigned to a telephone independent of Directed Call Pickup (DCP).

Flexible Feature Codes (FFC)

FFC codes are not supported on a Meridian 1 proprietary telephone during an attempt to pick up a Dial Intercom ringing call.

ISDN QSIG Name Display

An incoming QSIG call with name display presentation allowed has name information displayed on the set that picks up the call. If the incoming QSIG call has presentation denied, the calling party's name is not displayed on the set picking up the incoming call.

Multi-Party Operations

Users of analog (500/2500 type) telephones with Three-Party Service cannot pick up a call if involved in another call. After picking up a call, a user can establish a consultation connection and dial control digits, as normal.

Feature packaging

Call Pickup is included in base X11 system software.

Feature implementation

LD 15 – Implement CO Trunk Priority in the Customer Data Block.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(COX), COP	CO Trunk Priority for the Call Pickup feature. COX is no Priority.

LD 10 – Define Call Pickup group and Class of Service for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.

RNPG	0-4095	Call Pickup group number.
CLS	PUA	Allow Call Pickup.

LD 11—Define Call Pickup group, Class of Service, and Call Pickup key for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
RNPG	0-4095	Call Pickup group number.
CLS	PUA	Allow Call Pickup.
KEY	xx RNP	Add a Call Pickup key.

Feature operation

To answer a call in your Call Pickup group from a Meridian 1 proprietary telephone, follow these steps:

- 1 Lift the handset, or press a DN key.
- 2 Press **Call Pickup** or dial SPRE + 3.

To answer a call in your Call Pickup group from an analog (500/2500 type) telephone, follow these steps:

- 1 Lift the handset.
- 2 Dial SPRE 3 or PURN FFC.
You are connected to the caller.

Note: If you are on a call when another call comes in for someone in your Call Pickup group, you must end, park, or transfer the existing call before you can answer the new call.

Call Pickup, Directed

Directed Call Pickup (DCP) allows a caller from one Call Pickup group to pick up a ringing call in another Call Pickup group. The ringing call is picked up by dialing either its Call Pickup Group number or the DN on which it is ringing.

Directed Call Pickup adds two new methods of Call Pickup to the existing Call Pickup feature:

- Group Pickup (GPU), and
- DN Pickup (DPU).

Group Pickup lets you pick up any ringing call in your own pickup group, or any pickup group in the system.

DN Pickup allows pickup of a call ringing on a specified DN. If a DN is not assigned to any group, it defaults to Group Zero (0). This prevents any other group from picking up that DN.

Both GPU and DPU can be activated using programmable keys or Special Prefix (SPRE) code dialing. Each pickup method can be assigned to a telephone independent of the others.

The dialed digits (DN or group number) are displayed on the Digit Display as dialed. Like the Call Pickup feature, the lamp is optional for the Call Pickup and Group Call Pickup keys. No second dial tone is given after the key is pressed, nor is it given after the SPRE code is dialed.

Operating parameters

Group 0 (zero) is not a valid group number. A telephone that is not part of any group is assigned by default to group 0 (zero).

Feature interactions

Automatic Call Distribution (ACD)

ACD DN's are not supported by Directed Call Pickup.

Flexible Feature Code (FFC)

FFC codes are not supported on a Meridian 1 proprietary telephone during an attempt to pick up a Dial Intercom ringing call.

Multi-Party Operations – Three-Party Service

Users of analog (500/2500 type) telephones involved in a Three-Party Service call cannot pick up another call by dialing the SPRE code.

Feature packaging

Directed Call Pickup (DCP) package 115 has no feature package requirements.

Feature implementation

LD 15 – Define the number of digits dialed for Call Pickup groups.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(COX), COP	CO no priority or call priority for Call Pickup and Group Call Pickup.
- PKND	(1)-4	Number of digits dialed for Group Pickup. Prompted only if DCP is equipped.

LD 10 – Add or change Analog (500/2500 type) telephones to allow DCP Class of Service.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
RNPG	0-4095	Call Pickup Group. 0 = no pickup group.
CLS	(GPUD), GPU A (DPUD), DPU A	(Deny) allow Group Pickup. (Deny) allow DN Pickup.

LD 11 – Add or change Meridian 1 proprietary telephones to allow Directed Call Pickup Class of Service.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
RNPG	0-4095	Call Pickup Group. 0 = no pickup group.
CLS	(GPUD), GPU A (DPUD), DPU A	(Deny) allow Group Pickup. (Deny) allow DN Pickup.
KEY	xx GPU xx DPU	Group Pickup key (not available on M3000). DN Pickup key (not available on M3000).

Feature operation

To answer a call in another Call Pickup group from a Meridian 1 proprietary telephone, follow these steps:

- 1 Lift the handset.
- 2 Press **GRP Pickup** or dial SPRE + 94 or PUGR FFC.
- 3 Dial the pickup group number.

To answer a call on a specified DN from a Meridian 1 proprietary telephone:

- 1 Lift the handset.
- 2 Press **DN Pickup** or dial SPRE + 95 or PUDN FFC.
- 3 Dial the extension number.

To answer a call in another Call Pickup group from an Analog (500/2500 type) telephone, follow these steps:

- 1 Lift the handset and dial SPRE + 94 or PUGR FFC.
- 2 Dial the pickup group number.

To answer a call on a specified DN from an analog (500/2500 type) telephone:

- 1 Lift the handset and dial SPRE + 95 or PUDN FFC.
- 2 Dial the extension number.

Call Redirection by Time of Day

Call Redirection by Time of Day (CRTOD) adds flexibility to the existing operations of Call Forward No Answer, Hunting and Call Forward by Call Type by allowing incoming calls to be automatically redirected to a predefined Directory Number at a specified time of day.

When the Call Redirection by Time of Day (CRTOD) feature is activated, incoming calls are automatically redirected to a Directory Number through Hunting, Flexible Call Forward No Answer, External Hunt or External Call Forward No Answer. Depending on the time of day, an incoming call can also be redirected to an alternate Directory Number using the Hunting, Call Forward No Answer and Call Forward by Call Type operations.

This feature only changes which redirection Directory Number or alternative Directory Number is used to redirect a call when possible.

Operating parameters

All existing limitations that apply to the operation and redirection of Directory Numbers of Call Forward No Answer and Hunting also apply to this feature.

Only one alternate time option is allowed per telephone set at a given time.

This feature is not supported on Basic Rate Interface (BRI) terminals.

Feature interactions

When incoming calls require redirection, the order of precedence for which the system handles no answer and busy calls, is listed below:

Calls to Idle Stations:

- 1 Call Forward All Calls
- 2 Message Waiting
- 3 Call Forward No Answer
- 4 Attendant Recall

Calls to Busy Stations:

- 1 Call Forward All Calls
- 2 Hunting
- 3 Call Waiting or Camp-On
- 4 Message Waiting Forward Busy
- 5 Call Forward Busy

Call Forward All Calls

Call Forward, Internal

Call Forward/Hunt Override Via FFC

These features take precedence over Call Redirection by Time of Day (CRTOD).

Call Forward by Call Type

Hunting by Call Type

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.

Call Forward No Answer

Call redirection parameters for Call Forward No Answer are obtained from the originally dialed Directory Number. When CRTOD is activated, unanswered calls given CRTOD treatment are forwarded with CFNA according to the time of day. No changes are made to the existing CFNA feature.

Call Forward No Answer, Second Level

Existing Second Level CFNA allows unanswered calls to receive Call Forward No Answer treatment twice. CRTOD parameters are obtained from the last rung Directory Number. A maximum of two levels of CFNA is allowed for an unanswered call.

Call Waiting Redirection

When Call Forward No Answer occurs on a waiting call, the redirected Directory Number used depends on the time of day if CRTOD is activated.

Multiple Appearance DN Redirection Prime

When CRTOD and Multiple Appearance DN Redirection Prime (MARP) are activated, Call Forward or Hunt are dependent on the time of day and follows the MARP feature for Call Forward No Answer or Hunt treatment.

Hunting

When 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.

User Selectable Call Redirection

User Selectable Call Redirection is not supported.

Feature packaging

Call Redirection by Time of Day is included in base X11 system software.

Feature implementation

LD 15 - Customer Data Block to set up Alternative Redirection Time.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	RDR	Change Call Redirection.
CUST	xx	Customer number.
...		
- CRTOD	YES	Call Redirection by Time of Day. Alternate time option prompts are skipped if (NO) or <CR> is entered
- - CRT0	SH SM EH EM	Alternate time option 0, where: SH = starttime in hours, SM = starttime in minutes, EH = endtime in hours and EM = endtime in minutes in international time format (hour from 00-23 and minute 00-59). Enter "X" to remove current value and reset both the start time and end time equal to 0.
- - CRT1	SH SM EH EM	Alternate time option 1, where: SH = starttime in hours, SM = starttime in minutes, EH = endtime in hours and EM = endtime in minutes in international time format (hour from 00-23 and minute 00-59). Enter "X" to remove current value and reset both the start time and end time equal to 0.
- - CRT2	SH SM EH EM	Alternate time option 2, where: SH = starttime in hours, SM = starttime in minutes, EH = endtime in hours and EM = endtime in minutes in international time format (hour from 00-23 and minute 00-59). Enter "X" to remove current value and reset both the start time and end time equal to 0.
- - CRT3	SH SM EH EM	Alternate time option 3, where: SH = starttime in hours, SM = starttime in minutes, EH = endtime in hours and EM = endtime in minutes in international time format (hour from 00-23 and minute 00-59). Enter "X" to remove current value and reset both the start time and end time equal to 0.

LD 10 - Add or Change Terminal Number Block for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	NEW, CHG	Analog telephone can be defined or modified.
TYPE:	500	Analog (500/2500 type) telephone data block.
...		
CLS	RTDA	Call Redirection by the Time of Day allowed. If CLS = RTDD (denied) then RTDA, AEFD, AEHT, AFDN, AHNT will be removed and ARTO prompt will be reset to 0.
...		
ARTO	(0)-3	Alternate Redirection Time Option for call redirection defined in the Customer Data Block. Only prompted if CLS = RTDA. Default value 0 is entered if request is new. The value is not changed if request is CHG. <CR> to enter CLS and ARTO data.
FTR	xxxx yyyy	Enter Feature Name and Related Data.
	AFD	Alternate Call Forward No Answer DN up to 13 digits. Remove by setting CLS = RTDD.
	AHNT	Alternate Hunt DN up to 13 digits. Remove by setting CLS = RTDD.
	AEFD	Alternate External Call Forward No Answer DN up to 13 digits. Remove by setting CLS = CFTD or RTDD.
	AEHT	Alternate External Hunt up to 13 digits. Remove by setting CLS = CFTD or RTDD.

LD 11 - Add or Change Terminal Number Block for Meridian 1 proprietary telephones

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type, where xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
...		
CLS	RTDA	Call Redirection by the Time of Day allowed.
...		
ARTO	(0)-3	Alternate Redirection Time Option for call redirection defined in the Customer Data Block. Only prompted if CLS = RTDA. Default value 0 is entered if request is new. The value is not changed if the request = CHG. <CR> to enter CLS and ARTO data.
AFD	xxxx	Alternate Call Forward No Answer DN up to 13 digits. Remove by setting CLS = RTDD.
AHNT	xxxx	Alternate Hunt DN up to 13 digits. Remove by setting CLS = RTDD.
AEFD	xxxx	Alternate External Call Forward No Answer DN up to 13 digits. Remove by setting CLS = CFTD or RTDD. Requires Call Forward by Call Type Allowed (CFTA) Class of Service.
AEHT	xxxx	Alternate External Hunt up to 13 digits. Remove by setting CLS = CFTD or RTDD. Requires Call Forward by Call Type Allowed (CFTA) Class of Service.

Feature operation

No specific operating procedures are required to use this feature.

Call Redirection by Day

Call Redirection by Day (CRDAY) is an enhancement of the X11 Release 22 feature Call Redirection by Time of Day (CRTOD). The CRDAY feature allows you to automatically redirect incoming calls on specified days of the week and/or holidays. You can define the number of rings required before a call is redirected, and the Directory Number (DN) to which the call is redirected.

Existing parameters that apply to the operation and redirection of DNs of Call Forward No Answer (CFNA) and Hunting also apply to this feature. The CRDAY feature also uses the alternate DNs introduced by the CRTOD feature.

Operating parameters

You can configure up to four alternate day lists, DAY0 – DAY3, for each customer. Each day list can contain one or more days of the week. You can also configure up to four holiday lists, HOLIDAY0 – HOLIDAY3, for each customer. Each holiday list can contain up to 20 dates.

You can assign one alternate day list and/or one alternate holiday list for each telephone. The maximum value of the year in a holiday date is 2104.

There is a class of service (CLS) for each of CRTOD, CRDAY, and Call Redirection by Holiday (CRHOL). Each CLS can be enabled or disabled separately and are independent of each other.

CRDAY is not supported on Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) sets.

Feature interactions

Call Redirection by Time of Day

The CRTOD and CRDAY features can work together or separately. If all three classes of service are enabled, CRHOL takes precedence over CRDAY and CRTOD. When the CRDAY and CRTOD classes of service are enabled, CRDAY takes precedence.

When incoming calls require redirection, the order of precedence for which the system handles no answer and busy calls, is listed below:

Calls to Idle Stations:

Call Forward All Calls

Message Waiting

Call Forward No Answer

Attendant Recall

Calls to Busy Stations:

Call Forward All Calls

Hunting

Call Waiting or Camp-On

Message Waiting Forward Busy

Call Forward Busy

Call Forward All Calls

Call Forward, Internal

Call Forward/Hunt Override Via FFC

Call Forward No Answer

When Call Redirection by Day (CRDAY) is activated, calls unanswered after a specified number of rings are sent to Call Forward No Answer feature (CFNA) and forwarded to the alternate DN based on the alternative days/holidays configured for the set.

Call Forward All Calls

All unanswered incoming calls are sent to the Call Forward All Calls feature if there is no answer then the call is sent to the alternate CRDAY DN specified for that day/holiday.

Call Waiting Redirection

When Call Forward No Answer (CFNA) occurs on a waiting call, the Call Waiting Redirection (CWTR) feature redirects the call to a specified DN based upon the alternate days and/or holidays configured for the set. If the current day matches one of the busy set's alternate days or holidays, then the call is redirected to the CRDAY alternate DN.

Hunting

Hunting allows a call encountering a busy DN to route automatically to another DN. When CRDAY is enabled and an incoming call reaches a busy DN, the current day is checked against the alternate days and holidays specified for that set. If the current day matches one of the alternate days, the call begins the hunting route using the alternate redirection DNs defined for the set.

Hunting by Call Type

The Hunt by Call Type redirects an incoming call to a HUNT DN. With CRDAY enabled on the called DN, the incoming calls on specified Alternate Days and Holidays are redirected to the assigned alternate HUNT DN.

Group Hunting

The Group Hunting feature provides a method of hunting DNs in a group. The group is associated with a Pilot DN, that is, a DN with no associated Terminal Number (TN). The hunting is done in the order of entry of DNs in the group. If a set's list of alternate days and/or holidays program matches the current day, incoming calls are directed to Group Hunt. This feature allows an incoming DID call to be redirected to a Hunt DN or External Hunt (EHT) if Call Forward by Call Type (CFCT) is enabled. To activate this feature, the called DN must have the following class of service Hunting Denied HTD with Hunting By Call Type Allowed (HBTA), and package 131 enabled.

Multiple Appearance DN, Multiple Appearance Redirection Prime

When a call redirection feature is activated for a Multiple Appearance DN (MADN), the TN information is required. Call redirection always refers to the Multiple Appearance Redirection Prime (MARP) TN to determine the feature operation. The CRDAY feature also uses the MARP TN to get the alternate call redirection DNs.

Second Level Call Forward No Answer

The Second Level Call Forward No Answer (SFNA) allows unanswered calls to receive Call Forward No Answer (CFNA) treatment twice. The CFNA timer is configured in the customer data block (CDB) for the number of rings before a call is redirected. If SFNA is allowed on the last DN rung, then the incoming call is redirected based on the list of alternate days and/or holidays configured for the set (day/holiday class of service).

User Selectable Call Redirection

The CRDAY feature does not support User Selectable Call Redirection (USCR). Only the following redirection DNs can be changed from a set:

- CFNA DN (FDN)
- External CFNA DN (EDN)
- Hunt DN (HUNT)
- External Hunt DN (EHT)

The alternate redirection DNs cannot be changed with USCR.

Feature packaging

CRDAY is included in base X11 system software.

Feature implementation

LD 15 - To configure alternate days/holidays.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	RDR	Redirection data.
CUST	xx	Customer number. xx = 0-99 for Options 51C-81C. xx = 0-31 for Option 11C.
...		
CRDAY	YES	Call Redirection by Day. DAY0 is prompted if "YES" is entered. (NO) = default.
- DAY0	x x...x	List of alternate days in list 0. Where x = 1...7 Sunday = 1 Monday = 2 Tuesday = 3 Wednesday = 4 Thursday = 5 Friday = 6 Saturday = 7 To remove a day value precede the day number with an X.
- DAY1	x x...x	List of alternate days in list one.
- DAY2	x x...x	List of alternate days in list two.
- DAY3	x x...x	List of alternate days in list three.
CRHOL	NEW CHG OUT OUT ALL	Call Redirection by Holiday. Add new data. Change existing data. Remove existing data. Delete all holidays in the list. There are a maximum of 20 holidays allowed. The four holiday options lists are created from these original 20 holidays.

- DATE	dd mm yyyy	Enter holiday date. dd = day. mm = month. yyyy = year (optional, with maximum year value of 2104). If the year is not entered, the holiday is repeated every year.
--HOL_OPT	n n n n ALL	Holiday Option List to which entered date applies. Where: n = 0, 1, 2, or 3. Select all four holiday option lists. Precede the holiday list with X to remove.
- DATE	dd mm yyyy <CR>	Continue to input holidays to maximum of 20. Stop adding holidays and continue administration.
--HOL_OPT	n n n n	Holiday Option List to which entered date applies. Where: n = 0, 1, 2, or 3. Select all four holiday option lists. Precede the holiday list with X to remove.

LD 10 - Enable call redirection by day/holiday for analog sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Set type. 500/2500 set data block.
TN	l s c u c u	Terminal Number l = loop, s = shelf, c = card, u = unit. c = card, u = unit for Option 11C.
CUST		

...		
CLS	FNA FBA RBDA RBHA	Call Forward No Answer Allowed. Call Forward Busy Allowed. Redirection By Day Allowed. Redirection By Holiday Allowed.
...		
ADAY	(0) - 3	Alternate days in DAY list 0-3 are selected for the set. Enter the list of alternate days listed in the Customer Data Block.
AHOL	(0) - 3	Enter the list of alternate redirection holidays in Holiday list 0-3 as selected for the set defined in the Customer Data Block.
...		
FTR	AFD x...x	Alternate forward DN to which all internal calls on an alternate day and/or holiday are redirected upon no answer.
	AHNT x...x	Alternate hunt DN to which all internal calls on an alternate day and/or holiday are redirected when set is busy or no answer. (CFNA to HUNT).
	AEFD x...x	Alternate external forward DN to which all external calls on an alternate day and/or holiday are redirected upon no answer.
	AEHT x...x	Alternate external hunt DN to which all external calls on an alternate day and/or holiday are redirected when set is busy or no answer (CFNA to HUNT).

LD 11 - Enable call redirection by day/holiday for a digital sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Type of set: Where xxxx = 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number l = loop, s = shelf, c = card, u = unit for Options 51C-81C. c = card, u = unit for Option 11C.
CUST		
...		
CLS	FNA FBA RBDA RBHA	Call Forward No Answer Allowed. Call Forward Busy Allowed. Redirection By Day Allowed. Redirection By Holiday Allowed.
...		
ADAY	(0) - 3	Alternate days in DAY list 0 - 3 are selected for the DN.
AHOL	(0) - 3	Enter the list of alternate redirection holidays in Holiday list 0-3 as selected for sets defined in the Customer Data Block.
...		
AFD	x...x	Alternate forward DN to which all internal call forward DN's on alternate days/and all holidays are redirected upon no answer.
AHNT	x...x	When the DN is busy all incoming calls in the HOLIDAY list are redirected to the alternate hunt DN.
AEFD	x...x	Alternate external forward DN to which incoming calls are redirected on alternate days.
AEHT	x...x	When the DN is busy, all incoming calls for the specified holiday are redirected to the alternate external hunt DN.

Feature operation

No specific operating procedures are required to use this feature.

Call Transfer

Call Transfer allows a telephone user on any two-party call to hold the existing call and originate another call to a third party. The user may consult privately or transfer the original call to the third party. A call is transferred by pressing a dedicated key on Meridian 1 proprietary telephones or by flashing the switchhook on analog (500/2500 type) telephones.

Operating parameters

A separate Call Transfer key/lamp pair must be assigned to Meridian 1 proprietary telephones.

A transfer allowed Class of Service must be specified for analog (500/2500 type) telephones to access this feature.

If trunks are involved, successful completion of a transfer depends on the access restrictions assigned to the stations and trunks.

While the originating side of a call is linked to a transfer or conference key (i.e., the originator of a transfer/conference call has not yet completed the transfer/conference), the terminating side cannot initiate a transfer or conference. Conference calls cannot be transferred.

Feature interactions

Advice of Charge for EuroISDN

When a set is connected to an ISDN CO trunk conveying AOC charging information, the received call charging information is stored against this set.

If the user transfers the call while the dialed set is still ringing, call charging information is stored against the transferring set until the call is either answered or abandoned by the external party. If the user consults with the dialed transfer set, charging information is stored against the transferring set until the call is either answered or abandoned. If the transferred call is redirected by a call redirection feature, the call is charged against the transferring set until the call transfer is completed and the call is answered. In all instances, if the call is answered, new call charging information is stored against the set receiving the transferred call.

Attendant Break-In

Until a transferred call is connected, the attendant cannot break in to a call that is being transferred.

Automatic Redial (ARDL)

When an ARDL call is not accepted by the calling party, the Call Transfer (TRN) key is ignored if pressed.

Call Forward, Break-In and Hunt Internal or External Network Wide

The treatment of a call following a call transfer (Call Forward/Hunt by Call Type) is based on the transferring set and the call originator's set.

Call Page Network Wide

A station set or Attendant Console that transfers an external PAGENET uncontrolled call is not blocked. However, an external PAGENET controlled call is blocked.

Calling Party Privacy

If an incoming non-ISDN call is being transferred or an incoming ISDN call is transferred to a non-ISDN trunk, the Calling Party Name and Number will not be passed on to the terminating set. The CPP feature will not change this operation.

For cases where an incoming call with the Privacy Indicator is transferred over an MCDN trunk, or to a local station, the name and/or number of the originating party will not be displayed on the set of the final terminating party.

Call Transfer

Call Completion notification is only presented to the Call Completion originating set. This notification cannot be transferred to another station. Once the second call is completed, the call can be transferred.

If a user encounters a busy or no answer situation during a transfer operation, Call Completion can be activated.

Conference

You can also transfer calls using the Conference key, but not until the third party answers the call. After you initiate a transfer and the third party answers, you can establish a three-way conference by pressing the Conference key, if equipped.

Hold

A consultation call can be placed on Hold.

ISDN QSIG Name Display

After the completion of a call transfer, an incoming QSIG call with name display presentation allowed has name information displayed on the destination set. If the incoming QSIG call has presentation denied, name information is not displayed to the destination set.

Multi-Party Operations

Analog (500/2500 type) telephones with TSA Class of Service can Call Transfer by going on-hook after establishing a conference. This differs from operation with XFA Class of service, where transfer can be achieved by going on-hook during Consultation connection.

If an analog (500/2500 type) telephone with TSA Class of Service goes on-hook during consultation connection, it is treated as mis-operation of All Other Cases and the recovery actions are done based on the CCDO and AOCS options selected in LD 15. If CDOC = NO, an analog (500/2500 type) telephone can achieve a transfer by going on-hook after establishing a conference.

Predictive Dialing

Transfer by Meridian 1 proprietary Set

The application sends the Fast Transfer request on behalf of a Meridian 1 proprietary set, and then the switch initiates and completes the transfer immediately which is similar to a normal call transfer from a Meridian 1 proprietary set.

In a Predictive Dialing scenario where the autodialer (origination DN) is a Meridian 1 proprietary set, the Make Call message sent by the application to the switch to make a call on behalf of the Meridian 1 proprietary set, and then the call transfer call, will interact with the Meridian 1 proprietary Call Transfer feature. The autodialer is configured with Class of Service TRN so that the switch can transfer the call to the target destination.

Transfer by Analog (500/2500 type)Set

The application sends the Fast Transfer request on behalf of an analog (500/2500 type) set. The switch will then initiate and complete the transfer in one step.

In a predictive dialing scenario, the application will send the Make Call request on behalf of the autodialer (analog [500/2500 type] set) to have the switch make the call, and then transfer the call when the switch receives the Fast Transfer message. The autodialer needs to be configured with Classes of Service Dial Pulse (DIP) and Transfer Allowed (XFA) for 500 sets, or with Classes of Service Digitone (DTN) and XFA for 2500 sets.

Supervised Analog Lines

If more than one active call is extended to an analog line, the call type associated with an analog line is determined by the first active call. The call type is assumed to be incoming and hook flash supervision applies if a terminal device answers an incoming call from an idle state. If the terminal device performs a switch hook flash to put the first party on hold and initiates a consultation call, the Battery Reversal feature is not supported; no battery reversal answer signal is extended to the terminal device when the second party answers.

If the first party disconnects while the terminal device is connected to the second party, no disconnect supervision is extended to the terminal device. However, hook flash disconnect supervision is extended to the terminal device when the second party disconnects (i.e., a disconnect supervision signal is sent only when the last party connected to the terminal disconnects).

If a terminal device originates an outgoing call, battery reversal answer supervision is extended when the called party answers. The polarity of the line remains reversed polarity when the terminal device performs a switch hook flash and then initiates a consultation call to a second party. The analog line is reverted to normal polarity when the terminal device completes the transfer and drops out or when the last of either the held party or the consultation party disconnects.

Three-Party Service

The party receiving the patience tone or the Misoperation ringback is not able to make a call transfer.

Trunk Barring

The originator of a call transfer, unless otherwise restricted, is able to connect to a denied party on a consultation basis. Operating the Transfer key on a Meridian 1 proprietary telephone or going on hook on an analog (500/2500 type) telephone does not result in a call transfer if the Originating Trunk Connection is barred. The user of a Meridian 1 proprietary telephone remains connected to the denied party until releasing the connection and returning to the held Originating Trunk Connection. The user of an analog (500/2500 type) telephone is re-rung by the Originating Trunk Connection when transfer is attempted and denied.

Trunk to Trunk Connection

To transfer an external trunk on ringing across a supervised analog network TIE trunk, the external trunk and internal TIE line must have both answer and disconnect supervision, and the external call must be established. To transfer one outgoing external trunk to another, both external trunks must have answer and disconnect supervision, and both external calls must be established.

Feature packaging

Call Transfer is included in base X11 system software.

Feature implementation

LD 10 – Allow/deny Call Transfer for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XFD), XFA	(Deny) allow Call Transfer.

LD 11 – Add a Call Transfer key for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx TRN	Add a Call Transfer key (the M2317 and M3000 must use key 26).

Feature operation

To transfer an active call on a Meridian 1 proprietary telephone, follow these steps:

- 1** Press **Transfer**.
The call is on hold.
- 2** Dial the number where you want to transfer the call.
- 3** Press **Transfer** when you hear ringing or after your call is answered.
When your call is answered, you may speak privately with the new party before completing the transfer.

Note: To cancel an incomplete transfer, press the key beside the fast flashing indicator and you return to the call you tried to transfer. To conference all three parties, press the Conference key, if equipped.

To transfer an active call on an analog (500/2500 type) telephone, follow these steps:

- 1** Flash the switchhook.
The call is on hold.
- 2** Dial the number where you want to transfer the call.
- 3** Flash the switchhook when you hear ringing or after your call is answered.

When your call is answered, you may speak privately with the new party before completing the transfer.

Note: To cancel an incomplete transfer, hang up, then lift the handset and flash the switchhook to return to the call.

Restricted Call Transfer

The Restricted Call Transfer feature provides the Call Transfer Restricted (XFR) Class of Service for analog (500/2500 type) telephones. By assigning XFR Class of Service in LD 10, a call transfer attempt will not result in action. This is different from the Call Transfer Denied (XFD) Class of Service, which will route the call to the attendant when a transfer is attempted.

Feature requirements

The Three-Party Service Allowed Class of Service, part of the Multi-Party Operations feature, cannot be used together with the XFR Class of Service.

Feature interactions

There are no interactions with other features.

Feature packaging

Call Transfer is included in base X11 system software.

Feature implementation

LD 10 – Define two new options for an analog (500/2500 type) telephone.

Prompt	Response	Description
TYPE	NEW CHG	Add new data. Change existing data.
REQ	500	Telephone type.
...		
CLS	XFR	Restrict call transfers and do not recall to attendant.

Feature operation

With the Restricted Call Transfer feature enabled, users of analog (500/2500 type) sets will not be able to transfer calls. Attempted call transfers are not routed to the attendant.

Call Waiting/Internal Call Waiting

Call Waiting notifies a telephone user on an established call (internal or external) that an external call is waiting to be answered. Meridian 1 proprietary telephones must have a Call Waiting key/lamp pair assigned and a Class of Service that allows a warning tone. Call Waiting is applicable to the Prime DN or any single appearance DN on the telephone. When an external call comes into a Meridian 1 proprietary telephone and the telephone user is on a call, the Call Waiting lamp flashes and a buzz sounds through the telephone's speaker.

To use Call Waiting, analog (500/2500 type) telephones must have a Class of Service that allows Call Waiting and a warning tone. Two tone bursts are received through the handset to advise an analog (500/2500 type) telephone user of a waiting call. Note that the two calls cannot be conferenced together.

Call Waiting applies to Direct Inward Dialing (DID), Central Office (CO), Foreign Exchange (FX), and Wide Area Telephone Service (WATS) trunk calls extended to a busy telephone by the attendant. With X11 Release 8 and later releases, Call Waiting also applies to calls on TIE and Common Control Switching Arrangement (CCSA) trunks.

Internal Call Waiting, X11 Release 8 and later releases

This feature provides Call Waiting for internal calls. This option, defined on a per-telephone basis, allows Call Waiting for calls from other telephones within the customer group. These calls include the following:

- direct telephone-to-telephone calls
- attendant-extended internal calls, and
- telephone-to-telephone call transfer of all trunk and internal calls.

Call Waiting Flexible Feature Codes

With X11 Release 20 or later, a user may activate Call Waiting from an analog (500/2500 type) telephone with Call Waiting Class of Service by dialing the Call Waiting Activate (CWGA) FFC (defined in LD 57). To deactivate Call Waiting, the user dials either the Call Waiting Deactivate (CWGD) FFC (defined in LD 57) or the general Deactivate (DEAF) FFC (also defined in LD 57).

If Call Waiting is deactivated using FFCs, then station-to-station call waiting is also deactivated at the telephone.

If the Class of Service is CWA, ACTIV or DEACT will be printed in brackets when CWT is activated or deactivated.

The CWT FFCs do not affect Precedence Call Waiting.

Operating parameters

A Meridian 1 proprietary telephone can have only one working Call Waiting key/lamp pair.

Telephones with internal telephone-to-telephone Call Waiting must also have external Call Waiting (CWA) Class of Service.

A Call Waiting indication is not presented to a single-line telephone in the transfer or conference mode.

An analog (500/2500 type) telephone user receiving a second call can connect alternately to the original call and the Call Waiting call by a switchhook flash. The user cannot transfer or conference either call.

When a second call goes to a telephone that already has a Call Waiting call, the second call is recalled to the attendant if it is not answered by the number of rings defined in the Customer Data Block (RTIM prompt, field zz).

An analog (500/2500 type) telephone user who has received a Call Waiting call routed from the attendant cannot reconnect to the original call until it has been released from the console.

Attendant Administration does not support the Internal Call Waiting feature.

If a call is waiting and Call Waiting is deactivated using the Call Waiting Deactivate (CWGD) FFC, the call that is waiting is allowed to continue waiting while any new calls will not be allowed to wait.

Feature interactions

Advice of Charge for EuroISDN

When an Advice of Charge call is transferred to a busy set with Call Waiting Allowed, the transferring station is charged until the call is answered.

Attendant Blocking of Directory Number

If a set that has the Station-to-station Call Waiting feature active (CLS SWA and a Call Waiting (CWT) key for SL-1 and digital sets) is idle when an Attendant Blocking of DN attempt is made, the Attendant Blocking of DN attempt will be allowed and processed as normal. If the DN is idle and there is an active call on the Call Waiting key, the Attendant Blocking of DN attempt will be allowed.

If a set has the Station-to-station Call Waiting feature active and the DN to be blocked is busy when an Attendant Blocking of DN attempt is made, the Attendant Blocking of DN attempt will be canceled and busy tone will be returned.

For a set that has the Call Waiting (or Station-to-station Call Waiting) feature active and a DN is blocked due to the Attendant Blocking of DN feature, any incoming call to the blocked DN will receive busy tone.

Attendant Break-In

If the destination DN has a camped-on incoming trunk call, the attendant cannot extend the urgent incoming call as a Camp-On call.

Attendant Queuing

Call Waiting options do not apply to calls queued to a specified attendant. The exception to this is the display call waiting key, which shows the number of calls in the overall attendant queue and the calls in the queue for a specified attendant.

Call Forward All Calls and Hunting

Call Forward All Calls and Hunting take precedence over Call Waiting.

Call Forward No Answer

If a call to a telephone gets CFNA treatment to another telephone which is busy, Call Waiting and Camp-On do not apply. The call will attempt to terminate on the original DN again.

Call Waiting Redirection

The option selected for Call Waiting Redirection treatment also applies to calls given Internal Call Waiting treatment.

Camp-On

Call Waiting and Camp-On are mutually exclusive. If a Call Waiting Class of Service or key is defined, Camp-On cannot be provided.

Directory Number Delayed Ringing

Call Waiting tones apply to SCN/MCN keys as per existing operation. The Directory Number Delayed Ringing (DNDR) feature does not apply, and the user is informed of the incoming call immediately.

Enhanced Night Service

Call Waiting will be applied by Enhanced Night Service to terminate incoming Night calls to busy Night DNs. This will still be done even if the Night DN is an analog (500/2500 type) telephone with Call Waiting Denied (CWD) Class of Service, or if the Night DN is a Meridian 1 proprietary telephone without a Call Waiting (CWT) key assigned.

All telephones will be given Night Call Waiting tone, if the NWT prompt in overlay 15 was responded to with "YES," regardless of the Warning Tone (WTA/WTD) Class of Service setting of the telephone. Meridian 1 proprietary telephones will be given Night Call Waiting tone in the handset instead of the speaker buzz given for Call Waiting.

Flexible Feature Code enhancement

The Call Waiting Deactivate (CWGD) FFC may be used to deactivate Call Waiting. If a call is waiting when Call Waiting is deactivated, the call is allowed to continue waiting while any new calls will not be allowed to wait.

Flexible Voice/Data Terminal Number

Call Waiting is not supported on data calls to a dynamic voice/ data TN. Call Waiting is supported for voice calls to dynamic voice/ data TN.

Hunting

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.

ISDN Night Service

If a call is diverted to a third-party operator Night DN that is busy, Call Waiting may be activated (if equipped). The call to the third-party operator PBX is released.

ISDN QSIG Call Completion

On an Analog (500/2500 type) set, Call Completion notification waits until the set has finished an active call. If Call Waiting is configured on a set, notification is presented after the Call Waiting call. If an additional call is queued while Ring Again free notification is waiting on a set, the waiting call takes precedence over the Call Completion notification. An established Call Completion call is also queued if a set has Call Waiting feature equipped and is occupied on another call.

Message Center

Call Waiting calls are not forwarded to a Message Center.

Multi-Party Operations

A user of an analog (500/2500 type) telephone can answer a Call Waiting call, thereby establishing a consultation connection. The user can dial control digits, as normal. To toggle the calls, the toggle control digit must be used rather than a switchhook flash.

Multi-Party Operations – Three-Party Service

An analog (500/2500 type) telephone cannot have Call Waiting during the patience tone.

Ring Again

The user is notified that a previously busy line is free only when both the original call and the waiting call have disconnected.

Station Camp-on

Call Waiting takes precedence over Station Camp-On.

Feature packaging

Call Waiting/Internal Call Waiting is included in base X11 system software.

For Call Waiting FFCs, the following packages are required:

- Flexible Feature Codes (FFC) package 139
- Background Terminal Facility (BGD) package 99

Feature implementation

LD 10 – Allow/deny Call Waiting for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	(CWD), CWA (SWD), SWA (WTA), WTD	(Deny) allow Call Waiting. (Deny) allow internal Call Waiting (if SWA is defined, CWA must also be defined). (Allow) deny warning tone.

LD 11 – Allow/deny Call Waiting for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
CLS	(SWD), SWA (WTA), WTD	(Deny) allow internal Call Waiting. (Allow) deny warning tone.
KEY	xx CWT	Add a Call Waiting key (the M3000 must use key 24).

LD 10 – Define Call Waiting for an analog (500/2500 type) telephone.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	500	Telephone type.
CUST	xx	Customer number.
...		
CLS	CWA	Call Waiting Allowed Class of Service.

Feature operation

To answer a Call Waiting call on Meridian 1 proprietary telephones, follow these steps:

- 1 Press **Hold** when you hear a tone during a phone call.
- 2 Press **Call Wait** to answer the waiting call.

To return to your first call, follow these steps:

- 1 Press **Hold** if you want to put your second call on Hold.
- 2 Press the extension key that has the first call on it.

To answer a Call Waiting call on analog (500/2500 type) telephones, follow these steps:

- Flash the switchhook when you hear a beep during a phone call.
Your current call is on Hold and you are connected to the waiting call.

To return to your first call:

- Flash the switchhook.

The following instructions are for using Call Waiting FFCs:

- Allow – The user must dial the Call Waiting Activate (CWGA) FFC.
- Disallow – The user must dial the Call Waiting Deactivate (ATDD) FFC or the Deactivate (DEAF) FFC.

- Use prerequisites – To set Call Waiting, the telephone must have Call Waiting Allowed (CWA) Class of Service.

Call Waiting Redirection

Previously, Call Waiting notified an active set that a second call was waiting to be answered on that DN. For non-attendant extended calls, the incoming call received Call Waiting treatment until the call was answered by the called party or the calling party disconnected. For attendant-extended calls, the incoming call received Call Waiting treatment until the Call Waiting Recall timer timed out, at which time the call was recalled to the attendant. The attendant had to then extend the call to a message center or voice mail. However, since the attendant was given no indication as the reason for the recall (called party busy or not answering), it was difficult for the attendant to redirect the call properly.

In X11 Release 21, the Call Waiting Redirection feature follows the Call Forward No Answer (CFNA) treatment defined for the DN. No modifications have been made; all existing Call Forward No Answer functionalities will apply to redirected calls.

Operating parameters

The existing Call Waiting and Call Forward No Answer limitations apply to the Call Waiting Redirection feature. The Call Forward No Answer feature is used by the Call Waiting Redirection feature to redirect “no answer” calls given Call Waiting treatment.

Although the Call Waiting treatment is applied to a busy DN, the CFNA call redirection treatment given by the Call Waiting Redirection feature is for a “no answer” presentation. The unanswered Call Waiting call is treated as a call presented to an idle “no answered” DN. Calls redirected to messaging services or sets with displays are provided with the “no answer” call redirection reason.

The existing implementation of Call Forward No Answer is used to select the TN with the CFNA DN for the “no answer” Call Waiting call. Calls are redirected according to the call type (internal or external) as defined at the designated call redirection TN chosen by CFNA.

Feature interactions

Automatic Timed Reminders

Automatic Timed Recalls

When CFNA is active, the Slow Answer Recall timer begins only after the call reaches its final destination. CFNA has precedence over Attendant Recall for attendant-extended calls. Irrespective of the relative time-out intervals for each feature, ringing continues as long as allowed by CFNA for sets with CFNA enabled.

Since the Call Waiting Redirection feature applies CFNA treatment to a Call Waiting call, the Call Waiting Redirection feature also has precedence over the Call Waiting recall timer.

Basic Rate Interface

The Call Waiting Redirection feature is not applicable to Basic Rate Interface (BRI) terminals. However, an ISDN BRI terminal may redirect a call using hunting or CFNA.

Call Forward All Calls

Internal Call Forward

Call Forward All Calls and Internal Call Forward both have precedence over Call Waiting and the Call Waiting Redirection feature.

Call Forward and Hunt by Call Type

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).

Call Forward/Hunt Override via Flexible Feature Code (CFHO)

There is no interaction with the Call Waiting treatment component of the Call Waiting Redirection feature. However, Call Forward/Hunt Override via Flexible Feature Code does override CFNA, and thus the CFNA treatment given to unanswered Call Waiting calls by the Call Waiting Redirection feature is overridden by the CFHO feature. The incoming call will continue to be given Call Waiting treatment as if the Call Waiting Redirection feature is disabled when the CFHO feature is enabled by the calling party.

Call Forward No Answer (CFNA)

Per existing Call Forward No Answer feature operation, the call redirection parameters for CFNA are obtained from the originally dialed DN.

Call Redirection by Time of Day (CRTOD)

When Call Forward No Answer occurs on a waiting call, the redirected Directory Number used depends on the time of day if CRTOD is activated.

Camp-On

There is no interaction as Call Waiting and Camp-On are mutually exclusive.

Distinctive Ringing**New Distinctive Ringing Call Forward No Answer (DFNA)**

The existing Distinctive Ringing CFNA 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, 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 via the Call Waiting Redirection feature.

Internal or Station-to-Station Call Waiting

The option selected for Call Waiting Redirection treatment also applies to calls given Internal Call Waiting treatment.

Message Center

Unanswered calls given Call Waiting treatment may now be allowed by the Call Waiting Redirection feature to be forwarded to a CFNA DN which may be a Message Center. The call redirection reason is “no answer”.

Message Waiting

Message Waiting has precedence over CFNA and Attendant Recall for attendant-extended calls. Unanswered calls given Call Waiting treatment are forwarded to the Flexible CFNA DN by the Call Waiting Redirection feature.

Multi-Party Operations

Recovery on Misoperation of Call Transfer – Call Transfer with Ring No Answer (RGNA)

If the transferring party goes on-hook to complete the Call Transfer (i.e., blind transfer) before the “transferred to” or called party answers the Call Waiting call, an RGNA Mis-operation of Call Transfer is detected by Multi-Party Operations (MPO).

With the Call Waiting Redirection feature enabled, if the blind transfer completes after the CFNA timer applied by Call Waiting Redirection has expired, there is no interaction as the Call Waiting Redirection feature is done and has already redirected the unanswered Call Waiting call to the CFNA DN.

If the blind transfer completes before the Call Waiting Redirection CFNA timer expires and the RGNA option is defined to be:

- 1** Standard (STD, that is, operation as it was prior to introduction of MPO), there is no interaction, as Call Waiting Redirection will redirect the unanswered Call Waiting call when the CFNA timer expires.
- 2** Non-STD (that is, ATN, DIS, OVF, AAR, or DAR), the RGNA option has precedence over CFNA and thus has priority over Call Waiting Redirection’s CFNA treatment.

Recovery on Misoperation of Call Transfer – Misoperation of Call Transfer for All Other Cases

This type of misoperation occurs when the transferring party attempts to complete the transfer in several other non-RGNA scenarios. There is no interaction with these Multi-Party Operations scenarios and the Call Waiting Redirection feature.

Multiple Appearance DN (MADN)

The Call Waiting Redirection feature applies to unanswered Call Waiting calls which apply to single appearance DNs and primary appearance DNs of MADNs.

MADN Redirection Prime (MARP)

If the MARP feature is activated, the CFNA treatment given by Call Waiting Redirection for an unanswered Call Waiting call follows the MARP feature for CFNA treatment of calls to an idle DN.

Network Call Redirection

Incoming calls receiving Call Waiting Redirection treatment can be redirected over the network only if the trunk-to-trunk connection is already supported per the existing Network Call Redirection feature.

Network Call Forward No Answer

Existing Network CFNA treatment is applied to calls receiving Call Waiting treatment on sets with CFNA and the Call Waiting Redirection feature enabled if the Call Waiting call is not answered before the expiration of the CFNA timer and the CFNA DN is on another node.

Night Service and Night Service Enhancements

Night Service has the same interaction with the Call Waiting Redirection feature as attendant-extended calls. Since the Call Waiting Redirection feature applies CFNA treatment to a Call Waiting call, the Call Waiting Redirection feature also has precedence over the Call Waiting recall timer.

Second Level Call Forward No Answer (SFNA)

The existing Second Level CFNA treatment is applicable to Call Waiting calls redirected by CFNA (first level) with the Call Waiting Redirection feature which are still not answered at the last rung DN.

Voice Mail

Unanswered calls given Call Waiting treatment may now be allowed to forward to Voice Mail through the activation of the Call Waiting Redirection feature. The greeting given to the caller is for a “no answer” condition.

Feature packaging

Call Waiting Redirection is included in base X11 system software.

Feature implementation

LD 15 – Configure the CFNA treatment, the number of ringing cycles for CFNA, and the Call Waiting Redirection option:

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDR	Release 21 gate opener.
CUST	xx	Customer number.
- OPT	CWRA	Call Waiting Redirection Allowed.
		Allow Call Forward No Answer treatment for unanswered Call Waiting calls on a DN.
...		
FNAD	(HNT), ATT, NO, FDN	Call Forward No Answer treatment for DID calls.
FNAT	(HNT), ATT, NO, FDN	Call Forward No Answer treatment for external calls (non-DID).
FNAL	(HNT), ATT, NO FDN	Call Forward No Answer treatment for internal non Direct Inward Dialing calls.
...		
CFN0	1-(4)-15	Call Forward No Answer timers; number of normal ringing cycles for CFNA Options 0, 1, and 2.
CFN1	1-(4)-15	
CFN2	1-(4)-15	
DFN0	1-(4)-15	Distinctive Ringing CFNA timers; number of distinctive ringing cycles for CFNA Options 0, 1, and 2.
DFN1	1-(4)-15	
DFN2	1-(4)-15	

LD 10 – Configure Call Waiting, and Call Forward No Answer for analog (500/2500 type) telephones:

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
HUNT	xxx..x	Hunt DN. If the Call Forward No Answer treatments set up in LD 15 are set to HNT, the Hunt DN should be configured.
CLS	(CWD), CWA	Call Waiting external (denied) allowed.
	(SWD), SWA	Internal (Station-to-Station) Call Waiting (denied) allowed. If SWA is defined, CWA must also be defined.
	(WTA), WTD	Warning tone (allowed) denied.
	(FND), FNA	Call Forward No Answer (denied) allowed.
RCO	(0)-2	Ring cycle option for Call Forward No Answer. Prompted when CLS = FNA, or MWA (or both). RCO must be set to a value other than 0 for Call Waiting Redirection to operate.
FTR	aaaa	Enter the feature and related data.
	FDN xxx ..x	Flexible CFNA DN. If the CFNA treatments set up in LD 15 are set to FDN, the Flexible CFNA DN should be configured.

LD 11 – Configure Call Waiting, and Call Forward No Answer for Meridian
1 proprietary telephones:

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, and 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
FDN	xxx..x	Flexible CFNA DN. If the CFNA treatments set up in LD 15 are set to FDN, the Flexible CFNA DN should be configured.
CLS	(SWD), SWA	Internal (Station-to-Station) Call Waiting (denied) allowed. SWA does not need to exist to have external Call Waiting.
	(WTA), WTD	Warning tone (allowed) denied.
	(FND), FNA	Call Forward No Answer (denied) allowed.
RCO	(0)-2	Ringling cycle option for Call Forward No Answer. Prompted when CLS = FNA, or MWA (or both). RCO must be set to a value other than 0 for Call Waiting Redirection to operate.
HUNT	xxx..x	Hunt DN. If the Call Forward No Answer treatments set up in LD 15 are set to HNT, the Hunt DN should be configured.
KEY	xx CWT	xx = key number Add a Call Waiting key (the M3000 must use key 24).

Feature operation

No specific operating procedures are required to use this feature.

Called Party Disconnect Control

Called Party Disconnect Control allows Meridian 1 system to control the disconnecting of calls on Central Office (CO), Foreign Exchange (FX), Common Control Switching Arrangement (CCSA), Direct Inward Dialing (DID), TIE, Wide Area telephone Service (WATS), modem, and Centralized Automatic Message Accounting (CAMA) trunks. The trunk route data block has been modified so that a route can be specified for Called Party Disconnect Control.

With Called Party Disconnect Control, an incoming trunk call answered within Meridian 1 is not disconnected until the Meridian 1 end goes on-hook. If the calling party goes on-hook, the connection is held, allowing the call to be traced in emergency situations. If the calling party goes off-hook again, the call is not reestablished.

Operating parameters

An incoming call on a trunk route with Called Party Disconnect Control allowed can be transferred to another telephone within the Meridian 1, but cannot be transferred to a trunk.

An incoming call with Called Party Disconnect Control can be forwarded to another telephone, but not to another trunk.

Tandem trunk connections are not allowed on incoming calls on trunks with Called Party Disconnect Control allowed.

If Barge-In or Busy Verify is applied to trunks with Called Party Disconnect allowed, the trunk is disconnected.

Force disconnect, through service change and maintenance, overrides Called Party Disconnect Control.

Feature interactions

Automatic Answerback

Incoming calls on a trunk with Called Party Disconnect Control allowed that terminate on a telephone with Handsfree Answerback are answered automatically. They are not disconnected automatically, however, when the calling party goes on-hook.

Conference

Trunks with Called Party Disconnect Control allowed are treated as trunks without disconnect supervision when conferenced.

Meridian 911 Call Abandon

There is no interaction with M911 Call Abandon and Called Party Disconnect Control.

Feature packaging

Called Party Disconnect Control is included in base X11 system software.

Feature implementation

LD 16 – Define Called Party Disconnect Control for a trunk route.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB	Customer Data Block.
CUST	xx	Customer number.
CNTL	(NO), YES	(Do not) change the controls or timers.
...		
CPDC	(NO), YES	(Deny) allow Called Party Disconnect Control for the trunk route.

Feature operation

No specific operating procedures are required to use this feature.

Called Party Control on Internal Calls

The Called Party Control on Internal Calls (CPCI) feature allows the called party with Class of Service Malicious Call Trace Allowed to activate Malicious Call Trace (MCT) even after the calling party goes on-hook. When enabled, the calling party is prevented from releasing a call until the called party has initially released. If the calling party goes on hook, the call is put on hold and both parties are given call hold treatment. When the called party activates the call trace request, the calling party's information is printed in the call trace record.

This feature builds on the capabilities of the existing Called Party Disconnect Control (CPDC) and Malicious Call Trace (MCT) features. Called Party Control on Internal Calls is applicable on set to set calls and can be activated during or after a malicious call has occurred.

Operating parameters

This feature is designed for stand alone application only and is not supported across a network. On a set to set call, the calling and the called party must belong to the same customer on the same Meridian 1.

Called Party Control on Internal Calls (CPCI) is not supported on ISDN BRI sets.

If an Attendant Console is the calling party and involved in a call with a set, the CPCI feature functionality is not provided to the call.

The CPCI feature is not supported with features such as Attendant Recall, Override, Call Park and Privacy Release.

If the Meridian 1 initializes during an established call, the call remains established. Following initialization, the calling party can successfully release from a connected call prior to the called party releasing.

For this feature, the called party must have a Malicious Call Trace Allowed (MCTA) Class of Service configured in the Customer Data Block (LD 15).

The existing limitations of Malicious Call Trace apply to this feature. When MCT is requested, the information is printed in the call trace record.

If the called party does not release the connection, then the calling party remains established until the called party releases.

Feature interactions

Call Hold, Deluxe

The calling party and called party can put either party on hold. However, the calling party cannot release the call while the called party is on hold. The called party is permitted to release the call.

Held Call Clearing

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.

Feature packaging

Called Party Control on Internal Calls requires the new package Called Party Control on Internal Calls (CPCI) package 310 and also requires Malicious Call Trace (MCT) package 107.

Feature implementation

LD 15 – Configure Called Party Control on Internal Calls in Customer Data Block.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Change Features and options.
CUST	xx	Customer number.
...		
- MCDC	YES	Malicious Call DN/ CLID printing allowed.
CPCI	YES	Called Party Control on Internal Calls allowed. NO = Called Party Control on Internal Calls denied.

LD 57– Configure Malicious Call Trace Flexible Feature Code.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FFC	Flexible Feature Code data block.
CUST	xx	Customer number.
CODE	MTRC	Malicious Call Trace Flexible Feature Code.
MTRC	xxxx	Enter Flexible Feature Code.

LD 10 – Enable Malicious Call Trace on Analog (500/2500 type) sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Analog Set Type.
TN	I s c u c u	Terminal Number. For Option 11C.
CUST	xx	Customer number.
...		
CLS	MCTA	Malicious Call Trace allowed. MCTD = Malicious Call Trace denied.

LD 11 – Enable Malicious Call Trace on Meridian 1 proprietary sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616 or 3000.
TN	I s c u c u	Terminal Number. For Option 11C.
CUST	xx	Customer number.
...		
CLS	MCTA	Malicious Call Trace allowed. MCTD = Malicious Call Trace denied.
KEY	xxx TRC	Key Number, Malicious Call Trace.

Note: For information on the implementation of the Malicious Call Trace feature, refer to the Malicious Call Trace module in this publication.

Feature operation

Feature operation is described in the following scenarios.

Simple Call - Meridian 1 Proprietary Sets

Set A, the calling party, initiates a call to Set B, the called party. Set B has Class of Service Malicious Call Trace Allowed (MCTA) configured. With Called Party Control on Internal Calls (CPCI) activated, Set B can activate Malicious Call Trace even after Set A has gone on-hook. This operation is possible because Set A is not idled until Set B has gone on-hook. Depending on the type of telephone, CPCI activation is done by completing the following:

- 1 Enter the SPRE code and “83” access code;
- 2 Dial the Malicious Call Trace (MCT) Flexible Feature Code (FFC); or
- 3 Activate the Call Trace key.

With Called Party Control on Internal Calls, Set B can activate the Malicious Call Trace feature during an active call between Set A and Set B as well as after Set A has gone on-hook. Set A is not idled until Set B goes on-hook. Prior to Release 22, MCT could not be activated once the calling party went on-hook.

Simple Call - Analog (500/2500 type) Sets

- 1 Flash the switchhook. A special dial tone is heard that signifies the call is on hold.
- 2 Enter the SPRE code and “83” access code.
- 3 Dial the Malicious Call Trace Flexible Feature Code (FFC).
- 4 Go on-hook.

Conference Call

When the calling party and the called party both are involved in a conference call then the following operation is observed.

- 1** A party that called a set with CLS MCTA is only allowed to release if the called party has gone on hook and no other conferee has CLS MCTA or all remaining conferees were originators of a CPCI call.
- 2** In a three party conference between the called party, calling party and the recorder then the recorder is not considered as a conferee. The recorder is treated as a simple call for called party control on internal calls feature.
- 3** In a set to set call, if the called party establishes a conference with a trunk then the called party control on internal calls feature functionality is provided as long as the last called party (with CLS configured as MCTA) which goes on hook is a set rather than a trunk.

Transfer Call

If calling party and the called party are both involved in a simple call and either party tries to transfer the call to another set then the following operation is observed.

- 1** If the called party in a CPCI call attempts to transfer the call to a set with CLS MCTA, it is not allowed to complete its transfer.
- 2** If the called party transfers the call across the network then the called party is allowed to complete its transfer across the network and the transferred to party does not have any control on the calling party.
- 3** If the calling party in a CPCI call attempts to transfer the call to another set, it is not allowed to complete its transfer regardless of that set's Class of Service.

Call on Hold

If calling party and the called party both are involved in a simple call and either party tries to put the call on hold then the following operation is observed.

- 1** If the calling party tries to release the call then the calling party is not allowed to release from the call.
- 2** If the called party tries to release the call then the called party is allowed to release from the call.

Calling Party Privacy

The Calling Party Privacy (CPP) feature enables the Meridian 1 to support the blocking of a Calling Party's Number and Name from being displayed at the terminating set on a per-call basis. Users can dial a Calling Party Privacy code (for example, *67 from a Meridian 1 proprietary set or 1167 from an analog (500/2500 type) set) to prevent their telephone number and name from being displayed on a receiving telephone across the Public Switched Telephone Network (PSTN). Internal calls within the Meridian 1 have originating numbers or names displayed, even though the originating call has requested privacy.

This feature also allows a per-line blocking Class of Service to be programmed for station sets for public network calls. This relieves the user from having to dial the Flexible Feature Code (FFC) for every call, but in every other way is equivalent to the per-call blocking.

Depending on the trunk route configuration, public network numbers which tandem over the Meridian 1 Meridian Customer Defined Network (MCDN), prior to exiting to the PSTN, pass the Privacy Indicator along, if it is dialed by the originator. This means that users can be sure that their privacy wishes are respected whether the call exits directly at the originating node, or is given alternate routing through a private network. However, if private network nodes are connected by non-Integrated Services Digital Network (ISDN) Electronic Switched Network (ESN) trunks, the complexity of the signaling prevents the transmission of the Privacy Indicator. To compensate for this, outgoing Central Office (CO), Foreign Exchange (FEX), Wide Area Telephone Services (WATS), and Direct Inward Dialing (DID) trunks, can be configured to automatically generate a Privacy Indicator for calls received from incoming non-ISDN trunks.

A Privacy Indicator is used to signify that a call is a Calling Party Privacy call. For an outgoing non-Integrated Services Digital Network (ISDN) trunk call, the Privacy Indicator is defined in the outgoing trunk route as a digit string (for example, *67). No Privacy Indicator is expected for an incoming non-ISDN trunk call. For an ISDN call between two Meridian 1 switches, the Privacy Indicator is represented by setting the Presentation Indicator field to "Presentation Restricted" in the Calling Party Number Information Element (IE) and the Calling Party Name Display (CPND) Indicator to "Presentation Denied" in the Display IE. For an outgoing ISDN call to the Public Exchange/Central Office, the Privacy Indicator is represented by setting the Presentation Indicator field to "Presentation Restricted" in the Calling Party Number IE and excluding the Display IE with the CPND information. An incoming ISDN call is marked as a CPP call (that is, carries the Privacy Indicator) if the Presentation Indicator field is set to "Presentation Restricted" in the Calling Party IE or the CPND Indicator is set to "Presentation Denied" in the Display IE.

Calling Party Privacy Enhancement

The X11 Release 23 Calling Party Privacy Enhancement (CPPE) feature provides a route option to ignore the Calling Party Privacy Indicator on incoming calls received from the North American public ISDN network.

When the Privacy Indicator Ignore (PII) prompt is set to YES in Overlay 16, the Calling Line Identification (CLID) Presentation Indicator and the Calling Party Name Display (CPND) Indicator (if it exists) are changed from restricted/denied to allowed. If the CLID and CPND information is available, it is displayed on the terminating set, and the CLID is passed to the Auxiliary processor. It is recommended that the PII prompt be set to YES for 800, 888, 900, and 911 call types. When PII is set to NO (default) in Overlay 16, the Calling Party Privacy Indicator is honored, and the existing functionality is maintained.

The following parameters apply to the PII route option:

- The PII route option is applicable to the CLID Presentation Indicator in the Calling Number Information Element (IE) and the CPND Indicator in the Display IE in incoming SETUP messages only.
- The PII route option is not applicable to the CLID Presentation Indicator in the Redirecting Number IE of a SETUP message for call redirection.
- The PII route option is not applicable to the CLID Presentation Indicator in the Connected Number IE of a NOTIFY message for call modification.

The Calling Party Privacy Enhancement is included in Calling Party Privacy (CPP) package 301.

Operating parameters

The code dialed by the user can be flexibly defined; although, *67 is the typical code for North America. Multiple codes can be defined, allowing a different code (for example, 1167) to be used for rotary sets.

The code which is outpulsed on non-ISDN analog or digital trunks can also be flexibly defined on a per-route basis. Different codes can be programmed for routes which mix Digitone (DTN) and Dial Pulse (DIP) Classes of Service.

Frequently, the codes outpulsed on trunks are the same as those dialed from station sets. There is no reason, however, why they cannot be different.

A non-ISDN trunk route is not able to provision the CPP feature if Outpulsing of Asterisk and Octothorpe (OPAO) package 104 is equipped on the switch. During SYSLOAD, the CPP database is removed from the non-ISDN trunk routes if the OPAO package is equipped.

The CPP feature is not supported on Digital Private Network Signaling System #1 (DPNSS1), Digital Access Signaling System #2 (DASS2) or R2 Multifrequency Compelled Signaling gateways.

Central Office Trunk (COT), Foreign Exchange (FEX), Wide Area Telephone Service (WATS), and Direct Inward Dialing (DID) are the only trunk route types that can outpulse the Privacy Indicator for an outgoing non-ISDN call.

ISDN implementations include DSM-100/250, SL-100, AT&T4, AT&T5, TR-1268 (NI-2) and MCDN private networks, QSIG, EuroISDN and Basic Rate Interface (BRI) trunks.

CPP is not formally supported on the International ISDN PRI connectivities, since CPP is primarily a North American feature. However, existing Calling Line Identification (CLID)/Calling Line Identification Restriction (CLIR) operations continue to function.

The Privacy Indicator defined for a non-ISDN trunk route (dial pulse or digitone) consists of any arbitrary digit sequence (0-9) up to four digits in length. The asterisk “*” or octothorpe “#” is not allowed in the Privacy Indicator for an outgoing dial pulse trunk route. The asterisk is only allowed as the first digit of the Privacy Indicator (for example, *67) for an outgoing digitone trunk route. The octothorpe is not allowed in any Privacy Indicator on an outgoing digitone trunk route.

If a user requests privacy by dialing the Flexible Feature Code (FFC) defined for the CPP feature, and CPP is not provisioned in the outgoing trunk route, the call proceeds without carrying the Privacy Indicator.

No Privacy Indicator is expected to be received from the Public Exchange/Central Office on non-ISDN DID trunks. This would be treated as a misdial.

The CPP feature does not inhibit the Calling Party Number and Name from being displayed for an internal call within a local Meridian 1 customer group.

A common number defined for the Special Prefix (SPRE) code in the database is “1”. Thus, “1167” will not be accepted as an FFC for CPP, due to the conflict with existing DNs. The technician should either change the SPRE code, or define a new FFC for CPP to be used by a rotary telephone.

Feature interactions

Autodial

An outgoing trunk call, initiated by pressing the Autodial key, carries the Privacy Indicator if the Calling Party Privacy (CPP) code, followed by the normal dialing sequence, is stored against the Autodial key. The CPP code is counted against the maximum number of digits (currently 23) stored against the Autodial key.

A user can also store the CPP code against the Autodial key. An outgoing CPP call can be initiated by pressing the Autodial key, followed by manually dialing the digits.

An outgoing CPP call can also be initiated by dialing the CPP code, followed by pressing the Autodial key against which the normal dialing sequence of digits is stored.

Automatic Redial

The calling party and called party have the same Calling Party Privacy considerations.

Automatic Call Distribution

A call placed by means of Enhanced Automatic Call Distribution (ACD) Routing, Enhanced Interflow, Enhanced Night Call Forward, Enhanced Network Routing, or Network ACD respects the CPP request of the originator.

Automatic Call Distribution MAX (ACD MAX)

The Calling Line Identification (CLID) is still included in ACD MAX reports, even if the caller has requested CPP.

Call Detail Recording

The current Call Detail Recording (CDR) records, which include the Calling Party Number, continue to do so even if the caller has requested CPP. The FFC for CPP dialed by the user is included in the dialed digits field when generating a CDR record.

An outgoing non-ISDN trunk call outpulsing the Privacy Indicator includes the Privacy Indicator in the outpulsed digits field when generating the CDR records if the outgoing non-ISDN trunk route has Outpulsed Digit Option (DPD) activated.

Call Forward All Types Hunt

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator is 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 CPP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node carries the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CPP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator is outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this case, 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 Hunt and Network Hunt.

Call Hold, Deluxe
Call Hold, Permanent

When a user takes an incoming trunk call with the Privacy Indicator off of hold, no Calling Party Number or Name is displayed on the set.

Call Pickup

If an incoming trunk call with the Privacy Indicator is picked up locally, the display of the Calling Party Number and Name are not displayed on the terminating set.

Call Pickup Network Wide

If an incoming trunk call with the Privacy Indicator is picked up by a remote set (requesting party), the display of the Calling Party Number and Name are not displayed on the requesting set.

Call Transfer

If an incoming non-ISDN call is being transferred or an incoming ISDN call is transferred to a non-ISDN trunk, the Calling Party Name and Number is not passed to the terminating set. The CPP feature does not change this operation.

For cases where an incoming call with the Privacy Indicator is transferred over an MCDN trunk, or to a local station, the name and/or number of the originating party is not displayed on the set of the final terminating party.

Calling Line Identification Restriction (CLIR)

The Flexible Feature Code is not supported on BRI sets. Calling Party Privacy can only be requested by setting the soft key “ID PRES” (if it exists) to “Denied” or the “PRES” prompt to “NO” in Overlay 27. If the Calling Party Number IE with the Presentation Indicator set to “Presentation Allowed” is included in the SETUP message generated by the BRI terminal, this BRI terminal does not allow Calling Party Privacy, as the Presentation Indicator generated by the BRI terminal always overwrites the CLIR service option.

Call Party Name Display (CPND)

In current operations, If the International Supplementary Features (SUPP) package 131 is not equipped in the system, an incoming ISDN call with the Call Party Name Display (CPND) Indicator field set to “Presentation Denied” still displays the Calling Party Name. If package 131 is equipped in the system, the current operations inhibit the Calling Party Name for an incoming ISDN call with the CPND Indicator field set to “Presentation Denied”.

The CPP feature inhibits the display of the Calling Party Name for an incoming ISDN call with the CPND Indicator field set to “Presentation Denied” if package 131 is not equipped.

Conference

The CPP feature passes the Privacy Indicator to the terminating set to inhibit the display of the Calling Party Name and Number if the Conference feature is used for the purpose of performing a transfer.

Calling Party Name Display Denied

For outgoing calls, if the CPP package is equipped, the CPP feature takes precedence over the Calling Party Name Display Denied feature for restricting the Calling Party Name and Number. For example, if an outgoing ISDN call is marked as a CPP call, the outgoing SETUP message includes the Calling Party Number IE with the Presentation Indicator set to “Presentation Restricted” and the Display IE with the CPND Indicator set to “Presentation Denied”, to inhibit both the Calling Party Number and Name being displayed on the terminating set, regardless of whether or not the Calling Party Name Display Denied feature allows the display of the Calling Party Name and/or Number.

The Calling Party Name Display Denied feature takes precedence over the CPP feature for displaying an incoming ISDN call. If International Supplementary Features (SUPP) package 131 is equipped, an incoming ISDN call with the Presentation Indicator set to “Presentation Restricted” in the Calling Party Number IE is marked as a CPP call, and displays “ACOD + Member” or “XXXX”, as for the Calling Party Name Display Denied feature.

Display Calling Party Denied

For internal conference calls, display information is not provided on any of the conferees’ sets. When setting up a conference call, by conferencing one set at a time, the display on the conferee’s set is in accordance with the Class of Service of the individual sets.

For network conference calls, display is provided. This is in accordance with the DPD Class of Service options of the individual sets.

EuroISDN Trunk - Network Side

If a number presentation for a call is blocked by the Calling Party Privacy feature, the CLID, sent over a EuroISDN Trunk - Network Side connectivity, has the presentation flagged as restricted.

Feature Group D

If an incoming Feature Group D (FGD) call terminates at a Meridian 1 switch locally, the received 10-digit Automatic Number Identification (ANI) is displayed on the terminating set if the Show ANI Digits on Terminal Displays (SHAN) field is set to “YES” in the FGD data block associated with the incoming trunk route. If the originator requests CPP, the end office does not send the 10-digit ANI to the PBX.

If an incoming FGD call is routed to another switch via ISDN Primary Rate Interface (PRI) or Integrated Service Link (ISL), the outgoing SETUP message includes the 10-digit ANI (if it exists) as the Calling Party Number with the Presentation Indicator set to “Presentation Restricted” if the outgoing trunk route has the TCPP option turned on. The TCPP option takes precedence over the SHAN field defined in the FGD data block associated with the incoming trunk route to restrict the 10-digit ANI display.

Hot Line

A Hot Line call carries 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 counts against the maximum number of digits (currently 31) allowed for the Hot Line DN.

Incoming Trunk Programmable CLID

If the incoming trunk route is a non-ISDN route, the billing number assigned by the incoming trunk route is passed to the Public Exchange/Central Office with the Presentation Indicator field set to "Presentation Restricted" if the outgoing ISDN trunk route has the TCPP prompt set to "YES". If the TCPP prompt is set to "NO", the Presentation Indicator is set to "Presentation Restricted" only if the BDSP (Billing Display) prompt in the incoming trunk route is set to "NO".

If the incoming trunk route is an ISDN route, the "Restricted" Presentation Indicator is tandemmed to the outgoing trunk route. If the Presentation Indicator is set to "Presentation Allowed" or no Calling Party Number IE is received in the incoming trunk route, the billing number assigned by the incoming trunk route is passed to the Public Exchange/Central Office with the Presentation Indicator field set to "Presentation Restricted", only if the incoming trunk route has the BDSP prompt set to "NO".

ISDN QSIG Name Display

Calling Party Privacy (CPP) takes precedence over the ISDN QSIG Name Display feature.

Last Number Redial

The Last Number Redial (LNR) feature stores the CPP code in the LNR data space, if the CPP code was included in the last number dialed by the user. Any subsequent outgoing redialed call sends the Privacy Indicator to the far end.

Malicious Call Trace

Incoming calls to stations having the Malicious Call Trace feature enabled continue to include the Terminal Number (TN) of the calling party in the Malicious Call Trace record, even if the caller has requested CPP.

Meridian Link

The CLID is still included in the Application Module Link (AML) messages sent to the Meridian Link Module, even if the call has requested CPP.

Meridian Mail

When an incoming ISDN call with the Privacy Indicator terminates on Meridian Mail, the Calling Party Name and Number is not passed to Meridian Mail to be recorded. When the called party retrieves the messages, no Calling Party Number or Name is played, and the called party is not able to initiate the Call Sender feature, since no CLID is recorded.

Calls placed by means of Through Dial are able to request privacy. These are calls where the person accessing Meridian Mail can dial 0 followed by any telephone number. The caller is able to dial the CPP code as part of the number following 0.

Meridian MAX

The CLID is still sent to the Meridian MAX, even if the caller has requested CPP.

Meridian 911

An incoming 911 call with ANI information always displays the ANI digits on the terminating set or passes the ANI information to the Meridian 911 application.

Network Message Services

An incoming trunk call with the Privacy Indicator does not display the Calling Party Name and Number on the Message Center operator's terminal.

Network Ring Again

A call placed by means of the Network Ring Again feature respects the CPP requested when the call was originally dialed.

Private Line Service

The Private Line Service feature outpulses the Privacy Indicator only if it is dialed by the originator. An asterisk is outpulsed to the far end only if it is an OPAO call, otherwise the asterisk signals a three-second pause.

R2MFC Calling Number Identification/Call Detail Recording Enhancements

If the Calling Line Identification (CLID) is received with presentation denied, it is not mapped to the Calling Number Identification (CNI). Instead, the CNI is composed of the CNI DN and the Trunk ID. Optionally, the CNI request may set to ECNI (the CNI End-of-CNI R2MFC level 1 forward signal).

Ring Again – Busy Trunk

A call automatically redialed by the Ring Again – Busy Trunk feature respects the CPP requested when the call was originally dialed.

Speed Call System Speed Call

An outgoing trunk call initiated by dialing the Speed Call code carries the Privacy Indicator if the CPP code followed by the normal dialing sequence is stored in the Speed Call Entry represented by the Speed Call code. The CPP code is counted against the maximum number of digits (currently 31) allowed per Speed Call list entry.

A user can also store the CPP code in the Speed Call Entry (or Speed Call key). An outgoing CPP call can then be initiated by dialing the Speed Call code (or pressing the Speed Call key), followed by manually dialing the digits.

However, existing Speed Call limitations do not allow a user to dial *67 (or anything else) before accessing a Speed Call list entry.

Stored Number Redial

During Stored Number Redial (SNR) programming, a user can store the CPP code followed by the normal dialing sequence in the SNR data space.

Outgoing calls originated by the SNR feature sends the Privacy Indicator to the far end. The CPP code is counted against the maximum number of digits (currently 31) allowed by the SNR feature.

During an active call on a Meridian 1 proprietary telephone, the Stored Number Redial feature stores the CPP code in the SNR data space if the CPP code was included in the number dialed by the originator. The outgoing redialed calls send the Privacy Indicator to the far end.

Trunk Anti-Tromboning

An ISDN call that has had its trunks removed due to Trunk Anti-Tromboning operations, respect the CPP request of the originator.

Trunk Optimization Before Answer

An optimized call due to Trunk Optimization Before Answer respects the CPP requested by the originator.

Feature packaging

Calling Party Privacy (CPP) is package 301, which requires Flexible Feature Codes (FFC) package 139. Non-ISDN trunks must restrict the Outpulse Asterisk and Octothorpe (OPAO) package 104 to provision the CPP feature.

Feature implementation

If the CPP package is equipped in the Meridian 1 system, the following steps illustrate how to configure Calling Party Privacy.

LD 57 – Define the FFC for CPP Code. FFC package 139 is required for loading Overlay 57.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	FFC	Flexible Feature Code.
CUST	xx	Customer number.
FFCT	(NO), YES	Flexible Feature Confirmation Tone.
...		
CODE	CPP	FFC type to be altered. CPP entry is only allowed if the CPP package is equipped. <CR> means that no FFC types are prompted.
...		
CPP	(*67), nnnn	Calling Party Privacy code. CPP is prompted only if the CPP package is equipped. Any arbitrary digit sequence up to four digits can be specified. For Meridian 1 proprietary set, an "*" can be entered as the first digit. CPP will be prompted until a <CR> is entered.

LD 16 – Define Privacy Indicators.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
TKTP	COT, DID, FEX, WAT	Trunk Route Type.
...		
DTRK	YES	Digital trunk route.
DGTP	DTI, DTI2	Digital trunk type.
ISDN	YES	ISDN PRI option.
...		
ACOD	nnnn	Trunk Access Code.
CPP	YES	Calling Party Privacy. YES = This trunk route is enabled for the recognition of the Calling Party Privacy feature. CPP is only prompted if the following conditions are met: the CPP package is equipped, the OPAO package is not equipped, OGT (outgoing) or IAO (incoming and outgoing) trunk, non ISDN option and trunk route type is COT/DID/FEX/WAT. The default value for the CPP prompt is NO.
TCPP	(NO), YES	CPP for an incoming trunk call tandemed to this trunk route. YES = An incoming non-ISDN trunk call tandemed to this trunk route will carry the Privacy Indicator. The default value for the TCPP is NO.
- DTPI	nnnn	Privacy Indicator for a digitone trunk. DTPI is prompted only if CPP is set to "YES" and the trunk route is non-ISDN. If CPP is changed from NO to YES, the default is *67. Any arbitrary digit sequence (0-9) up to four digits can be specified. An asterisk "*" is allowed to be the first digit only if the outgoing call goes to a Public Network.

- DPPI	nnnn	Privacy Indicator for a dial pulse trunk. DPPI is prompted only if CPP is set to "YES" and the trunk route is non-ISDN. If CPP is changed from NO to YES, the default is 1167. Any arbitrary digit sequence (0-9) up to four digits can be specified.
- PII	(NO) YES	Calling Party Privacy Indicator is honored. Calling Party Privacy Indicator is ignored. PII is prompted with X11 Release 23 and later. Note: PII is only prompted when the CPP package is equipped; the trunk route type is COT, DID, FEX, or WATS; the ISDN option is set to YES; the ISDN Interface (IFC) is D100, D250, ESS4, ESS5, or NI2; and the route is Incoming and Outgoing (IAO) or Incoming Only Trunk (ICT). For further details on the PII route option, refer to the Calling Party Privacy Enhancement section on page 559.

LD 10/11 – Activate Calling Party per-line blocking.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	nnnn	Type of telephone.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
CLS	CLBA	Activate Calling Party per-line blocking. Enter CLBD to deactivate Calling Party per-line blocking (default). Note: CLBA Class of Service activates Calling Party per-line blocking. CLBD Class of Service deactivates Calling Party per-line blocking; however, the user can still request Calling Party Privacy by dialing the CPP code.

Feature operation

Any outgoing call initiated from a set with Calling Party per-line blocking (CLBA) Class of Service requests Calling Party Privacy.

If the originating party has CLBD Class of Service, the Calling Party Privacy feature can only be activated on a per-call basis. If standard dialing procedures are used, no CPP is requested, and the call proceeds as usual. The user must do one of the following to request CPP:

- Precede any dialing of a call with a new Flexible Feature Code defined for the CPP feature. This operates from all telephone types, except BRI sets.
- The Flexible Feature Code is not supported on BRI sets; however, Calling Party Privacy can be requested by setting the softkey “ID PRES” (if it exists) to the “Denied” state or the “PRES” prompt to “NO” in Overlay 27.

Note: If the Calling Party Number IE with the Presentation Indicator set to “Presentation Allowed” is included in the SETUP message generated by the BRI terminal, this BRI terminal does not allow Calling Party Privacy, as the Presentation Indicator generated by the BRI terminal always overwrites the CLIR service option.

Camp-On

Camp-On routes one additional external call to a busy Directory Number (DN). When the attendant extends a call to a busy DN, the external call is camped on to the telephone. If the Class of Service allows a warning tone, the user hears a tone indicating that a call is camped on. If the user frees the line within a specified time, the camped-on call rings the telephone automatically. If not, the call returns to the attendant as a recall.

Camp-On Tone is allowed or denied on a per-customer basis. The time a camped-on call waits is defined in LD 15 from 0 to 510 seconds, in multiples of two seconds. The default is 30 seconds.

Operating parameters

Camp-On applies to attendant-extended calls only. If the attendant hears a busy tone, another call has already been camped on to the busy telephone.

Feature interactions

Attendant Blocking of Directory Number

Camp-On will be denied for a DN that is blocked due to the Attendant Blocking of DN feature.

Attendant Break-In

If the destination DN has a camped-on incoming trunk call, the attendant cannot extend the urgent incoming call as a Camp-On call.

Call Forward All Calls

Call Forward All Calls takes precedence over Camp-On.

Call Forward No Answer

When the Call Forward No Answer timer expires for a ringing camped-on call, the call is given Attendant Recall treatment instead of Call Forward No Answer treatment.

Call Park Network Wide

When an attendant attempts to extend a call to a busy station across the network and the busy station returns a Camp-On allow signal, an attendant has the option of camping on a call or continuing with Network Call Park.

Call Park on Unsupervised Trunks

A Disconnect Timer applies to camped-on calls on all trunks on the route. All answered calls in the camped-on state will be disconnected if left in that state for an extended period.

Call Waiting

Call Waiting Redirection

Camp-On and Call Waiting are mutually exclusive.

Enhanced Override

Forced Camp-On

Priority Override

Station-to-Station Camp-On and Attendant Camp-On are not affected by Forced Camp-On or Priority Override. The new Classes of Service (Camp-On From Another Telephone Allowed [CPFA], Camp-On From Another Telephone Denied [CPFD], Camp-On To Another Telephone Allowed [CPTA], and Camp-On To Another Telephone Denied [CPTD]) affect only Forced Camp-On. The Station Camp-On (SCMP) package (121) is required to return busy tone instead of ringback tone to the party camping on.

Flexible Voice/Data Terminal Number

Camp-On is not supported on data calls to a dynamic voice/data TN.

Camp-On is 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.

Hunting

Hunting takes precedence over Camp-On.

Multi-Party Operations

A call cannot be camped-on a DN involved in a consultation connection.

Multi-Party Operations – Three-Party Service

While Camp-On is allowed to the party receiving the patience tone, the Camp-On tone is not applied to the party during the patience tone. The Camp-On tone is applied, however, when the speech path has been reestablished.

Station Camp-On

With Station Camp-On, any internal station can camp an external call on to another internal station that is busy. Prior to the introduction of this feature, attendants were the only parties that could camp calls on to busy internal stations. The term internal station includes stations on other nodes within a Meridian Customer Defined Network (MCDN). For more information, see the Camp-On, Station feature description.

Warning Tone

Class of Service with warning tone denied allows a call to be camped on, but with no warning tone.

Feature packaging

Camp-On is included in base X11 system software.

Feature implementation

LD 15 – Enable/disable Camp-On tone for a customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- OPT	(CTD), CTA	(Disable) enable Camp-On tone for the customer.
TYPE	TIM	Release 21 gate opener.
- RTIM	xx yy zz	Set recall timers. yy = Camp-On recall timer, response is 0-(30)-510.
...		
TYPE	FTR	Release 21 gate opener.
- STCB	(NO), YES	Station Camp-On Busy allowed.
- NSCP	(NO), YES	Network Station Camp-On to sets on this node allowed.

LD 10 – Allow/deny warning tone Class of Service for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	WTA, (WTD)	Allow (deny) warning tone.

LD 11 – Allow/deny warning tone Class of Service for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	WTA, (WTD)	Allow (deny) warning tone.

Feature operation

To camp on an external call to a busy destination, the attendant follows these steps:

- Press **Rls**.

The call is camped on to the extension. If you hear a busy tone, a call is already camped on the extension.

If the call is not answered within a specified time, it recalls to the attendant. Both the Source and Destination indicators flash until the recall is answered. The call can be camped on again or released.

To answer a camped-on call, the subscriber follows these steps:

- 1 When you hear a short beep indicating a camped-on call, hang up or press **Rls**.
- 2 When the telephone rings, lift the handset.
You are connected to the camped-on call.

Camp-On, Forced

Forced Camp-On differs from normal Camp-On in that both internal and external calls can be camped on, rather than just external calls as with the Camp-On feature. The Forced Camp-On can be automatic or manual. The manual operation requires the use of the Enhanced Override (EOVR) key or Flexible Feature Code (FFC).

Forced Camp-On can be used as a feature by itself or in conjunction with Priority Override. The combination of the two features is referred to as Enhanced Override (EOVR).

For manual Forced Camp-On, an analog (500/2500 type) telephone user has to dial the EOVR Flexible Feature Code (FFC), while a Meridian 1 proprietary telephone user has to use the EOVR key.

A second operation of the EOVR key or FFC executes Enhanced Override.

Forced Camp-On is similar to station-to-station Camp-On except that Forced Camp-On can be done with either no call on hold or an external or internal call on hold. It can be done automatically or manually; whether it is automatic or manual is determined by the response to the Automatic Forced Camp-On (AFCO) prompt in LD 15.

For manual operation, once a busy telephone has been reached, the first depression of the EOVR key or the first dialing of the EOVR FFC attempts Forced Camp-On. If successful, Forced Camp-On introduces Camp-On tone into the connection. If unsuccessful, overflow (fast busy) tone is returned to the party attempting the Forced Camp-On.

For Forced Camp-On to be attempted, all other methods of call termination must have been tried, the last of which was Camp-On. If station-to-station Camp-On or automatic Forced Camp-On has occurred, or Forced Camp-On has been excluded by the new telephone options, then the first depression of the EOVR key or dialing of the EOVR FFC executes Enhanced Override. If, however, Forced Camp-On is denied due to existing Camp-On restrictions, Enhanced Override is also denied.

Operating parameters

The Flexible Feature Codes (FFC) package (139) must be equipped for Forced Camp-On and Priority Override to be available from analog (500/2500 type) telephones.

For analog (500/2500 type) telephone activation, the Multi-Party Operations (MPO) package (141) must be equipped, with “YES” as the response to the RALL prompt in LD 15 to ensure register recalls are required before dialing control digits. The EOVR FFC defined must not start with the same digit as one of the control digits. The control digits are defined in LD 15 and are printed as part of the Customer Data Block (LD 21).

Telephones or trunks involved in any of the following cannot be camped on to:

- Non established call
- Conference call
- Attendant call
- Attendant call via Centralized Attendant Service (CAS), Primary Rate Interface (PRI), or Integrated Services Digital Network (ISDN) trunk
- Make Set Busy
- Do Not Disturb
- Automatic Call Distribution (ACD) call
- Operator Call Back
- Hold
- Data call

- Release Link call, and
- Parked call.

Call Forward and Hunting take precedence over Call Waiting. If Call Waiting is allowed, Camp-On is not attempted. If Call Waiting is not allowed, station-to-station Camp-On is automatically attempted. If this succeeds, Enhanced Override can still follow. If Camp-On fails because there is no external call, Forced Camp-On and Enhanced Override may still work. However, if Camp-On fails due to other limitations, Forced Camp-On and Enhanced Override will also not work.

Even though Camp-On will still function when Warning Tone Denied (WTD) Class of Service is defined, Forced Camp-On requires Warning Tone Allowed (WTA) Class of Service.

Camp-On requires an external call on hold. Forced Camp-On can be done without a call on hold, or with both internal and external calls on hold.

New Camp-On Classes of Service (Camp-On From another telephone Allowed [CPFA], Camp-On From another telephone Denied [CPFD], Camp-On To another telephone Allowed [CPTA], and Camp-On To another telephone Denied [CPTD]) apply to Forced Camp-On and automatic Forced Camp-On (AFCO) only. They do not apply to Station or attendant Camp-On.

If a telephone is denied Forced Camp-On by Class of Service, Enhanced Override may still be attempted.

Feature interactions

Attendant Calls

Telephones involved in attendant calls cannot be camped on to. Overflow (fast busy) tone is returned to telephones on which Forced Camp-On is attempted.

Automatic Call Distribution (ACD)

Telephones involved in ACD calls cannot be camped on to. Overflow (fast busy) tone is returned to telephones attempting Forced Camp-On.

Camp-On

Station-to-Station Camp-On and attendant Camp-On are not affected by Forced Camp-On. The new Classes of Service (Camp-On From another telephone Allowed [CPFA], Camp-On From another telephone Denied [CPFD], Camp-On To another telephone Allowed [CPTA], and Camp-On To another telephone Denied [CPTD]) affect only Forced Camp-On. The Station Camp-On (SCMP) package (121) is required to return busy tone instead of ringback tone to the party camping on.

Conference calls

Telephones involved in Conference calls cannot be camped on to. Overflow tone is returned to telephones attempting Forced Camp-On.

Data calls

Data calls have Warning Tone Denied (WTD) Class of Service and therefore cannot be camped on to. Overflow tone is returned to telephones attempting Forced Camp-On.

Do Not Disturb (DND)

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

Hold

Neither held calls nor telephones with calls on hold can be camped on to with Forced Camp-On. Overflow tone is returned to telephones attempting Forced Camp-On.

Make Set Busy (MSB)

Telephones with MSB active cannot be camped on to with Forced Camp-On. Overflow tone is returned to telephones attempting Forced Camp-On.

Operator Call Back

Telephones involved in an Operator Call Back call or Toll Operator Break-In cannot be camped on to with Forced Camp-On. Overflow tone is returned to telephones attempting Forced Camp-On.

Feature packaging

Forced Camp-On requires the following packages to function as described in this document:

- Station Camp-On (SCMP) package 121
- Flexible Feature Codes (FFC) package 139
- Priority Override/Forced Camp-On (POVR) package 186

Feature implementation

LD 15 – Configure the customer for Automatic Forced Camp-On and Station Camp-On tone.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CDB MPO	Customer Data Block. Release 21 gate opener.
...		
- AFCD	(NO), YES	Automatic Forced Camp-On. Enter YES if Forced Camp-On is to be applied automatically. Enter NO if Forced Camp-On is to be applied manually.
...		
TYPE	FTR	Release 21 gate opener.
- STCB	(NO), YES	Station Camp-On Busy tone. Enter NO if Busy Tone is not to be given to the transferring (controlling) party when the desired station is busy. Enter YES if Busy Tone is to be given to the transferring (controlling) party when the desired station is busy.

LD 57 – Configure Enhanced Override FFCs.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	FFC	Flexible Feature Codes.
...		
CODE	EOVR	Enhanced Override (programmable only when the Priority Override package 186 is equipped).
EOVR	y...y	y...y is a one- to seven-character input that the user must dial to use the FFC. Valid inputs are digits 0 through 9, asterisk (*), and octothorpe (#).

LD 10 – Configure Analog (500/2500 type) telephones for Forced Camp-On.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	500	Telephone type.
CLS	(CPFA), CPFD (CPTA), CPTD WTA	Forced Camp-On from another telephone to this telephone (Allowed) Denied. Forced Camp-On to another telephone from this telephone (Allowed) Denied. Warning Tone Allowed.

LD 11 – Configure Meridian 1 proprietary telephones for Forced Camp-On.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(CPFA), CPFD (CPTA), CPTD WTA	Forced Camp-On from another telephone to this telephone (Allowed) Denied. Forced Camp-On to another telephone from this telephone (Allowed) Denied. Warning Tone Allowed.
...		
KEY	xx EOVR	Add an Enhanced Override key, where; xx = the key number (allowed to be programmed only if Priority Override package 186 is equipped).

LD 14 – Configure trunks for Forced Camp-On.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
...		
CLS	WTA	Warning Tone Allowed.

Feature operation

Forced Camp-On can be used when making either a simple or consultation call (that is, having a call on hold while calling another party). The following feature operation descriptions use telephone A (an analog [500/2500 type] telephone) or telephone E (a Meridian 1 proprietary telephone) to call telephone B, which is connected to party C.

The telephones are configured as follows:

- 1 Telephone A is an analog (500/2500 type) telephone with Warning Tone Allowed (WTA) Class of Service.
- 2 Telephone B has Warning Tone Allowed (WTA) Class of Service.
- 3 Party C has Warning Tone Allowed (WTA) Class of Service and can be any telephone type or a Direct Inward Dial (DID), TIE, or Central Office (Public Exchange) (COT) trunk.
- 4 Telephone E is a Meridian 1 proprietary telephone with Warning Tone Allowed (WTA) Class of Service and an Enhanced Override (EOVR) key equipped.

For the following examples:

- 1 Telephones A and E both have Camp-On From another telephone Allowed (CPFA) Class of Service.
- 2 Both telephone B and telephone C are involved in a simple call, not a conference call.
- 3 Telephone B has Camp-On To another telephone Allowed (CPTA) Class of Service.
- 4 Call Forward, Hunting, and Call Waiting are not in use.

In the following feature operation descriptions, the term “recall” refers to performing a register recall, which can be performed in a number of different ways. Some typical examples are:

- Flash the switchhook. (This is the equivalent of hanging up the handset and picking it back up. This on hook, off hook is performed in a time period that is less than what the system would consider to be a valid disconnect.)
- Press the flash or LINK button if equipped.

The Camp-On tone is always provided for Forced Camp-On since Warning Tone Allowed (WTA) Class of Service is a prerequisite. This tone can be a buzz for Meridian 1 proprietary telephones or a single burst of tone for analog (500/2500 type) telephones if the customer (LD 15) option Periodic Camp-On Tone Denied (CTD) is selected. If the customer (LD 15) option Periodic Camp-On Tone Allowed (CTA) is selected, the Camp-On Tone as defined in the Flexible Tones and Cadences (FTC) (LD 56) in response to the CAMP prompt will be used.

While camping on, the party attempting the Camp-On, either telephone A or E, receives ringback if the Station Camp-On (SCMP) package (121) is not equipped, or either ringback or busy tone, as defined by the response to the Station Camp-On Busy tone (STCB) prompt in LD 15, if the SCMP package is equipped.

Forced Camp-On with an Analog (500/2500 type) telephone

With automatic Forced Camp-On turned off; response to AFCO in LD 15 was "NO":

	ACTION	RESPONSE
1	B and C are connected in a simple call.	
2	A dials B.	A receives busy tone.
3	A performs a recall.	A receives special dial tone (SDT).
4	A dials EOVR FFC to attempt Forced Camp-On.	If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise B receives Camp-On tone and A receives ringback or busy tone depending on the options equipped. A is manually Forced Camp-On to B.
5	B disconnects from the call.	Telephone A rings telephone B.

With automatic Forced Camp-On turned on; response to AFCO in LD 15 was "YES":

	ACTION	RESPONSE
1	B and C are connected in a simple call.	
2	A dials B.	A attempts Forced Camp-On to B.
3	If Forced Camp-On was successful.	A receives ringback or busy tone depending on the options equipped. A is automatically Forced Camp-On to B.
4	B disconnects.	A rings B.

Forced Camp-On with a Meridian 1 proprietary telephone

With automatic Forced Camp-On turned off; response to AFCO in LD 15 was "NO":

	ACTION	RESPONSE
1	B and C are connected in a simple call.	
2	E dials B.	E receives busy tone.
3	E presses EOVR key to attempt Forced Camp-On.	If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise B receives Camp-On tone and E receives ringback or busy tone depending on the options equipped. E is manually Forced Camp-On to B.
4	B disconnects from the call.	Telephone E rings telephone B.

With automatic Forced Camp-On turned on; response to AFCO in LD 15 was "YES":

	ACTION	RESPONSE
1	B and C are connected in a simple call.	
2	E dials B.	E attempts Forced Camp-On to B.
3	If Forced Camp-On was successful.	E receives ringback or busy tone depending on the options equipped. E is automatically Forced Camp-On to B.
4	B disconnects.	E rings B.

Camp-On, Station

With this feature, any internal station can camp an external call on to another internal station that is busy. Prior to the introduction of this feature attendants were the only parties that could camp calls on to busy internal stations. The term internal station includes stations on other nodes within a Meridian Customer Defined Network (MCDN).

When a transferring party reaches a busy internal party, the transferring telephone will receive Ringback tone (providing certain conditions are met). When the transferring party completes the transfer, the external (calling) party will Camp-On to the desired party and the external party (an external party is any CO, DID, FEX, or WATS call) will receive ringback tone or music.

This feature applies to both standalone and network environments.

Within a network environment, the transferring and camped on to stations may be on the same or different nodes, as long as all nodes are configured with Network Station Camp-On.

Operating parameters

The restrictions that currently apply to the operation of the Camp-On feature from an Attendant Console also apply to Station Camp-On.

These restrictions are:

- Camp-On is not permitted if the desired station is in a state other than established (that is, ringing, dialing).
- Only one call at a time can Camp-On to a busy station.
- Calls cannot Camp-On to a station with the Call Waiting feature configured.

- The station camped on to will be given Warning tone only if the customer has Camp-On Tone Allowed (CTA) in the Customer Data Block (LD 15) and the station has Warning Tone Allowed (WTA) Class of Service assigned. If the station has Warning Tone Denied (WTD) Class of Service assigned, the Camp-On will take effect without giving any Camp-On tone to the camped on to (desired) party.
- The transferring station will receive Busy tone only if the response to the STCB prompt in the Customer Data Block (LD 15) of the camped on to (desired) telephone is YES. Otherwise, the transferring station will receive Ringback tone.

Camp-On indication

When a call is extended from an attendant to a busy station there is a specific combination of tones and indicator states to identify the Camp-On state.

When an inquiry call is made from a station, there is only one way for the user to distinguish between a busy telephone and an idle ringing telephone. That way is to ensure that the response to the STCB prompt in the Customer Data Block (LD 15) of the camped on to (desired) telephone is YES. Otherwise, Ringback tone is provided in both cases.

Feature interactions

Call Waiting

Call Forward All Calls

Hunting

Call Forward Busy

Call Waiting, Call Forward All Calls, Hunting, and Call Forward Busy (for DID calls only) all take precedence over Camp-On.

Dial Impulse Set

A Dial Impulse (DIP Class of Service) station must have TSA Class of Service to perform a Station Camp-On.

Network Attendant Service

For network-wide Station Camp-On, NAS must be equipped at each node of the network.

Feature packaging

For standalone environments the Station Camp-On (SCMP) package 121 is required.

For network environments the Station Camp-On (SCMP) package 121 and the Network Attendant Service (NAS) package 159 are required.

For Music (MUS) package 44 is required.

Feature implementation

LD 15 – Configure Station Camp-On for both standalone and network environments.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
...		
- STCB	(NO), YES	Station Camp-On Busy tone. Enter NO if Busy tone is not to be given to the transferring (controlling) party when the desired station is busy. Enter YES if Busy tone is to be given to the transferring (controlling) party when the desired station is busy.
- NSCP	(NO), YES	Network Station Camp-On. Enter NO if telephones on this node are not allowed to have calls camped on by telephones in other nodes. Enter YES if telephones on this node are allowed to have calls camped on by telephones in other nodes.

Feature operation

Standalone case

Any station, not necessarily the Night DN, attempting to transfer an external call may, during the associated inquiry call, camp the trunk on to a busy station.

The Camp-On will take effect from the moment the transferring station has completed the transfer to the desired DN.

The transferring station will hear Ringback tone or Busy tone depending on the option entered in response to the STCB prompt in the Customer Data Block (LD 15). This prompt applies to any telephone, not just the Night DN. By default (STCB is set to NO), the transferring party will hear Ringback tone.

The desired station will hear Camp-On tone if it has WTA Class of Service assigned. Otherwise, if it has WTD Class of Service, the Camp-On will take effect without the desired party being informed a call is camped on.

When the transfer is completed, the external party is camped on to the desired station and receives either Ringback tone or an announcement.

Network case

Any station, not necessarily the Night DN, attempting to transfer an external call across an MCDN network may, during the associated inquiry call, Camp-On the trunk to a busy station.

The location of the transferring party has no effect on the Station Camp-On capability.

The Camp-On will take effect from the moment the transferring station has completed the transfer to the desired DN.

The transferring station will hear Ringback tone or Busy tone depending on the option entered in response to the STCB prompt in the Customer Data Block (LD 15). This prompt applies to any telephone, not just the Night DN. By default (STCB is set to NO), the transferring party will hear Ringback tone. The tone given, either ringback tone or Busy tone, is determined by the node in which the desired (camped on to) party resides.

The desired station will hear Camp-On tone if it has WTA Class of Service assigned. If it has WTD Class of Service, the Camp-On will take effect without the desired party being informed a call is camped on.

When the transfer is completed, the external party is camped on to the desired station and receives either Ringback tone or an announcement.

Recall timing on Camp-On calls

When any station extends an external call, recall timing will be initiated if the call is camped on to a busy station.

The recall timing will start from the moment that the extending station “releases” the call. The value of the recall timer is set by the prompt RTIM in the Customer Data Block (LD 15).

At the recall, the camped on call will be routed to the attendant. If the attendant is in Night Service, Night treatment is given; if NAS routing is active, the call will be routed according to the NAS configuration.

Standalone case

When the recall to the attendant occurs, the Camp-On is canceled. If the attendant is busy during the recall, the recall will be queued.

Network case

When the recall occurs and the attendant has answered the recall, the call will still be camped on to the desired party. If during the recall the attendant is busy, the recall will be queued.

Capacity Expansion

Introduced in X11 Releases 13 and 14, Capacity Expansion increases the limits associated with the features listed in Tables 32 and 33.

Table 32
Features expanded in X11 Release 13

Feature	Previous limit	New limit
Call Pickup Groups *	255	4095 (1-4095)
Speed Call lists/Hot Line lists **	255	8191 (0-8190)
System Speed Call lists	255	4096 (0-4095)
Trunk Group Access Restrictions *	15	31 (0-30)
Trunk Group members (per trunk group)	127	254 (1-254)
CDP route list index *	32	256 (0-255)
CDP route list entry *	3	64 (0-63)
NARS/BARS route list entry *	8	64 (0-63)
Multiple Appearance DNs *	16	30
Group Call members (per group)	10	20
NARS/ATVN NCOS Groups *	16	100 (0-99)
CDP NCOS Groups *	4	100 (0-99)
BARS/NFCR NCOS Groups *	8	100 (0-99)
Network Authorization Code digits *	7	14
CDP steering codes *	5K	10K
* Per customer ** Per system		

Table 33
Features expanded in X11 Release 14

Feature	Previous limit	New limit
Dial Intercom Groups *	254	2046 (0-2045)
Trunk Groups *	128	512 (0-511) (see Note)
Private Line routes *	1	512 (0-511)
Customer Groups **	32	100 (0-99) (see Note)
Network Authorization Codes *	20K	50K
* Per customer ** Per system		
Note: Due to large memory requirements for data configurations, only XN, NT, RT, XT, 51, 61, 71, and 81 support the increased Trunk and Customer Groups. All other systems support the original limits only.		

Operating parameters

Implementation of expanded features is dependent on available system memory.

The new Speed Call limit includes all combined Speed Call, System Speed Call, and Hot Line lists. Of the 8190 lists allocated for the system, up to 4096 lists can be allocated to System Speed Call.

The maximum number of Group Call lists remains 64.

Mini-CDR does not support the expanded CDR records produced by Capacity Expansion.

Feature interactions

Automatic Call Distribution (ACD)

Up to 512 (0-511) ACD routes can be configured.

ACD-D records

New ACD-D auxiliary messages replace messages that cannot accommodate the expansion.

Call Detail Recording (CDR)

The CDR record has a new expanded tape format with the CDR Expansion package. For a detailed description of the expanded CDR record format, refer to *Call Detail Recording description and formats* (553-2631-100).

Hot Line list

Any number from 0 to 8190 can be assigned as a Hot Line list number.

Hunting

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.

System Speed Call lists

Any number from 0 to 4095 can be assigned to a System Speed Call list.

Feature packaging

No new feature package is required to implement the expanded feature limits.

Feature implementation

The existing overlays have been modified to accommodate the increased limits for the expanded features.

Feature operation

No specific operating procedures are required to use this feature.

Centralized Attendant Service

Centralized Attendant Service (CAS) centralizes attendant services for customers with multiple locations. A typical Centralized Attendant Service (CAS) configuration consists of one or more remote locations, each served by its own switch and attendants, and a main site location where the Centralized Attendant Service (CAS) attendants are located. Each remote location has access to the main CAS attendant through Release Link Trunks (RLT), which can be either analog or digital. In addition, the remote locations are interconnected by TIE trunks.

When a call from a PBX in a remote location requires attendant assistance, an idle Release Link Trunks (RLT) at the remote PBX is seized, and the call is presented to the CAS attendant. If an idle Release Link Trunks (RLT) is not available, the call is queued until an RLT becomes idle. The CAS attendant can then extend the call to a station at the remote location.

The types of calls that require attendant assistance and can be handled by a CAS attendant are these:

- Listed Directory Number (LDN) calls
- Dial-0 calls (0 is optional if the flexible attendant Directory Number (DN) is used)
- Recalls, intercepts, or transfers to attendant, and
- Operator-assisted calls for restricted telephones, giving access to Wide Area Telephone Service (WATS), Foreign Exchange (FX), and Central Office (CO) trunks

For complete information regarding CAS, see *Centralized Attendant Service description and engineering* (553-2681-100).

Introduced in X11 Release:	20.0x
Networking:	Yes

Centrex Switchhook Flash

Centrex Switchhook Flash (THF) permits the user to signal the Central Office (CO)/Public Exchange during an established CO call, requesting activation of a Central Office based service. Such services can include Call Transfer, Three-way Calling, Malicious Call Trace, Conference, or Autodial Tandem Transfer. For more information on these services, please refer to the feature descriptions contained within this document.

The feature is useful where Centrex is the backbone of the service network. Centrex Switchhook Flash (THF) is supported by the following trunk types:

- Automatic Identification of Outward Dialing (AIOD)
- Common Control Switching Arrangement, Automatic Number Identification (CCSA ANI)
- Centralized Automatic Message Accounting (CAMA)
- Central Office (CO)
- Common Control Switching Arrangement (CCSA)
- Direct Inward Dial (DID)
- Foreign Exchange (FX)
- Wide Area Telephone Service (WATS)
- CO trunks located at a remote node connected via ISDN Meridian Customer Defined Network (MCDN) TIE trunks, and
- Analog, Digital Trunk Interface (DTI), and DT12 CO trunks.

Whenever Centrex Switchhook Flash (THF) is invoked, Meridian 1 checks for the following:

- With analog (500/2500 type) telephones, that the Class of Service supports THF. With Meridian 1 proprietary telephones, the feature cannot be activated if a corresponding key is not equipped.
- That the telephone is on an active two-way trunk call.
- That THF is enabled in the trunk's Class of Service.

If any of the above checks fails, the user hears an overflow tone. After the tone times out, the original connection resumes.

In X11 Release 20.0X the following improvements were made to this feature:

- The minimum value of the range for the Flash-length (FLH) timer for a Centrex Switchhook Flash, defined in LD 16 in response to the TIMR prompt, is modified to provide a range of 60-1536 milliseconds.
- Attendant Consoles can now activate the feature.
- The THF feature can be activated on DTI2 Central Office trunks and Intelligent Peripheral Equipment (IPE) Central Office trunks.
- The Centrex Switchhook timing on the Extended Flexible Universal Trunk (EXUT) is now performed using firmware offering a significant improvement in trunk timing accuracy.

Operating parameters

This feature is not supported on Basic Rate Interface (BRI) telephones.

THF is not supported on Primary Rate Interface (PRI) or BRI Central Office trunks.

On Meridian 1 proprietary telephones, once the THF key has been pressed, all other function keys are blocked. While waiting for the Centrex connection, only the RLS key or on-hook connection is operative. Pressing the RLS key or hanging up terminates the original connection as well as the THF message.

For the analog (500/2500 type) telephones, another switchhook flash is not allowed once THF has been invoked. A second switchhook flash is treated as an on hook disconnection.

Only voice calls are supported on THF.

In Italy the DTI2 register recall signal is currently only supported for Type Approval and is not commercially available.

The 1.5 or 2 Mbit Digital Trunks Interface pack is required.

Because the software cannot recognize which type of Intelligent Peripheral Equipment (IPE) CO line card (e.g., XCOT, or XFCOT) is in use, CO trunks belonging to different card types should not coexist on the same Route Data Block (RDB).

All Existing Peripheral Equipment (EPE) CO line cards can be used for analog trunks.

Feature interactions

Autodial Tandem Transfer

Because Autodial Tandem Transfer uses Centrex Switchhook Flash (THF), it is affected by any modification to the THF enhancement feature.

China – Attendant Monitor

If any set at the customer location involved in the monitored call switchhook flashes or performs a Centrex switchhook flash, Attendant Monitor is immediately deactivated.

Collect Call Blocking

A Centrex Switchhook Flash cannot be invoked by another feature while the Collect Call Blocking answer signal is being sent.

Conference

THF allows conference calls through the CO. It can be invoked only if there is an established call connected to an outside trunk. If the telephone is engaged in internal conference calls, THF cannot be used.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

If an analog (500/2500 type) telephone is part of an Executive Intrusion conference, any Switchhook Flash is ignored.

Malicious Call Trace - Enhanced

Interaction with the Centrex switchhook flash results because the flash range is changed for this feature. Communication to the CO (trunk hook flash) is performed by using the Centrex switchhook flash feature base code. The enhanced range is available for the Centrex switchhook flash.

Periodic Clearing on RAN, Meridian Mail, ACD and Music

This feature enhancement is not supported if used together with Centrex Switchhook flash.

Secrecy

If secrecy is not allowed in LD 15 (OPT = SYD), the attendant must use the EXCL DEST or EXCL SRC keys to select the Central Office trunk on which the THF has to be sent. The THF is not activated when both SRC and DEST are included.

Feature packaging

Centrex Switchhook Flash (THF) package 157 has no package dependencies. The End-to-End Signaling (EES) package 10 is recommended for users with Meridian 1 proprietary telephones, and Attendant Consoles.

If both THF and the 2 Mbit Digital Trunk Interface (DTI2) package 129 are present, this feature can also be applied to digital Central Office trunk connections.

Feature implementation

LD 10 – Enable/disable Centrex Switchhook flash for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
CLS	THFA (THFD)	Allow (Deny) Centrex Switchhook Flash.

LD 11 – Enable/disable Centrex Switchhook Flash for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
KEY	xx THF	Add a Centrex Switchhook Flash key; xx is the key number.

LD 12 – Enable/disable Centrex Switchhook Flash for ATTN consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT 1250 2250	Console type.
...		
KEY	xx THF	Add a Centrex Switchhook Flash key; xx is the key number.

LD 14 – Enable/disable Centrex Switchhook Flash for each trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	AID	Automatic Identification of Outward Dialing (AIOD) trunk data block.
	CAA	Common Control Switching Arrangement Automatic Number Identification (CCSA ANI) trunk data block.
	CAM	Centralized Automatic Message Accounting (CAMA) trunk data block.
	COT	Central Office (CO) trunk data block.
	CSA	Common Control Switching Arrangement access line data block.
	DID	Direct Inward Dialing (DID) trunk data block.
	FEX	Foreign Exchange trunk data block.
	WAT	Wide Area Telephone Service trunk data block.
	CLS	THFA (THFD)
		Allow (Deny) Centrex Switchhook Flash on this trunk.

LD 16 – Enable/disable Centrex Switchhook Flash for each trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CNTL	YES	Change controls or timers
- TIMR	FLH <space> 60-(510)-1536	Flash timer in msec. The range of the Centrex switchhook flash timer is 60-(510)-1536. The FLH value is rounded down to the nearest 10 msec. tick. If the value entered is 128 or 129, then it is set to 130 msec. <i>Software controlled flash</i> 60-127 msec. Digit 1 will be sent. 128-1536 msec. software controlled switchhook flash. Note: With release 20 and later, an FLH timer value of 127 msec. or less is not supported by the XFCOT card. The firmware controlled flash must be used. <i>Firmware controlled flash</i> The user can enter any value from 60 to 1536 msec. 90 msec. is the hardcoded firmware flash for an XFCOT card; the technician should enter 90 msec. Note: the FWTM prompt must be set to YES for the trunk associated with this route in LD 14, if firmware timing is to be used.

LD 73 – All types of sets can now activate the THF on digital trunks for incoming and outgoing calls. Therefore, the P RRC(s) signal must be configured in the SICA table. This signal was already existing for incoming calls, but is now available for both incoming and outgoing calls.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	DTI2	2 Mbits DTI
FEAT	ABCD	Digital signaling category.
SICA	XX	Signaling category table.
...		
INCOMING/ OUTGOING CALLS		
...		
P RRC(S)	ABCD	Register Recall signal.
TIME	10-(100)-630	Duration of RRC Pulse in msec.

Feature operation

Analog (500/2500 type) telephones

To use Centrex Switchhook Flash (THF) from an analog (500/2500 type) telephone, follow these steps:

- 1 Flash the switchhook to receive a special dial tone.
- 2 Enter the Special Prefix (SPRE) code, then the THF feature access code (96). Alternatively the appropriate Flexible Feature Code (FFC) should be used.

To reestablish a connection before the overflow tone ends, flash the switchhook.

Meridian 1 proprietary telephones

To use Centrex Switchhook Flash (THF) from a Meridian 1 proprietary telephone, press the key configured for THF, or the appropriate FFC code.

To reestablish a connection before the overflow tone ends, press the DN key or the key establishing the original call.

Attendant Consoles

Attendant Consoles must use the THF key. Dial access is not supported on these consoles.

To reestablish a connection before the overflow tone ends, press the DN key or the key establishing the original call.

Charge Account and Calling Party Number

Used in conjunction with Call Detail Recording (CDR), Charge Account bills calls directly to specific accounts or charge numbers instead of DNs.

Charge Account supports fixed-length numbers of 0 to 23 digits (default is 0), specified on a per-customer basis. The charge account number is validated by the system for length only. Verification of the actual digits entered is part of CDR downstream processing.

On Meridian 1 proprietary telephones, this feature can be activated by a separate Charge key/lamp pair, or dial accessed. On Attendant Consoles, it is activated by a separate key/lamp pair. On single-line telephones, it is dial-accessed.

When a Charge Account number is used, the entire call is billed to that number. The number can be entered either before or during a call, or when Consultation Hold, Call Transfer, or Conference is activated.

The Charge Account feature is not supported for internal calls. A Charge Account number entered through the Charge key/lamp pair is blocked for established internal calls.

Charge Account can be used to charge an entire conference call or portions of the call. Portions of the call are assigned to different accounts by entering the account number when adding trunks to a conference, before the conference is completed.

- When using analog (500/2500 type) telephones, enter the account information immediately after the switchhook flash, before the new trunk is dialed.
- When using Meridian 1 proprietary telephones, enter the number after pressing the Conference key the first time, and before dialing.

The charge record shows the identity of the user who made the entry and the trunk that was added to the call. If the new call is not added to the conference, the record shows a simple two-party call.

An entire call is charged to the same account by entering the charge number while active on the conference. When using Meridian 1 proprietary telephones, press the Charge key and enter the number in the usual manner. When using analog (500/2500 type) telephones, enter the number after a switchhook flash.

The call is reestablished without dialing additional trunks; a record is produced for each trunk involved in the conference. In all these records, the telephone user entering the number is considered the originating party. When an entire call is charged to only one account number, it must be entered while all trunks are connected to the conference.

Calling Party Number (CPN) is an extension of Charge Account that allows entry of the calling party's number on collect calls. Meridian 1 proprietary telephones are assigned a separate Calling Party Number (CPN) key/lamp pair to activate this feature. When the calling party's number is entered, a Calling Party Number (CPN) record is produced. This record may be compared to a telephone company billing for collect calls. Calling party numbers can be up to 23 digits, and may include an asterisk (*) and octothorpe (#). A CPN record is generated on the Call Detail Recording (CDR) device similar to a normal Charge record.

Operating parameters

A valid charge account number is recognized when the number of dialed digits matches the account length, or when the octothorpe (#) indicates end of dialing. After a valid charge account number has been entered, the system returns a dial tone.

If too few digits are dialed, no response is given until the interdigit timeout occurs. Overflow tone is returned for 15 seconds after timeout; then the user is locked out.

If Call Transfer or Conference is used to consult with a third party and returns to the original call without completing the transfer or conference, the charge account number is applied to the Consultation call only.

Attendant use of Charge or CPN is restricted to situations in which there is only one account party involved in the call (source side). When the calling party number is used, the attendant must transfer the call, or the Call Detail Recording (CDR) record does not reflect it.

Feature interactions

Barge-In Busy Verify

A charge account number cannot be entered when Barge-In or Busy Verify is active. Barge-In cannot be used to connect to a trunk after an account number has been entered.

Call Transfer

A Call Transfer call produces two records: a CDR start record and a CDR end record.

Conference

Conference calls produce multiple CDR records. Whenever a new trunk is added to a conference, the connection between the connected telephone and the trunk is recorded, and a connection to the conference loop is established. This causes CDR to generate a start record with the telephone and trunk identified as the involved parties. As trunks are removed from a conference, CDR end records are produced. These records may identify different telephones or conferences as the local parties.

Override

When Charge Account is used during active Override, some digits may be lost. When entered with Override in conference, a Charge Account number is accepted and no digits are lost.

Ring Again

When Ring Again is activated, no charge record is generated, but the information is stored for future use. If Ring Again is canceled before a trunk is seized, the charge number is deleted and no record is produced. If a trunk is seized later by Ring Again, the charge record is generated in the usual manner. The use of Ring Again with Charge Account ties up system resources because an auxiliary call register must be maintained in the Ring Again queue.

Speed Call Autodial

Charge account numbers, including the Charge Account access Special Prefix (SPRE) code, can be stored as Speed Call or Autodial numbers. All current limitations of these features apply, such as a maximum of 23 digits per entry, including the access code. An Autodial number or dialed digits can follow, but not precede, a Speed Call number. The digits generated by an Autodial key during feature operation are accepted as Charge Account digits.

Telephone keys

A Charge Account entry is aborted with any of the following keys:

- DN
- Page
- Voice Call
- In-Calls
- Call Waiting
- Call Pickup
- Release
- Not Ready
- a loop key
- Release Destination, and
- Release Source.

Feature packaging

CDR with Charge Account (CHG) package 23 requires:

- Call Detail Recording (CDR) package 4
- Charge Account/Authorization Code Base (CAB) package 24

Feature implementation

LD 15 – Add/change Charge Account for a customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB CDR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- CHLN	(0)-23	Maximum number of digits that can be entered as a charge account number.

LD 10 – Allow/deny access to Charge Account for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XFD), XFA	(Deny) allow call transfer.

LD 11 – Add/change a Calling Party Number or Charge key for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx CPN	Add a Calling Party Number key (must be key 24 for the M2317 and key 32 for the M3000).
	xx CHG	Add a Charge key (must be key 25 for the M2317 and M3000).

LD 12 – Add/change a Calling Party Number or Charge key for Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	ATT, 1250 or 2250	Attendant Console type.
TN	l s c u	Terminal Number.
CUST	xx	Customer number.
KEY	0-9 CPN	Add a Calling Party Number key.
	0-9 CHG	Add a Charge key.

Feature operation

This section explains Charge Account feature and Calling Party Number feature operation for Meridian 1 proprietary telephones, analog (500/2500 type) telephones, and Attendant Consoles.

Meridian 1 proprietary telephones

To charge a call to an account before dialing, follow these steps:

- 1 Select a free extension.
- 2 Press **Charge** or dial SPRE + 5.
- 3 Dial the Charge Account number.
- 4 When you have a dial tone, dial the telephone number.

To charge during a call in progress, follow these steps:

- 1 Press **Charge**.
- 2 Dial the Charge Account number.
- 3 Press the extension key to return to your call.

To use a SPRE code to charge a call in progress, follow these steps:

- 1 Press **Transfer** or **Conference**.
- 2 Dial SPRE + 5.
- 3 Dial the Charge Account number.
- 4 Press the extension key to return to your call.

To charge a call to an account when you transfer a call, follow these steps:

- 1 Press **Transfer**.
The call is on hold.
- 2 Press **Charge** or dial SPRE + 5.
- 3 Dial the Charge Account number.
- 4 Dial the number where the call is to be transferred.
- 5 Press **Transfer**.

To charge a call to an account when adding a party to a conference call, follow these steps:

- 1 Press **Conference**.
The call is on hold.
- 2 Press **Charge** or dial SPRE + 5.
- 3 Dial the Charge Account number.
- 4 Call the party that you want to add to the conference.
- 5 Press **Conference**.

To record a caller's number for accounting purposes, follow these steps:

- 1 Press **Calling No.**
The other party is on hold.
- 2 Dial a Charge Account number or the caller's number.
- 3 Press **Calling No.** again to return to the call.

Analog (500/2500 type) telephones

To charge a call to an account before dialing, follow these steps:

- 1 Select a free extension.
- 2 Dial SPRE + 5.
- 3 Dial the charge account number.
- 4 When you have a dial tone, dial the telephone number.

To charge during a call in progress, follow these steps:

- 1 Flash the switchhook or link.
- 2 Dial SPRE + 5.
- 3 Dial the Charge Account number.
- 4 Flash the switchhook or link to return to the call in progress.

To charge a call to an account when adding a party to a conference call, follow these steps:

- 1 Flash the switchhook or link.
- 2 Dial SPRE + 5.
- 3 Dial the Charge Account number.
- 4 Call the party that you want to add to the conference.
- 5 Flash the switchhook or link.

Attendant Consoles

To charge a call to an account before dialing, follow these steps:

- 1 Press the **loop** key.
- 2 Press **Charge**.
- 3 Dial the Charge Account number.
- 4 When you have a dial tone, dial the telephone number.

To charge during a call in progress, follow these steps:

- 1 While the source call is active on a loop key, press **Charge**.
- 2 Dial the Charge Account number.
The voice connection remains active.
- 3 Flash the switchhook or link to return to the call in progress.

To record a caller's number for accounting purposes, follow these steps:

- 1 While the source call is active on a loop key, press **Calling No.**
The other party is on hold.
- 2 Dial a Charge Account number or the caller's number.
- 3 Press **Calling No.** again to return to the call.

Charge Account, Forced

Forced Charge Account (FCA) temporarily overrides Class of Service restrictions for toll-denied users. Use FCA long distance calls to an account number when calling from a telephone that is restricted from making long distance calls. The unrestricted Class of Service provided by FCA applies for the duration of the call.

When the account number is entered, a charge record is produced on a Call Detail Recording (CDR) device.

FCA supports variable-length numbers of 1 to 23 digits. The minimum value for the account number is specified at the customer level.

A valid account number equals or exceeds the minimum value defined, and is validated by the system for length only. Verification of the actual digits entered is part of Call Detail Recording (CDR) downstream processing.

FCA can be allowed or denied at both customer and user levels. Users include any station or TIE and Common Control Switching Arrangement (CCSA) type trunks assigned a Toll-Denied (TLD), Conditionally Toll-Denied (CTD), or Conditionally Unrestricted (CUN) Class of Service.

Meridian 1 proprietary telephones activate this feature by using a separate Charge key/lamp pair. Any user can access this feature by dialing SPRE + 5.

A distinction is made between normal CDR Charge Account processing and FCA. If all the following conditions are met, the account number is treated as an FCA code:

- The telephone from which the number is entered must have a TLD, CTD, or CUN Class of Service.
- The station or trunk from which the number is entered must be in a state to originate a call (press a Directory Number [DN] key or flash the switchhook).
- FCA must be enabled at the customer level.
- FCA must be allowed for the station or trunk from which the number is entered.
- A valid account number must be entered at the beginning of the call.

The unrestricted Class of Service provided by FCA as described above applies for the duration of the call only. The account number must be reentered for each successive toll call placed by the station or trunk.

Operating parameters

An octothorpe (#) dialed after the account number indicates that the subsequent digits are part of the dialed number.

CDR charge account numbers are fixed-length codes for which a maximum value is specified by the customer. This is also the maximum allowed for the FCA account number.

Because 500 telephones cannot dial an octothorpe (#), they are restricted to fixed-length account numbers.

FCA does not apply to attendant calls.

Feature interactions

Authorization Code

If the Authorization Code is used to change the Class of Service of the user, the new Class of Service must be TLD, CTD, or CUN. If an Authorization Code entered after FCA has altered the Class of Service to unrestricted (UNR), the change made by the Authorization Code still comes into effect.

If the originator's Network Class of Service (NCOS) has been changed by an Authorization Code prior to an applicable FCA entry, the new NCOS is replaced by the FCA NCOS, provided the new Facility Restriction Level (FRL) is not lower than the existing FRL. Similarly, if the originator's NCOS has been changed by an FCA entry, the NCOS will be changed again by a valid Authorization Code entry.

Basic/Network Alternate Route Selection (BARS/NARS)

If BARS or NARS is equipped, a Network Class of Service (NCOS) associated with FCA must be defined in the Customer Data Block.

Call Detail Recording (CDR)

Normal CDR charge account numbers can still be entered before or after an FCA code. If the criteria for an FCA call are not met, CDR charge account numbers function in the normal manner.

Conference and Transfer

If an FCA code is entered at the beginning of a call, the new unrestricted Class of Service remains in effect for any transfer or conference made during the call. If all FCA criteria are met, an account number entered after activating the Conference key, Call Transfer key, or a switchhook flash is interpreted as an FCA code.

Scheduled Access Restrictions (SAR)

FCA can be used to override SAR on a per-call basis, provided the current Class of Service (COS) of the telephone or trunk is CUN, TLD, or CTD. The current COS is the COS in force according to the SAR schedule. If an Authorization Code that sets the COS to CUN, TLD, or CTD is dialed before the FCA, the call is allowed. FCA sets the COS to UNR and the Network COS (NCOS) to the NCOS defined in LD 15, provided that FCA is enabled on both a customer and telephone/trunk basis.

Speed Call and Autodial

FCA numbers (including the Special Prefix [SPRE] code and the Charge Account access code) can be entered in Speed Call lists or stored as Autodial numbers. The digits can also be stored, provided that the account number, regardless of its length, is followed directly by an octothorpe (#).

Trunk Group Access Restrictions (TGAR)

TGARs apply to the telephone or trunk entering the account number.

Feature packaging

Forced Charge Account (FCA) package 52 requires:

- Charge Account/Authorization Code Base (CAB) package 24
- Charge Account (CHG) package 23

Feature implementation

LD 15 – Enable/disable Forced Charge Account for a customer.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CDB CDR	Customer Data Block. Release 21 gate opener.
CUST	xx	Customer number.
- CHLN	(0)-23	Maximum number of digits that can be in an FCA code (default is 0).
- FCAF	(NO), YES	(Disable) enable FCA for the customer.
- CHMN	xx	Minimum number of digits that can be in an FCA code (must be less than CHLN).
- FCNC	xx	NCOS to be assigned to FCA codes.

LD 10 – Enable/disable Forced Charge Account for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
FCAR	(NO) YES	FCA can be used by this telephone. FCA is restricted from use by this telephone.

LD 11 – Enable/disable Forced Charge Account for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
FCAR	(NO) YES	FCA can be used by this telephone. FCA is restricted from use by this telephone.

LD 14 – Enable/disable Forced Charge Account for each incoming TIE or CCSA trunk.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	TIE, CAA	Trunk type (must be TIE or CCSA).
TN	I s c u	Terminal Number
FCAR	(NO) YES	FCA can be used by this trunk. FCA is restricted from use by this trunk.

Feature operation

To use FCA, follow these steps:

- 1** Select a free extension.
- 2** Press **Charge** or dial SPRE + 5.
- 3** Dial the Charge Account number.
- 4** When you have a dial tone, dial the long distance number.

For operating procedures from particular telephones or consoles, see the Charge Account and Calling Party Number module in this document.

CLASS: Calling Number and Name Delivery

The Custom Local Area Signaling Service (CLASS) Calling Number and Name Delivery (CND) feature enables the Meridian 1 system to send the calling number and/or calling name to a CLASS set when a call is presented to it, per the Bellcore CLASS CND standard. Once the Meridian 1 delivers the CLASS CND information, it is completely up to the CLASS set to determine how the information is to be displayed. The CLASS set can even choose to ignore certain information by not displaying it.

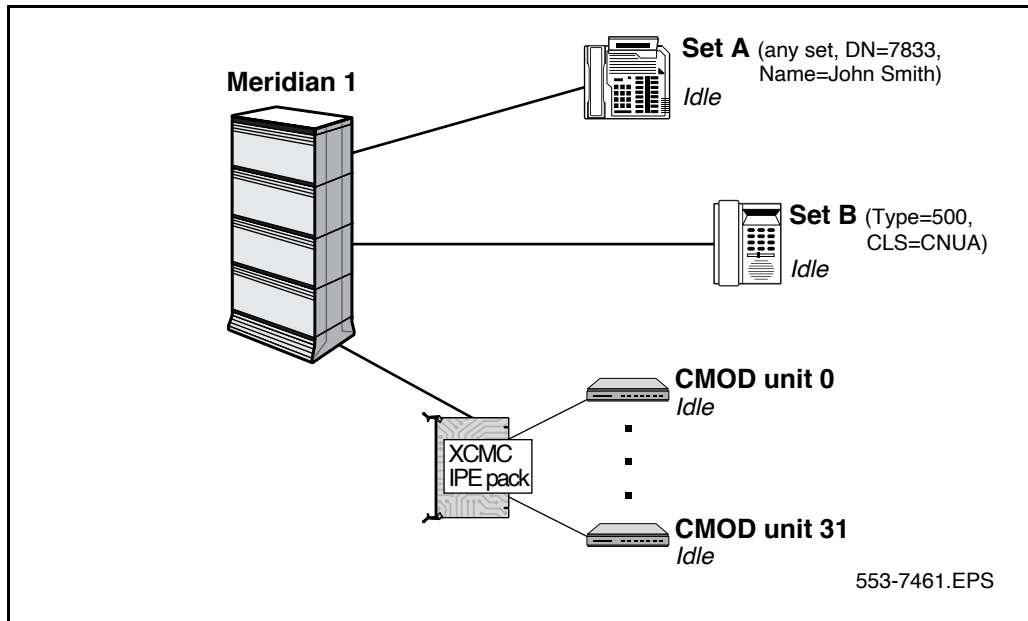
A CLASS set is, by definition, any non-proprietary analog set with an integrated display and a Frequency Shift Key (FSK) modem receiver, or with a FSK modem receiver built-in display attachment. The CLASS sets are configured on the Meridian 1 as analog (500/2500 type) sets using Overlay 10, and are supported by the existing 500/2500 type peripheral line cards.

The calling number and/or calling name data is delivered from the Meridian 1 to the CLASS sets using FSK signaling by a CLASS modem (CMOD) unit. The CMOD units are configured using Overlay 13. They are supported by a new Extended CLASS Modem (XCMC) IPE line card, the NT5D60AA

Up to 255 CMOD units may be configured on a Meridian 1 system that is equipped with the CLASS CND feature. Once configured, the CMODs are shared throughout a multi-customer Meridian 1 system. When a call is presented to a CLASS set, an available CMOD is automatically allocated.

Upon reaching the CND delivery interval¹, the appropriate CND information is delivered to the CLASS set. The allocated CMOD unit is released when ringing resumes on the CLASS set after the CND delivery interval, or when the call is disconnected, answered, or redirected. If the call is disconnected, answered, or redirected before the CND delivery interval has been reached, then no CND information is delivered. If the call is disconnected, answered, or redirected while the CND information is being delivered, the CND delivery is immediately terminated. Figures 9 to 12 depict a typical call processing and system resource allocation scenario for a new call being presented on a CLASS set.

Figure 9
System allocation when a CLASS set is idle



1. The CND delivery interval is the first silent interval, after ringing has been applied for a new call, that is greater than two seconds.

Figure 10
System resource allocation when a new call begins to ring on the CLASS set

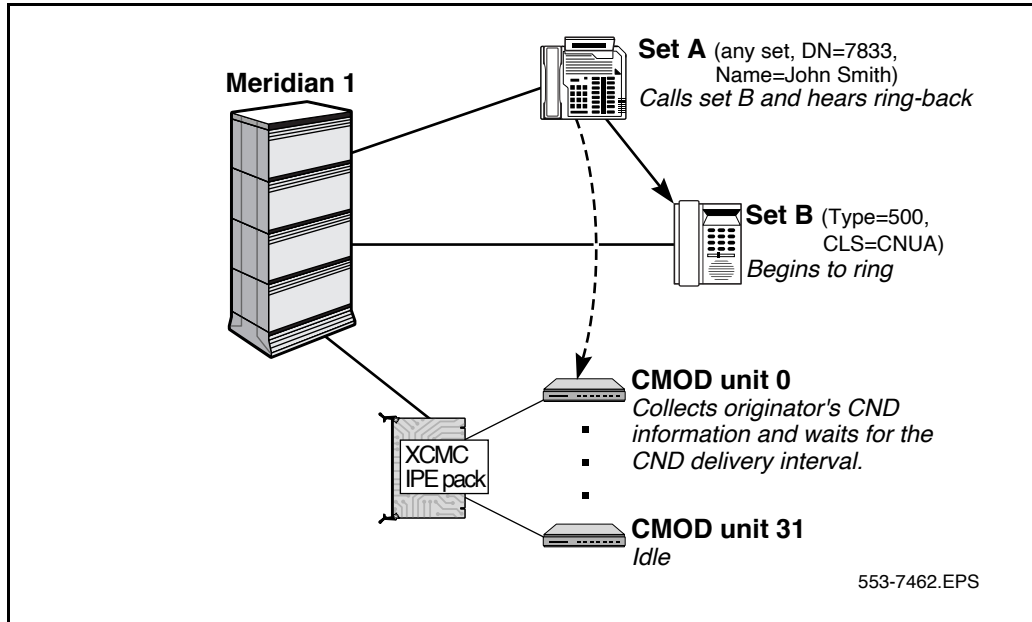


Figure 11
System resource allocation during the CND delivery interval

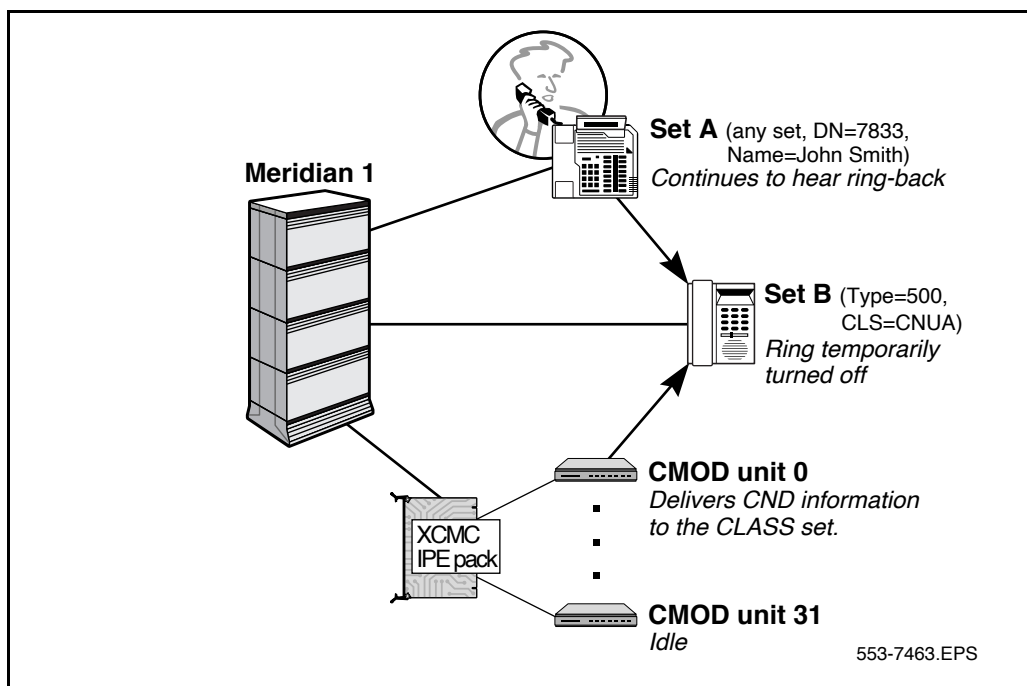
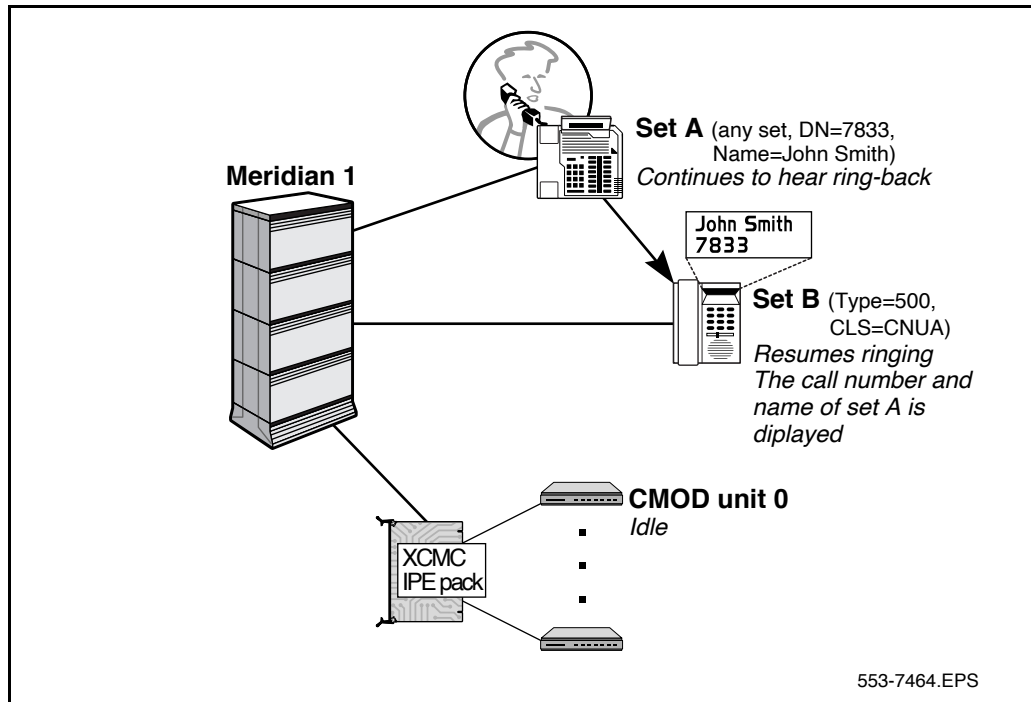


Figure 12
System resource allocation after the CND delivery interval



Configuring CND Class of Service on CLASS sets

In Overlay 10, the system administrator may configure a CLASS set to deliver both Calling Number Delivery and Calling Name Delivery, Calling Number Delivery only, or Calling Name Delivery only.

To activate only Calling Number Delivery, the station set is to be configured with one of the following class of service:

- CLASS Calling Number Single Data Message Format Allow (CNUS) or
- CLASS Calling Number Multiple Data Message Format Allow (CNUA)

Subsequently, whenever a call is presented to that set, the Meridian 1 software will deliver the date and time stamp information (see the Date and time stamp information section which follows below) and the calling number information (see the Calling number information section which follows on page 635), per the Bellcore CLASS CND delivery standard.

To activate only Calling Name Delivery, the station set is to be configured with the Calling Name Multiple Data Message Format Allow (CNAA) class of service. Subsequently, whenever a call is presented to that set, the Meridian 1 software will deliver the date and time stamp information and the calling name information (see the Calling name information section on page 637), per the Bellcore CLASS CND delivery standard.

To activate both Calling Number Delivery and Calling Name Delivery, the station set is to be configured with both the CLASS Calling Number Multiple Data Message Format Allow (CNUA) and the CLASS Calling Name Multiple Data Message Format Allow (CNAA) class of service. Subsequently, whenever a call is presented to that set, the Meridian 1 software will deliver the date and time stamp information, the calling number information, and the calling name information, per the Bellcore CLASS CND delivery standard.

Date and time stamp information

The date and time stamp information delivered to a CLASS set is in the format ***mm dd hh mm***, where ***mm*** is a two-digit number for the month, ***dd*** is a two-digit number for the day of the month, ***hh*** is a two-digit number for the military hour of the day, and ***mm*** is a two-digit number for the minute of the hour. It is up to the CLASS set to display the date and time stamp information.

Calling number information

For a non-ISDN trunk-to-CLASS set call, the calling number delivered to the CLASS set will be the incoming In-Band ANI, or if no ANI is passed on, then the calling number unknown indicator¹ is delivered in place of the calling number.

For an ISDN trunk-to-CLASS set call, the calling number delivered to the CLASS set will be the CLID received from the incoming ISDN trunk (if the CLID is longer than 10 digits, only the first 10 will be delivered). If the incoming CLID is defined as display denied (the originating set has Display Digit Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling number privacy indicator² is delivered instead of the calling number, or, if no CLID is passed on by the incoming trunk, then the calling number unknown indicator is delivered in place of the calling number.

For a station (set)-to-CLASS set call, the calling number delivered to the CLASS set will be one of the following:

- If the originating set has Display Digit Denied active (CLS=DDGD in Overlay 10 or 11), then the calling number privacy indicator is delivered in place of the calling number.
- If the CLID entry of the originating DN specifies that it is to be identified by its internal DN (CLASS_FMT=DN in Overlay 15), then the originating DN is delivered.
- If the CLID entry of the originating DN specifies that it is to be identified by its local number (CLASS_FMT=LCL in Overlay 15), then the local public number associated with the originating DN³ is delivered, (if the CLID is longer than 10 digits, only the first 10 will be delivered).

1. The calling number unknown indicator, per Bellcore CLASS CND delivery standard, refers to the ASCII "O" that is sent in place of the calling number.

2. The calling number privacy indicator, per Bellcore CLASS CND delivery standard, refers to the ASCII "P" that is sent in place of the calling number.

3. The local public number is composed by the ISDN CLID Enhancements feature, which forms the calling number by concatenating the customer defined home local number (HLCL in Overlay 15) and the originating DN.

- If the CLID entry of the originating DN specifies that it is to be identified by its national number (CLASS_FMT=NTN in Overlay 15), then the national public number associated with the originating DN¹ is delivered (if the number is longer than 10 digits, only the first 10 will be delivered).
- If the originating set is assigned with an undefined CLID entry, then the originating DN is delivered.

For a station (attendant)-to-CLASS set call, the calling number delivered to the CLASS set will be one of the following:

- If CLID entry 0 specifies that it is to be identified by its internal DN (CLASS_FMT=DN in Overlay 15), then the customer's attendant DN (the ATDN in Overlay 15) is delivered.
- If CLID entry 0 specifies that it is to be identified by its local number (CLASS_FMT=LCL in Overlay 15), then the local public number associated with the customer's Listed Directory Number 0 (the LDN0 in Overlay 15)² is delivered (if the number is longer than 10 digits, only the first 10 will be delivered).
- If CLID entry 0 specifies that it is to be identified by its national number (CLASS_FMT=NTN in Overlay 15), then the national public number associated with the customer's Listed Directory Number 0 (the LDN0 DN in LD Overlay)³ is delivered (if the number is longer than 10 digits, only the first 10 will be delivered).
- If CLID entry 0⁴ is not configured, then the customer's attendant DN (the ATDN in LD Overlay) is delivered.

1. The national public number is composed by the ISDN CLID Enhancements feature, which forms the calling number by concatenating the customer defined home national number (entered using prompt HNTN and HLCL in Overlay 15) and the originating DN.

2. The local public number is composed by the ISDN CLID Enhancements feature, which forms the calling number for calls originated by an attendant by concatenating the customer defined home local number (entered using prompt HLCL in Overlay 15) and LDN0.

3. The national public number is composed by the ISDN CLID Enhancements feature, which forms the calling number for calls originated by an attendant by concatenating the customer defined home national number (entered using prompt HNTN and HLCL in Overlay 15) and LDN0.

4. The calling number for calls originated by an attendant is composed using CLID entry 0, as per the ISDN CLID Enhancements feature.

Calling name information

For a non-ISDN trunk-to-CLASS set call, the calling name unknown indicator¹ is delivered to the CLASS set in place of the calling name.

For an ISDN trunk-to-CLASS set call, the calling name delivered to the CLASS set will be the calling name received from the incoming ISDN trunk (if the calling name is longer than 15 characters, only the first 15 will be delivered). If the calling name is defined as presentation denied (the originating set has Display Name Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling name privacy indicator² is delivered in place of the calling number, or, if no calling number is passed on by the incoming trunk, then the calling name unknown indicator is delivered in place of the calling name.

For a station (set)-to-CLASS set call, the calling name delivered to the CLASS set will be one of the following:

- The calling name associated with the originating DN (if the calling name is longer than 15 characters, only the first 15 will be delivered).
- If no name is defined with the originating DN, then the calling name unknown indicator is delivered in place of the calling name.
- If the originating set has Display Name Deny Class of Service (CLS=NAMD in Overlay 10 or 11), then the calling name privacy indicator is delivered in place of the calling name.

For a station (attendant)-to-CLASS set call, the calling number delivered to the CLASS set will be one of the following:

- The calling name associated with the customer's attendant DN (if the calling name is longer than 15 characters, only the first 15 will be delivered).
- If no name is associated with the customer's attendant DN, then calling name unknown indicator is delivered in place of the calling name.

1. The calling name unknown indicator, per Bellcore CLASS CND delivery standard, refers to the ASCII "O" that is sent in place of the calling name.

2. The calling name privacy indicator, per Bellcore CLASS CND delivery standard, refers to the ASCII "P" that is sent in place of the calling name.

Operating parameters

Dialed Number Identification System (DNIS) is not supported by the CLASS feature.

This feature has been developed for the North American residential market, as well as for the small business, hospitality, schools and universities, nursing homes and hospitals, and mobile home markets.

This feature applies to a standalone environment, and to an ISDN networking environment supporting CLID and a non-ISDN networking environment with or without In-Band Automatic Number Identification (ANI).

If the CLASS Calling Number Delivery and CLASS Calling Name Delivery data to a CLASS set is lost, there is no indication, such as an error message, provided. The call is presented in the normal manner, as if the CLASS CND function has not been activated.

A maximum of 10 digits can be delivered as the calling number, and a maximum of 15 characters can be delivered as the calling name. These are Bellcore limitations.

The 16 port Analog Message Waiting line card (QPC789A) is not supported for CLASS: Calling Number and Name Delivery.

Up to 255 CLASS modems can be configured on a Meridian 1 system, and up to 32 CLASS modem units can be configured on any Extended CLASS Modem card.

No CLASS CND traffic measurement is supported at this time.

The CND delivery interval is the first silent interval, after ringing has been applied for a new call, that is greater than two seconds. If the ringing applied to the CLASS set uses a cadence with a ring-off cycle that is more than four seconds in duration, then the CLASS set might view the call as having been disconnected and might clear the CND display as a result. This is a CLASS set firmware limitation.

Due to firmware limitations on some types of CLASS sets, after a call has been disconnected, the CND information associated with the disconnected call may still appear on the CLASS set's display for several seconds. During this time, the CLASS set cannot display new CND information. Though the Meridian 1 delivers the CND information pertaining to a new call, there is no guarantee that the CLASS set will display the delivered information.

Feature interactions

Attendant Call Extension

When an attendant extends a call to a CLASS set, the Calling Name and Number of the attendant is delivered to the CLASS set, and not that of the extended station.

Automatic Wake Up

When an Automatic Wake Up call is presented to a CLASS set with Calling Number Delivery activated, the calling number unknown indicator will be delivered in place of the calling number.

When an Automatic Wake Up call is presented to a CLASS set with Calling Name Delivery activated, then the calling name unknown indicator is delivered in place of the calling number.

Blind Transfer

When a Meridian 1 proprietary set completes a Blind Transfer to a CLASS set, the Calling Name and Number of the transferring set is delivered to the CLASS set, and not that of the set being transferred. When an analog (500/2500 type) set completes a Blind Transfer to a CLASS set, the transfer is presented as a new call to the CLASS set. Therefore, the Calling Name and Number of the transferred set is delivered to the CLASS set.

Call Forward All Calls

When a call is redirected to a CLASS set via Call Forward All Calls, the Calling Name and Number of originating set, and not that of the forwarding set, is delivered to the CLASS set.

Call Transfer

When a Call Transfer has been completed, the Calling Name and Number of the transferred party will not be delivered.

Calling Line Identification Restriction for ISDN BRI sets

When an ISDN BRI set with Calling Line Identification Restriction active makes a nodal call to a CLASS set with Calling Number Delivery active, the calling number privacy indicator will be delivered as the calling number.

When an ISDN BRI set, with Calling Line Identification Restriction active, makes a nodal call to a CLASS set with Calling Name Delivery active, the calling name privacy indicator will be delivered as the calling name.

Conference/No Hold Conference

When a set initiates a conference call to a CLASS set, the Calling Name and Number of the initiating set is delivered to the CLASS set.

Dial Intercom

The CLASS Calling Name and Number class of service cannot be configured on Dial Intercom Group sets.

Direct Inward System Access (DISA)

If a call is made to a CLASS set via DISA dialing, then the Calling Name and Number delivered to the CLASS set is that of the incoming trunk and not the DISA DN. This is consistent with the normal display function for DISA calls.

Display of Calling Party Denied

When a set with Display of Calling Party Denied active makes a nodal call to a CLASS set with Calling Number Delivery active, then the calling name privacy indicator is delivered in place of the calling name.

When a set with Display of Calling Party Denied active makes a nodal call to a CLASS set with Calling Name Delivery active, then the calling name privacy indicator is delivered in place of the calling name.

Distinctive Ringing

The normal delivery cycle for Calling Name and Number Delivery applies to calls presented to a CLASS set with distinctive ringing, that is, the Calling Name and Number Delivery information is delivered during the first silent period that is longer than two seconds.

Flexible Numbering Plan (FNP) Enhancement

For a customer equipped with the FNP package 160, the calling number delivered to the CLASS set can be of any length, up to 10 digits.

For a customer not equipped with FNP, the following apply:

- For a station (set or attendant) making a call to a CLASS set, if the local public number is to be delivered to the CLASS set as the calling number of the calling station, then the Meridian 1 software will pad or truncate the calling number to be exactly seven digits long.
- For a station (set or attendant) making a call to a CLASS set, if the national number is to be delivered to the CLASS set as the calling number of the calling station, then the Meridian 1 software will pad or truncate the calling number to be exactly 10 digits long.
- For an incoming trunk call to a CLASS set, the incoming Calling Number Identification/Automatic Number Identification that is passed to the CLASS set be of any length, up to 10 digits.

Group Call

When a set makes a Group Call to a CLASS set with Calling Number Delivery active, the calling number unknown indicator will be delivered in place of the calling number.

When a set makes a Group Call to a CLASS set with Calling Name Delivery active, the calling name unknown indicator will be delivered in place of the calling name.

Hotline

When a Hotline call is made to a CLASS, then the Calling Name and Number is delivered in the same manner as when a call is presented to the CLASS set via normal dialing.

Hunt

When a call is redirected to a CLASS set via Hunt, the Calling Name and Number of originating set, and not that of the redirecting set, is delivered to the CLASS set.

Incremental Software Management (ISM)

While no new ISM limit is introduced by the CLASS feature, each CLASS modem unit TN is counted against the system TN limit and is reflected in the overlay banner.

Internal Call Forward

When a call is redirected to a CLASS set via Internal Call Forward, the Calling Name and Number of originating set, and not that of the forwarding set, is delivered to the CLASS set.

Private Line Service

When a Private Line Service call is made to a CLASS, then the Calling Name and Number is delivered in the same manner as when a call is presented to the CLASS set via normal dialing.

VIP Automatic Wakeup

When an attendant makes a VIP Automatic Wakeup call to a CLASS, then the Calling Name and Number is delivered in the same manner as when the attendant makes a call to the CLASS set via normal dialing.

Feature Group D

When an incoming Feature Group D trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If the Feature Group D trunk route is configured so as to not show the incoming ANI (SHAN = NO in Overlay 19), the calling number privacy indicator is delivered in place of the calling number.
- If no ANI is passed on, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the incoming Feature Group D trunk ANI is directly delivered.

In-Band ANI

When an incoming In-Band ANI trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If no ANI is passed on, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the incoming In-Band ANI is directly delivered.

Integrated Services Digital Network

When an incoming Integrated Services Digital Network (ISDN) trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If the incoming CLID is defined as display denied (the originating set has Display Digit Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling number privacy indicator is delivered in place of the calling number, or, if no CLID is passed in from the incoming trunk, then the calling number unknown indicator is delivered in place of the calling number.
- If no CLID is passed on by the incoming trunk, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the CLID received from the incoming ISDN trunk is directly delivered. If the CLID is longer than 10 digits, only the first 10 will be delivered.

When an incoming ISDN trunk call is presented to a CLASS set with Calling Name Delivery active, the calling name delivered to the CLASS set will be one of the following:

- If the calling name is defined as presentation denied (the originating set has a Display Name Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling name privacy indicator is delivered instead of the calling name.
- If no calling name is passed on by the incoming trunk, then the calling name unknown indicator is delivered in place of the calling name.
- Otherwise, the calling name received from the incoming ISDN trunk is directly delivered. If the calling name is longer than 15 characters, only the first 15 will be delivered.

M911

When an incoming M911 trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If no ANI is passed on, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the incoming ANI is directly delivered.

Virtual Network Services (VNS)

When an incoming VNS trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If the incoming CLID is defined as display denied (the originating set has Display Digit Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling number privacy indicator is delivered in place of the calling number.
- If no CLID is passed on by the incoming VNS trunk, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the CLID received from the incoming VNS trunk is directly delivered. If the CLID is longer than 10 digits, only the first 10 will be delivered.

When an incoming VNS trunk call is presented to a CLASS set with Calling Name Delivery active, the calling name delivered to the CLASS set will be one of the following:

- If the calling name is defined as presentation denied (the originating set has a Display Name Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling name privacy indicator is delivered in place of the calling name.
- If no calling name is passed on by the incoming VNS trunk, then the calling name unknown indicator is delivered in place of the calling name.
- Otherwise, the calling name received from the incoming VNS trunk is directly delivered. If the calling name is longer than 15 characters, only the first 15 will be delivered.

Feature packaging

The following packages are required for the CLASS Calling Name and Number Delivery feature:

- CLASS Calling Number Delivery (CNUMB) package 332
- CLASS Calling Name Delivery (CNAME) package 333 and
- Calling Party Name Display (CPND) package 95

Feature implementation

LD 15 - Configure the CLASS CLID parameters in the Customer Data Block.

Prompt	Response	Description
REQ:	CHG	Change or delete existing data.
TYPE:	NET	Networking data.
CUST	xx	Customer number.
...		
CLID		CLID option.
	(NO)	NO = (the default) do not configure a CLID table. In this case, the remaining prompts are not generated, and no CLID is sent for the customer.
	YES	YES = configure a CLID table for the customer.
- SIZE	0-(256)-4000	The maximum number of CLID entries that are required.
...		
- ENTRY	aaaa Xaaaa Xaaaa Xbbbb <CR>	aaaa = CLID entry to be configured. Xaaaa = CLID entry to be deleted. Xaaaa Xbbbb = CLID entries to be deleted. aaaa and bbbb must be a value between 0 and (SIZE-1). The action for the entry will be saved to system memory after the CLID entry has been completely configured. If an existing CLID entry is changed, the message "ENTRY aaaa SAVED" is displayed. If a CLID entry or CLID entries is/are deleted, the message "ENTRY aaaa DELETED" or "ENTRIES aaaa-bbbb DELETED" is displayed.
...		
- LSC	0-9999999 X	Local steering code, 1-7 digits. X = delete digits.
- - CLASS_FMT	(DN) LCL NTN	Send internal DN to a CLASS set as the calling number. Send local number to a CLASS set as the calling number. Send National Number to a CLASS set as the calling number.

ENTRY aaaa SAVED ENTRY aaaa DELETED ENTRIES aaaa-bbbb DELETED ...	Displayed message. Refer to the ENTRY prompt description.

Note 1: You may print the CLASS_FMT information included in the CLID using **LD 21**.

Note 2: You may print or count the station sets class of service using **LD 81**. This information would typically be used for billing purposes, to bill set users for calls according to the assigned class of service.

LD 10 - Configure the CLASS Calling Name and Calling Number Delivery Class of Service for Analog (500/2500 type) sets.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	Telephone type.
TN	I s c u c u	Terminal address. For Option 11C.
...		
DN	x..x yyyy	Directory Number for this set (x..x) and CLID entry associated with this set (ENTRY configured in LD 15).
	(CNUD) CNUA CNUS (CNAD) CNAA	CLASS Calling Number Delivery Denied. CLASS Calling Number Multiple Data Format Allowed. CLASS Calling Number Single Data Format Allowed. CLASS Calling Name Delivery Denied. CLASS Calling Name Multiple Data Format Allowed. Refer to the section "Configuring CND Class of Service on CLASS sets" on page 634 for details. Note: These Class of Service entries are not valid for a Dial Intercom Group (DIG) set.
CLS		
...		

LD 13 - Configure the CLASS modem unit (up to 255 CLASS modem units may be configured per Meridian 1 system).

Note: While no new ISM limit is introduced by the CLASS feature, each CLASS modem unit TN is counted against the system TN limit and is reflected in the overlay banner.

Prompt	Response	Description
REQ	NEW CHG	Add new data Change existing data.
TYPE	CMOD	CLASS modem unit.
TN	l s c u c u	Modem unit Terminal Number for Options 51C-81C. Modem unit Terminal Number for Option 11C. Note: Since the CLASS modem unit uses the octal-density Extended CLASS Modem Card (XCMC), up to 32 units can be configured on any XCMC card.

Note: You may print the CMOD unit information using **LD 20**.

Feature operation

No specific operating procedures are required to use this feature.

Network engineering for CLASS sets

In a Meridian 1 system with a single group network, the network internal blocking is determined by the concentration ratio of equipped ports on peripheral equipment and the number of interfaced loops or superloops. Depending on traffic engineering, a non-blocking network is achievable.

In a multi-group system, intergroup junctors are required to switch calls between two network groups. Due to the concentration of time slots from a network group to that of inter-group junctors, blocking may occur. This is true for a multi-group Meridian 1 with or without CLASS sets. However, since the CLASS feature depends on a voice path to deliver Calling Name and Number Delivery (CND) to a set, excessive congestion at the inter-group junctor could block the delivery of CND and diminish the usefulness of the feature, as well as impact the grade of service of the existing equipment on the system.

This engineering section examines the inter-group junctor blocking issue and provides recommend engineering rules to alleviate potential network congestion problems.

In general, the engineering effort for CLASS feature can be classified into three categories:

A new site following engineering rules in Chapter 2 requires no inter-group junctor traffic check-off.

An existing or new site with relatively low inter-group junctor traffic, will require only one XCMC (Extended CLASS Modem Card) IPE pack that can serve all CLASS sets in a multi-group system.

An existing site with heavy inter-group junctor traffic will require either moving trunks/sets around between network groups when only one XCMC pack is equipped or providing an XCMC pack (or packs) for each group.

This engineering section recommends that users follow all engineering rules so that network group engineering is not needed. However, if that is not practical for an existing site (or even a new site), the engineering guide will show users when a single XCMC pack can serve a multi-group system with or without re-configuration, and when one pack (or packs) for each group is required.

Meridian 1 multi-group network

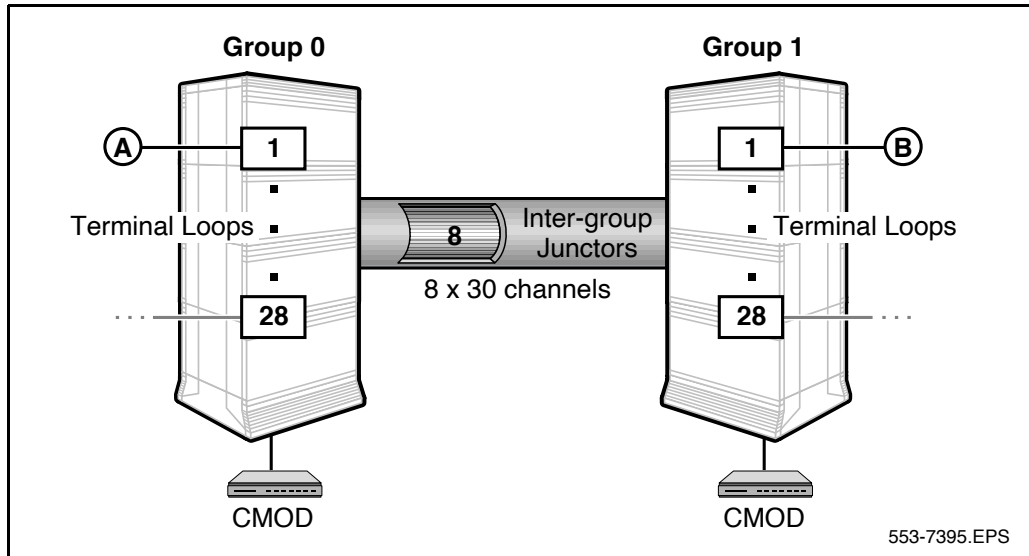
This section is only relevant to a Meridian 1 Option with a multi-group network. A single group Meridian 1 system does not have inter-group junctors. Therefore, special engineering on junctor is not applicable. The Option 11C has a network architecture different from the rest of Meridian 1 Options. It has a non-blocking network and does not require any network engineering, except to use Table 35 CMOD (Class MODem) capacity table to find the number of modems needed.

In general, inter-group junctor blocking is most severe when there are only two groups, since under typical traffic distribution assumptions, 50% of calls will stay in the originating group and 50% will terminate on the second group through junctors, unless a Community Of Interest (COI) is known and taken into consideration in engineering to minimize inter-group traffic.

Under the assumption of even distribution of traffic, the percentage of traffic to an inter-group junctor will drop to 33.3% of the total group traffic for a three-group system. Similarly, the junctor traffic will be 25% of group traffic for a four-group system and 20% for a five-group system.

A simplified Meridian 1 with two-group network and CLASS sets is shown by Figure 13.

Figure 13
A Meridian 1 system with a two-group network



Note that traffic to a CLASS set can be originated from a non-CLASS set, another CLASS set or an incoming trunk. Since trunks have more traffic impact on junctor blocking, they are used to illustrate the feature operation, however, both sets and trunks can be traffic sources to CLASS sets.

The maximum size Meridian 1 comprises of 5 network groups. Each group has 32 loops of which 28 can be terminal loops, the rest are service loops (TDS loops for tones, conference and music).

From Group 0 to Group 1, as shown in Figure 13, there are 8 one-way junctors. Similarly, there are another 8 one way junctors from Group 1 to Group 0. For practical purposes, they can be treated as 8 two-way junctors. A two-way path is equal to a voice channel. A junctor has 30 voice traffic channels as on a loop. Each two-way channel represents a conversation path. A channel is also used to deliver the CND from the CMOD to a CLASS set.

CLASS feature operation

A call originated from Set A (or trunk A) seeks to terminate on a CLASS set B. When B starts to ring, A will hear ringback. A unit in CMOD (CLASS Modem) is assigned to collect originator's CND information and waits for the CND delivery interval. After the first ring at B, a silence period (delivery interval) ensues, the CMOD unit begins to deliver CND information to the CLASS set.

The CND information of a traffic source (A) is a system information, which is obtained by the system when a call is originated. During the two-second ringing period of the CLASS set B, A's CND is delivered to CMOD via SSD messages (using a signaling channel only). When the CND information is sent from CMOD to CLASS set B, it is delivered through a voice path during the four-second silence cycle of set B. The CMOD unit is held for a duration of six seconds.

If the XCMC (Extended CLASS Modem Card) IPE pack, which provides up to 32 CMOD units, is located in the IPE of Group 0, the CMOD unit in the pack will receive CND data through the SSD messages and use one of the voice channels of the inter-group junctor to deliver it to CLASS set B in Group 1.

If the XCMC IPE pack is located in Group 1, the system will deliver SSD messages containing CND information to CMOD and then send it to Set B during the delivery interval through a voice path, which is an intra-group channel not involving an inter-group junctor.

When CMOD units and CLASS sets are co-located in the same network group, there are no voice paths on the inter-group junctor required to deliver CND information; when they are equipped on different groups, inter-group junctors must carry CND traffic. The resource allocation algorithm will search for a CMOD unit located in the same group as the terminating CLASS set first before it attempts to use a CMOD unit from a different group.

Inter-group junctor capacity

The time slot allocation algorithm for inter-group junctors is somewhat different from regular network loops, however, it is a close approximation to use the network loop capacity for junctor capacity, since they each have 30 traffic channels.

In order for the connection between a CMOD unit and the remote set (on a different group) to meet the Grade Of Service (GOS) of Meridian 1 for internal call setup, traffic on the loop and inter-group junctor should meet normal GOS requirements, that is 660 CCS per loop or junctor.

If we let an inter-group junctor be loaded to 660 CCS like a loop, the total allowed traffic at eight junctors is 5280 CCS ($=660 \times 8$). At 6 CCS per CLASS set, the allowed number of sets generating inter-group traffic is 880 ($=5280/6$). If half of set traffic is intra-group, and the other half inter-group, the allowed number of CLASS sets in Group 1 is 1,760 ($=880/0.5$). On per loop basis, each loop can be equipped with 62 ($=1760/28$) CLASS sets.

Similarly, a 3-group network is likely to have 1/3 of traffic remaining in the group, 1/3 of traffic going to the next group, and another 1/3 of calls going to the third group. By using this inverse proportion approach to breakdown traffic flow at junctors, the capacity of a network group in terms of CLASS sets is summarized in Table 34. The entry in the Table 34 is the threshold for inter-group junctor traffic check-off.

The table entry indicates that in a two group system, the second group is allowed to have 1760 CLASS sets or a combination of CLASS and equivalent sets without a need to move sets or trunks around to reduce inter-group junctor traffic. Due to higher traffic, an agent set or a trunk is counted to be equal to four regular sets. The conversion needs to be done before using Table 34.

If the number of equipped sets (CLASS or otherwise) or equivalent sets (sets converted from trunks and agent sets) is less than the threshold, the junctor traffic is expected to be low. There is no special engineering necessary for CLASS sets (other than providing required modems).

Note that the junctor traffic issue can be ignored if each group is fully equipped with sufficient CMOD units to handle CLASS sets within the group. It is the attempt to use one XCMC pack to serve multiple groups that requires special attention to inter-group traffic. As long as CLASS service is not impacted by a traffic in-balance already existed in the system, it is not the objective of this engineering guide to solve that problem.

Once the threshold is exceeded, re-configuration of the system is necessary to reduce junctor congestion. The detailed engineering rules are given in the next chapter.

Table 34
Meridian 1 maximum CLASS sets per group (based on inter-group junctor capacity limitation)

No. of Groups	Sets/Group
2	1760
3	2933
4	3520
5	4080

Note: Convert a trunk or an agent set to four equivalent sets before applying Table 34.

A single group system can have as many CLASS sets as each loop allows. The engineering of Meridian 1 is not different from that of non-CLASS sets, since there is no inter-group junctor involved. The only engineering required is to find the required number of CMOD units from Table 35 to serve a given number of CLASS sets.

Note that the capacity per group for multigroup systems assumes no trunking in that particular group (or trunks have been converted to equivalent sets). Therefore, the total system capacity, by taking into account trunks, agent sets and service circuits, will not be as large as a straight multiple of number of groups by the number of sets per group.

The number of allowed CLASS sets per group in Table 34 is strictly a function of inter-group traffic (except for five-group systems). When a system becomes five-group, the junctor capacity is no longer a bottleneck under the assumption of even traffic distribution. The system capacity will become unrealistic if it is purely based on the inter-group junctor capacity, therefore, other system resources, particularly the system CPU, need to be checked. The number 4080 is based on loop traffic (28 loops/7 superloops), not junctor capacity.

If a group comprises of both regular sets and CLASS sets, the total number of sets in the group should not exceed the quoted number in the table. If trunks and agent sets are included in the group, convert them to “equivalent sets” before using Table 34. More details are described in the engineering guide.

Table 35 shows the CMOD capacity. It provides the number of CMOD units required to serve a given number of CLASS sets with the desired grade of service. The required number of CMOD units should have a capacity range whose upper limit is greater than the number of CLASS sets equipped in a given configuration.

The procedure to use Table 35 is further illustrated in engineering examples in the section “Engineering examples” on page 657.

Table 35
CMOD unit capacity

CLASS Set	1-2	3-7	8-27	28-59	60-100	101-150	151-200	207-267
CMOD Unit	1	2	3	4	5	6	7	8
CLASS Set	268-332	333-401	402-473	474-548	549-625	626-704	705-785	786-868
CMOD Unit	9	10	11	12	13	14	15	16
CLASS Set	869-953	954-1039	1040-1126	1127-1214	1215-1298	1299-1388	1389-1480	1481-1572
CMOD Unit	17	18	19	20	21	22	23	24
CLASS Set	1573-1665	1666-1759	1760-1854	1855-1949	1950-2046	2047-2142	2143-2240	2241-2338
CMOD Unit	25	26	27	28	29	30	31	32

CLASS Set	2339-2436	2437-2535	2536-2635	2637-2735	2736-2835	2836-2936	2937-3037	3038-3139
CMOD Unit	33	34	35	36	37	38	39	40
CLASS Set	3140-3241	3242-3344	3345-3447	3448-3550	3551-3653	3654-3757	3768-3861	3862-3966
CMOD Unit	41	42	43	44	45	46	47	48
CLASS Set	3967-4070	4071-4175	4176-4281	4282-4386	4387-4492	4493-4598	4599-4704	4705-4811
CMOD Unit	49	50	51	52	53	54	55	56
CLASS Set	4812-4918	4919-5025	5026-5132	5133-5239	5240-5347	5348-5455	5456-5563	5564-5671
CMOD Unit	57	58	59	60	61	62	63	64

General engineering guidelines

Non-Call Center applications

In a non-call center application, there is no significant number of agent sets. Therefore, no agent set to regular set conversion is needed. The only type of port requiring special treatment is trunk.

Configurations following engineering rules (no re-configuration required)

The following engineering rules should be followed to avoid the need to re-configure a switch to accommodate the CLASS feature.

- 1** Provide the number of CMOD units serving all CLASS sets in the system based on the capacity table (Table 35).
- 2** Equip all CLASS sets in one network group.
- 3** Equip the XCMC IPE pack on the network group with CLASS sets.

If the system is a single group system, or if above rules are fully met, no further engineering is necessary. However, in case of an existing multi-group site upgrading to provide CLASS feature, we may need to re-configure the system in order to satisfy rule (2).

When the above rules are not fully met, continue the system engineering by following the procedure in the next subsection.

Re-configuration may be required (when engineering rules are not fully followed)

When above rule (2) can not be satisfied in a new site or an existing one, the following guidelines are designed to minimize network blocking, and to determine whether a re-configuration (to move trunks and sets around) or to provide an XCMC pack per group is necessary.

- 1** To use Table 35 to estimate CMOD unit requirements, consider only CLASS sets (no trunks or non-CLASS sets).
- 2** If CLASS sets are equipped in more than one group, locate the XCMC IPE pack in the group with most CLASS sets.

- 3** Use Table 34 to decide whether re-configuration is required. For a network group with trunks, regular sets and CLASS sets, convert trunks to sets by using the formula: 1 trunk = 4 sets (called equivalent sets), and then add up the total.

Check threshold in Table 34, if the number of equivalent sets is less than 1760 (e.g., for a two-group system), there is no need to re-configure the system.

If the number is greater than 1760, we need to move some of the CMOD units to a second XCMC IPE pack on another group (when CLASS sets are scattered in two groups), or move some sets or trunks from one group to another group to satisfy the threshold.

The following examples will show some of the engineering details of dealing with various alternatives.

To simplify discussion, the network group 0 has minor number of CLASS sets. The majority of CLASS sets are in group 1 (refer to Figure 13).

Engineering examples

One XCMC pack serving a single group system

No special engineering rule is needed for a single group system (Meridian 1 Option 51C or 61C). Look up Table 35 to find the required number of CMOD units to serve the given CLASS sets. For example, to serve an Option 61C with 400 CLASS sets, use Table 35 to find the number of CMOD units serving a range including 400 sets. The result is 10 units which can serve 333 to 401 CLASS sets.

One XCMC pack serving a 2-group system

1 Example 1: No re-configuration

A 2-group Meridian 1 system serving an office is expected to convert 400 analog sets to CLASS sets. Currently, 100 of them are located in group 0, where all incoming trunks are located, and the remaining 300 sets are in group 1. Assume that group 1 is also equipped with 800 non-CLASS sets. How many CMOD units are needed to serve this application and does the customer need to re-configure the switch (move sets and trunks between group 0 and group 1) to do the upgrade?

Solution:

The table lookup indicates that 400 CLASS sets need 10 CMOD units. Since one pack provides 32 units, one XCMC pack is sufficient for this customer.

Group 1 is equipped with 300 CLASS sets which is greater than the 100 sets in group 0, the pack should be installed in group 1.

The total equipped ports in group 1 is 1100 (=800+300). For a 2-group system, the second group is allowed to have 1760 sets (from Table 34) without junctor traffic concerns, therefore, there is no need for the customer to re-configure the switch.

2 Example 2: Re-configuration

A similar application as in the last example, except that there are 1600 non-CLASS sets and 100 trunks in group 1.

Solution:

The same number of CMOD units (10), since the number of CLASS sets in the system is the same.

The number of total equivalent sets in group 1 is 2300 (=1600 +300 +100x4) which is greater than the 1760 threshold in the Table 34 for a 2-group system.

The customer will have a number of alternatives to resolve the junctor blocking issue, depending on the situation:

- (1) move the 100 CLASS sets from group 0 to group 1, so all CLASS sets are served by the XCMC pack in group 1, or
- (2) move the 300 CLASS sets and the XCMC pack to group 0, or
- (3) move 540 non-CLASS sets (=2300-1760) from group 1 to group 0, or
- (4) move 100 CLASS sets from group 1 to group 0 and split the 10 CMOD units to 5 for group 0 and 5 for group 1. However, this will require another XCMC pack to be equipped in group 0. The cost of this approach is not trivial. It can be justified only when growth plan indicates a need for a second pack in the near future anyway.

The final decision depends on the specific situation of a site.

Call Center applications***Configurations following engineering rules (no re-configuration required)***

The following engineering rules should be followed to avoid the need to re-configure a switch to accommodate the CLASS feature for call center environment.

- 1** Convert an agent set to regular set by using 1 agent CLASS set = 4 sets (called equivalent sets)
- 2** Sum up the total number of regular CLASS sets and equivalent CLASS sets and find the number of CMOD units required based on the capacity table (Table 35).
- 3** Equip CLASS agent sets in the group where trunks carrying incoming traffic to agent sets are located.
- 4** Equip non-agent CLASS sets in the same group as the agent CLASS sets.
- 5** Equip the XCMC IPE pack on the network group with CLASS sets.

If the system is a single group system, or if above rules are fully met, no further engineering is necessary.

In case of an existing multi-group site upgrading to provide CLASS feature, re-configuring the system may be necessary to satisfy rules (3) and (4).

When above rules are not fully met, continue the system engineering by following the procedure in the next subsection.

Configurations do not fully meet engineering rules (re-configuration may be required)

When above rules can not be satisfied in a new site or an existing one, the following guidelines are designed to (1) minimize network blocking, (2) determine whether a re-configuration (to move trunks and sets around) is necessary, or (3) whether separate XCMC packs are necessary to serve the multi-group system.

- 1** Convert an agent set to regular set by using 1 agent CLASS set = 4 sets.
- 2** Sum up the total number of equivalent CLASS sets and find the number of CMOD units required based on the capacity table (Table 35).

- 3 Equip the XCMC IPE pack on the network group with most CLASS sets (or equivalent sets).
- 4 Limit the number of agent CLASS sets to be 200 or less per group.
- 5 Limit the number of regular CLASS sets in a group without XCMC pack to be 100 or less.
- 6 Convert trunks (1 trunk = 4 sets), and agent set (1 agent set = 4 sets) to equivalent sets before using Table 34 to find junctor traffic threshold.
- 7 If the threshold in Table 34 is greater than the total number of equivalent sets, traffic in the system is balanced, there is no need for further network engineering.
- 8 If the number of equivalent set is greater than the threshold, one or all of the following engineering rules should be followed to reduce junctor traffic:
 - a Move sets (CLASS or non-CLASS) or trunks to another group to satisfy the above engineering rules.
 - b Equip XCMC pack in more than one group to serve local CLASS set traffic.
- 9 When a trunk route is known to serve only agent sets, and these trunks and agent sets are in the same group, exclude them from the set count in Table 34 threshold (e.g., do not include trunks and agent sets with known COI to use Table 34; they do not generate traffic to junctors).

The following examples will show some of the engineering details of dealing with various alternatives.

To simplify discussion, the network group with most trunks is called group 0, consequently, a majority of CLASS sets, if not all, are in group 1. If most agent CLASS sets and XCMC pack are in group 0, there will be no need for further engineering.

Engineering Examples***One XCMC pack serving a single group system***

No special engineering rule is needed for a single group system. Look up Table 35 to find the required number of CMOD units to serve the given CLASS sets. For example, to serve an Option 61C with 300 agent CLASS sets, use Table 35 to find the CMOD units that can serve 1200 equivalent sets ($=300 \times 4$). The result is 20 units.

One XCMC pack serving a 2-group system**1 Example 1: No re-configuration required**

A two-group Meridian 1 system serving a call center is expected to upgrade 300 analog sets (100 administrative sets and 200 agent sets) to CLASS sets. The 100 administrative sets are located in group 0, where are also located all incoming trunks. The 200 agent sets are in group 1, which will continue to be used as agent sets after upgrading. Assume that group 1 is also equipped with 500 non-CLASS sets. How many CMOD units are needed to serve this application and does the customer need to re-configure the switch (move sets and trunks between group 0 and group 1) to do the CLASS feature upgrade?

Solution:

The table lookup indicates that 900 equivalent CLASS sets ($=100+200 \times 4$) need 17 CMOD units. Since one pack provides 32 units, one XCMC pack is sufficient for this customer.

Group 1 is equipped with 200 agent CLASS sets or 800 equivalent sets which is greater than the 100 sets in group 0, the pack should be installed in group 1.

The total equipped ports in group 1 is 1300 ($=200 \times 4 + 500$). For a 2-group system, the second group is allowed to have 1760 sets (from Table 34) without junctor traffic concerns, therefore, there is no need for the customer to re-configure the switch.

In addition, both “100 CLASS sets in a group without CMOD units (group 0)”, and “200 agent CLASS sets in a group separate from incoming trunks (group 1)” statements are within engineering rules, therefore, no re-configuration is necessary.

2 Example 2: Re-configuration required

A similar application as in the last example, but there are 1600 non-CLASS sets in group 1.

Solution:

The same number of CMOD units (17) is required, since the number of equivalent CLASS sets (900) in the system is the same.

Equip the 17 CMOD units in group 1, since the XCMC pack should be equipped in the group with most CLASS (equivalent) sets.

The number of total equivalent sets in group 1 is 2400 ($=1600+200 \times 4$) which is greater than the 1760 threshold in Table 34 for a two-group system.

The customer will have a number of alternatives to resolve the junctor blocking issue, depending on the situation:

Move the 100 CLASS sets from group 0 to group 1, or

Equip the 200 CLASS agent sets and the XCMC pack in group 0, or

Move 640 non-CLASS sets ($=2400-1760$) from group 1 to group 0 to avoid threshold violation, or

Move 100 CLASS sets from group 1 to group 0 and split the 17 CMOD units to 10 for group 0 and 7 for group 1; however, this will require another XCMC pack to be equipped in group 0, or

Move 160 trunks with COI to agent sets from group 0 to group 1, so that the total equivalent sets in group 1 will become 1760 ($=1600+(200-160) \times 4$), since this way the 160 trunks and an equal number of agent sets will not generate traffic to junctors.

The final decision depends on the specific situation of a site.

3 Example 3: Mixed sets, trunks in both groups and re-configuration required

A two-group Meridian 1 system serving a call center is expected to equip 200 administrative CLASS sets in group 0 and 400 CLASS agent sets in group 1. 500 trunks carrying incoming traffic to agents are located in group 0, 60 trunks serving local CO non-ACD traffic are equipped in group 1. Assume that group 1 is also equipped with 300 non-CLASS sets. Can this configuration meet engineering rules? How many CMOD units are needed?

Solution:

The equivalent CLASS sets in system = $200 + 400 \times 4 = 1800$. From Table 35, 27 CMOD units are needed. It requires the XCMC pack to be equipped in group 1.

When we equip the XCMC pack in group 1, there are three violation of rules: (1) the number of CLASS sets in the group without CMOD units (group 0) is greater than 100, (2) the number of agent sets in a group without incoming trunks (group 1) is 400 which exceeds the 200 per group limit, and (3) the violation of threshold in Table 34 for group 1 ($=400 \times 4 + 60 \times 4 + 300 = 2140 > 1760$). Several alternatives are available to make this configuration meeting engineering rules:

Move 100 CLASS sets and 400 incoming trunks from group 0 to group 1; all above 3 violations are removed by this re-configuration: (1) CLASS sets in group 0 is 100, (2) 400 CLASS agent sets and 400 incoming trunks with COI are in the same group (group 1), (3) the number of equivalent sets in group 1 for threshold check-off is reduced to 640 ($=100 + 60 \times 4 + 300 = 640$) which is certainly within the limit (1760).

However, it is impractical to put almost all trunks and agent sets in one group (group 1). With so many rule violations, the most realistic approach is to move 200 CLASS agent sets to group 0 and equip approximately 15 CMOD units in group 0 and 12 units in group 1.

One XCMC pack serving a 3-5 group system

Chances of groups larger than three requiring special engineering are slim, since the threshold (Table 34) limiting the number of sets per group is much higher.

If the rule of co-locating CLASS sets and CMOD units in the same group is not fully met, as long as basic rule like putting XCMC pack in the group with most CLASS sets is followed, perhaps, no re-configuration between any two groups is necessary.

However, if in doubt, isolate any two groups at one time, and go through the two-group engineering procedure to re-configure the system two groups at a time. Ignore the rest of system during the engineering process, except for calculating the total number of CMOD units, which should cover the need of all CLASS sets in the system. However, during a two-group engineering, only the number of CMOD units attributable to the two-group at hand should be used in calculations.

Also remember to use 2933 (equivalent) sets per group for threshold check-off for the three-group system, and their respective number for four- and five-group systems (Table 34).

The complete check-off of set threshold between any two groups in a multi-group system can be represented by the following combinations (a number denotes the group number: e.g., 1-2 represents group one-group 2):

three-group: 1-2, 1-3, 2-3.

four-group: 1-2, 1-3, 1-4, 2-3, 2-4, 3-4.

five-group: 1-2, 1-3, 1-4, 1-5, 2-3, 2-4, 2-5, 3-4, 3-5, 4-5.

It should be noted that although CMOD units are equipped according to the traffic requirement of CLASS sets in a network group for the inter-group junctor traffic consideration, they are a system resource shared by the whole system.

CLASS: Visual Message Waiting Indicator

The Custom Local Area Signaling Service (CLASS) Visual Message Waiting Indicator (VMWI) feature allows a CLASS set to receive a visual indication that messages are waiting. The visual indicator may be in the form of a lighting or flashing Light Emitting Diode (LED), or a special message on a liquid crystal display, or both. The type of visual indicator depends on the firmware of the CLASS set being used.

Note: For a non-Class set, lighting the Message Waiting Lamp through a high voltage message (Voltage Message Waiting) is still supported and operates in the same way as it did before.

The visual indication message (an “ON/OFF” CLASS VMWI specific message) is delivered from the Meridian 1 to the CLASS sets using Frequency Shift Keying (FSK) signaling based on Bellcore Specifications, via a CLASS modem (CMOD) unit. The CMOD units are configured using LD 13. Once configured, the CMOD units are shared throughout a multi-customer Meridian 1 system. When an FSK message is presented to a CLASS set, an available CMOD unit is automatically allocated.

After all messages are retrieved, the visual indicator is cleared. The CLASS VMWI feature will not be able to turn off the message waiting indicator until the CLASS set has returned to the idle state, even though all of the messages have been retrieved by the user.

The CLASS VMWI feature supports the Bellcore Single Data Message Format (SDMF) and Multiple Data Message Format (MDMF) messaging. These formats are configured in the Meridian 1 database using LD 10. To use SDMF, a Class of Service of CNUS is required. For MDMF, a Class of Service of CNUA and/or CNAA is required.

The following description outlines the general functionality of the CLASS VMWI feature.

The following scenarios affect the sending of an ON or OFF message indicator to a CLASS set.

If the CLASS set is idle:

- the ON/OFF message is sent immediately to the set.

If the CLASS set is busy:

- as soon as the CLASS set becomes idle (goes on-hook), the system immediately sends the VMWI message to the set.

If the CLASS set or CMOD unit is disabled (via LD 32 or 30), or no CMOD unit is available:

- the CLASS VMWI feature will automatically abort the VMWI message. The CLASS set is then checked every 10 seconds, for up to 2 1/2 hours, until the set is detected to be idle. At that time, the system will immediately deliver the VMWI message.

If a CLASS set is in the middle of receiving a VMWI message, and the CLASS set goes off-hook:

- the VMWI message will be aborted. The CLASS set is checked every 10 seconds, for up to 2 1/2 hours, until the set is detected to be idle. At that time, the system will immediately deliver the VMWI message.

Note that, if the CLASS VMWI feature is waiting to send an “ON/OFF” message and another “ON/OFF” message is requested, only the last “ON/OFF” message is actually sent to the CLASS set.

The CLASS VMWI feature supports Nortel and third party CLASS sets, if these sets are Bellcore VVMI compliant.

The following figures depict a typical feature operation and system resource allocation scenario for a CLASS Visual Message Waiting Indication being presented to a CLASS set. Note that the representation is for an ON message being delivered to the CLASS set. The same operation and system resource allocation applies for an OFF message being sent, except that the contents of the message would be different.

Figure 14
CLASS set is in idle state

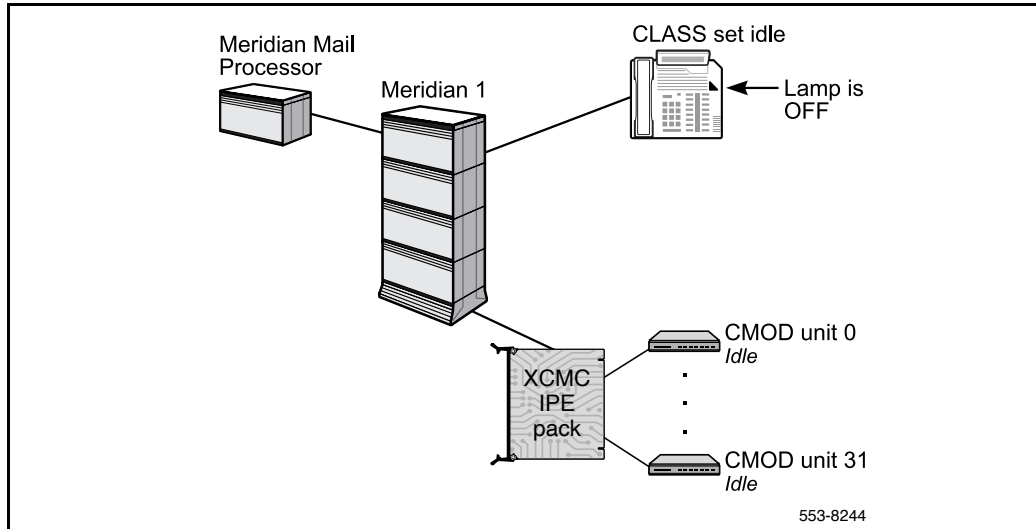


Figure 15
CLASS VMWI ON message in the process of being delivered to the CLASS set

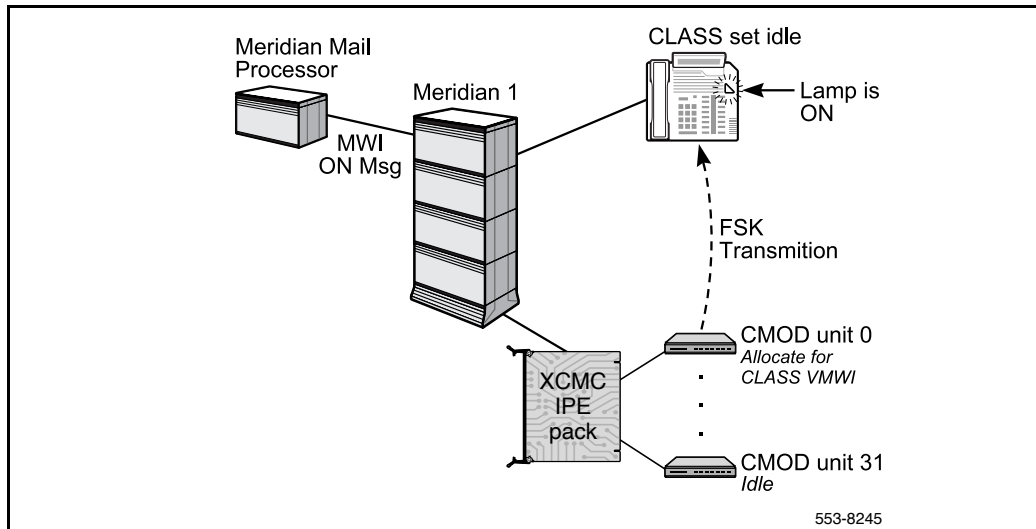
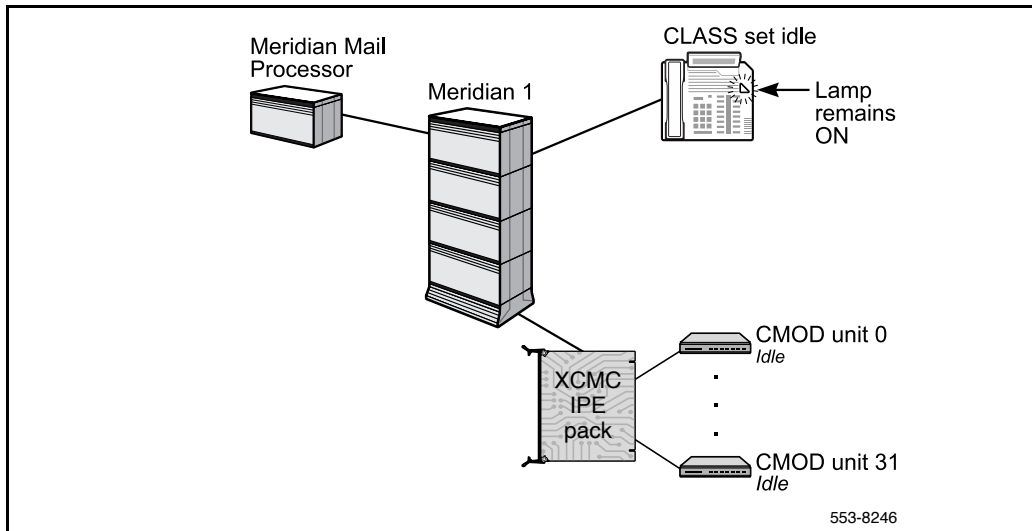


Figure 16
CLASS VMWI has been delivered to the CLASS set



Operating parameters

This feature has been developed for the North American residential market, as well as for the small business, hospitality, schools and universities, nursing homes and hospitals, and mobile home markets.

When a craftsperson uses LD 10 to administer a service change to a CLASS set, if the Meridian 1 software identifies, during overlay wrap-up, that the CLASS VMWI feature is waiting to send a visual indication to the set being serviced, a SCH1099 message will be generated, indicating that the VMWI pending message is lost and no retry will be attempted. The service change itself does not trigger any messages to the set.

Some CLASS sets, like the Nortel's M9000 series of sets, support both voltage and CLASS (FSK) Message Waiting. However, once the CLASS set is configured in LD 10, then the Meridian 1 will no longer send voltage messages to the set.

If a CLASS set that previously used FSK messaging to receive Visual Message Waiting Indication has the Class of Service changed to be a non-CLASS set that uses Voltage Message Waiting, the visual indicator will not operate correctly. The following will occur:

- Voltage Message Waiting will work if the set is returned to the no message waiting state (visual indicator is dark) before switching over from FSK to voltage.
- Voltage message waiting will not work if the set is left at the message waiting state (visual indicator is lit) before switching from FSK to voltage.

It is up to the craftsperson to ensure that a CLASS set is correctly configured to support the CLASS VMWI feature.

Up to 255 CMOD units may be configured on a Meridian 1 system. Once configured, the CMOD units are shared throughout a multi-customer Meridian 1 system. When an FSK message is transmitted to a CLASS set, an available CMOD unit is automatically allocated.

If a CLASS set with a lit message waiting indicator retrieves all of its messages, the CLASS VMWI feature will not be able to turn off the message waiting indicator until the CLASS set has returned to the idle state.

Lamp audit does not apply to the CLASS VMWI feature.

There is a 2 1/2 hours time limit for a retry in the case of a pending message.

Up to 255 CLASS modem units can be configured on a Meridian 1 system, and up to 32 CLASS modem units can be configured on any Extended CLASS Modem card.

Feature interactions

Message Waiting

In order to support the CLASS VMWI functionality on a CLASS set, the Message Waiting feature has been enhanced to turn the message waiting indicator ON or OFF on the CLASS set through FSK signalling.

In addition, the CLASS VMWI feature can interwork with Stuttered Dial Tone. The Stuttered Dial Tone functionality (which is part of the Flexible Tones and Cadences feature) provides an audible indication, rather than a visual one, that a message is waiting. It is configured separately from the CLASS VMWI feature, using the Class of Service (CLS) prompt in LD 10. If the LPA (Lamp Allowed) response is entered, then a CLASS visual indication is sent. If the LPD (Lamp Denied) response is entered, then Stuttered Dial Tone is sent instead. Note that the Stuttered Dial Tone and CLASS visual indication are mutually exclusive. A CLASS set may receive either Visual or Stuttered Dial Tone as a message waiting indicator, but not both.

Attendant Console

When a CLASS set that is on a call with the attendant goes on-hook, the call will not be released until the attendant releases the call. The CLASS VMWI feature will wait until the call is actually disconnected before sending the VMWI message to the CLASS set that had already gone on-hook

Permanent Hold

When a CLASS set is placed on permanent hold, the set is still treated as though it is presented with a phone call. The CLASS VMWI feature will not send the VMWI message to the CLASS set to turn the visual indication ON or OFF, until the set actually goes on-hook or the call is not presented to the set. At this time, VMWI message will be sent to the CLASS set to update the visual message waiting status.

Make Set Busy

When a CLASS set is in the Make Set Busy state, the set will not be presented with incoming calls. Although no incoming calls are presented to the set, VMWI message can still be sent to the CLASS set to turn the visual indication ON or OFF, as long as the set is in the idle and on-hook state.

Set Relocation

When a CLASS set is relocated, the CLASS VMWI feature will lose the message when the set finishes the relocation. An SCH1099 error message is printed to indicate that the CLASS VMWI message is lost and no automatic retry will be attempted.

Call Party Control Incoming

When a CLASS set on an active call is placed in Call Party Control Incoming (CPCI) state, the set will not be presented with any other incoming call. The CLASS VMWI feature will not send the VMWI message to the CLASS set to turn the visual indication ON or OFF, until the set releases the active call.

Meridian Mail

The CLASS VMWI feature makes use of Meridian Mail by having the Meridian Mail functionality communicate with the Meridian 1 system to inform the CLASS set to turn the visual message waiting indicator ON or OFF. The Meridian 1 software determines the appropriate type of protocol based on the configuration of the CLASS set, and sends it to the set to turn the visual message waiting indicator ON or OFF.

Feature packaging

The following packages are required for the CLASS VMWI feature:

- CLASS Calling Number Delivery (CNUMB) package 332, or
- CLASS Calling Name Delivery (CNAME) package 333, and
- Message Waiting Center (MWC) package 46

Feature implementation

LD 10 - Configure a CLASS set as an analog (500/2500 type) set, and configure the required Class of Service for the set.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	Telephone type.
TN	l s c u	Terminal address for the set, for Options 51C, 61C, 81/81C, where l = loop, s = shelf, c = card, u = unit.
	c u	For Option 11C, where c = card, u = unit.
CUST	xx	Customer number, as defined in LD 15. xx = 0-99 for Option 51C, 61C, 81/81C. xx = 0-31 for Option 11C.
...		
DN	xxxx	Directory Number for the set.
...		
CLS		Class of Service for the CLASS set.
	MWA	Message Waiting Allowed.
	LPA	Visual Indication (Lamp) Allowed.
		Note: At least one of the following CLASS CLS must be allowed.
	CNUA	CLASS Calling Number Multiple Data Format Allowed.
	CNUS	CLASS Calling Number Single Data Format Allowed.
	CNAA	CLASS Calling Name Multiple Data Format Allowed.
...		

LD 13 - Configure the CLASS modem unit (up to 255 CLASS modem units may be configured per Meridian 1 system).

Prompt	Response	Description
REQ	NEW CHG	Add new data Change existing data.
TYPE	CMOD	CLASS modem unit.
TN	l s c u c u	Modem unit Terminal Number for Options 51C, 61C, 81/81C, where l = loop, s = shelf, c = card, u = unit. For Option 11C, where c = card, u = unit. Note: Since the CLASS modem unit uses the octal-density Extended CLASS Modem Card (XCMC), up to 32 units can be configured on any XCMC card.

Note: You may print the CMOD unit information using **LD 20**.

Feature maintenance and diagnostics

LD 30 and LD 32

LD 30 and LD 32 handle CLASS VMWI messaging, in the case that a CMOD unit or a CLASS set is in the state of being disabled. Any CLASS VMWI message that is in progress will be aborted. A check every 10 seconds, for up to 2 1/2 hours, will be done on the CLASS set until another CMOD unit is found or the CLASS set is enabled, before a VMWI message is actually sent to the set to perform visual indication.

LD 77

LD 77 is used to monitor CLASS VMWI messaging.

Feature operation

No specific operating procedures are required to use this feature.

Introduced in X11 Release:	All
Networking:	No

Conference

Conference adds additional parties to an established call. The maximum is three or six, depending on the Conference feature assigned to the conference call originator. Not all conference parties have to be local to the Meridian 1, although one party must be an internal Directory Number (DN) to uphold the conference connection. The attendant can also establish six-party conferences.

Meridian 1 proprietary telephones require a separate Conference 3 or Conference 6 key/lamp pair. M2317 and M3000 Touchphones establish conference calls by means of a softkey. Analog (500/2500 type) telephones use the switchhook to establish a three-party conference.

Six-party conference for analog (500/2500 type) telephones, X11 Release 10 and later releases

The six-party Conference (C6A) Class of Service enables analog (500/2500 type) telephones to establish a six-party conference, which operates the same as a three-party conference, with the exception of Conference Control operation.

Conference Control disconnects an unwanted third party (trunk only) from a three-party conference. Analog (500/2500 type) telephone users implement this feature by means of switchhook flash. Telephones with the six-party conference capability implement Conference Control by dialing SPRE + 87.

It is recommended that all analog (500/2500 type) telephones have either the three-party conference (C6D) Class of Service or the six-party Conference (C6A) Class of Service to avoid confusion when using Conference Control.

Operating parameters

Due to the possibility of getting annoying noise (e.g., squealing) when two or more trunks are involved in a conference, it is strongly recommended that no more than two trunks be involved in the process.

At least one party in the conference must be a telephone on the local Meridian 1 for the duration of the conference call.

Attendant Administration does not support the implementation of six-party conference for analog (500/2500 type) telephones. An error message is displayed if an attempt is made to remove Transfer Allowed (XFA) Class of Service for analog (500/2500 type) telephones with a C6A Class of Service.

A Transfer allowed (XFA) Class of Service is required for a three-party conference (C6D) and is also a prerequisite for the six-party conference Class of Service (C6A) on analog (500/2500 type) telephones.

Dial access of Conference Control is provided only for analog (500/2500 type) telephones with a C6A Class of Service.

The number of timeslots is limited to 30 per conference loop. A maximum of five simultaneous conferences, each consisting of six conference users, is supported per conference loop.

Double conferences are blocked to avoid conference chains (i.e., set A and set B are on an established call. The user of set B presses the Conference key to call set C. Any attempt by set C to initiate another conference is blocked if set B has not yet completed the conference).

While the originating side of a call is linked to a transfer or conference key (i.e., the originator of a transfer/conference call has not yet completed the transfer/conference), the terminating side cannot initiate a transfer or conference. Conference calls cannot be transferred.

A warning tone is available for conference calls. When the option is enabled, the tone lets callers know that they are entering a conference call. The switch for this option is preset to disable the warning tone. For information on the switch settings for the NT8D17 Conference/TDS card, refer to *Circuit card installation and testing*.

Feature interactions

AC15 Recall: Transfer from Meridian 1

The use of the Conference key does not activate the AC15 Recall: Transfer from Meridian 1 feature. Conference call is not supported because it is not possible to have two parties on the same trunk.

AC15 Recall: Timed Reminder Recall

The conference feature is sometimes used to perform a transfer when a controlling party establishes a call, the controlling party establishes a conference with a third party and releases, and a call is established between the two remaining parties.

If an established call is extended over a trunk to initiate a conference call, this conference call cannot be set up if this trunk has answer supervision and the called extension has not answered. The AC15 Timed Reminder Recall feature cannot be activated by using the conference feature to extend a call over an AC15 TIE trunk, because the AC15 TIE trunk must have answer supervision and the called extension must be ringing.

AC15 Recall: Transfer from Norstar

It is not possible in any situation with Transfer from Norstar to establish a three-party conference. It is not possible for an AC15 trunk to initiate a consultation if it is involved in a conference.

Advice of Charge for EuroISDN

If a set is participating in a conference, no charge is displayed for that set. Whenever an ISDN CO trunk that provides Advice of Charge (AOC) is added to a conference, the call charging information, received from the network, accumulates against the set that initiates the call.

Once the last set involved in a conference call disconnects, a search is made of all trunks remaining in the conference call to determine which trunk has been established in the call for the longest period of time. This trunk becomes the chargeable TN. Once this trunk disconnects, the process is repeated so a new chargeable TN can be located.

Attendant Barge-In
Attendant Busy Verify

Conference Control cannot be activated if an attendant has used Barge-In or Busy Verify during a conference that involves a trunk.

Attendant Break-In

If the attendant cannot break in to a conference call because the call is supporting the maximum number of callers, busy tone continues and the Break-In key lamp flashes.

Attendant Console

Three-party Conference (C6D) allows analog (500/2500 type) telephones on established calls to flash the switchhook and Dial 0 to talk to the attendant. Six-party conference users follow the same sequence, but the conference loop is seized and the call is treated as a conference call. When only two parties remain from the conference, the call is returned to a simple call if neither of the remaining parties is an Attendant Console.

Attendant Overflow Position

An Attendant Overflow Position (AOP) call answered on an AOP DN may be conferenced with another DN.

Autodial Tandem Transfer

The Autodial Tandem Transfer feature is blocked during Conference and No Hold Conference calls.

Automatic Redial

When an Automatic Redial (ARDL) call is not accepted by the calling party, the Conference (A03 or A06) key is ignored.

B34 Codec Static Loss Plan Downloading

B34 Dynamic Loss Switching

When a conference connection is established, no pads are switched in on the trunk side; any extra loss that is required is provided by the conference circuit based on an algorithm which takes into account the number of lines and trunks.

Call Forward All Calls

On analog (500/2500 type) telephones, Call Forward All Calls can be activated or canceled during a conference call.

Call Forward by Call Type

Calls modified by Conference receive Call Forward by Call Type treatment for the conferenced telephone. If party A calls party B, and B tries to conference in party C, the forwarding DN and Class of Service are that of C. For example, Joan and Bob are in conversation, and they try to conference in Mack. Mack is not at his desk, so the attempted conference call is sent to the destination associated with Mack's telephone.

Call Page Network Wide

A station set or Attendant Console that conferences an external Call Page Network Wide (PAGENET) uncontrolled call is not blocked. However, an external PAGENET controlled call is blocked.

Call Park

A parked call can be accessed after Conference is activated

Call Party Name Display

When pressed during an active call, or to set up a conference, the Conference, Connect, or Join Parties key clears the display. The telephones involved in the conference have blank displays. If the conference returns to a two-way only call, each telephone displays the DN and name of the other telephone.

Call Pickup

This feature cannot be activated during a conference call. Meridian 1 proprietary telephones can activate Call Pickup if an idle Directory Number (DN) key is available. The conference call must be put on hold before pressing the idle DN key to pick up the call.

Call Pickup Network Wide

Call Pickup Network Wide may be used to pickup an enquiry call from a conference, subject to the same limitations as apply to Call Transfer.

Call Transfer

Conference can be used to transfer calls, eliminating the need for a separate Call Transfer key/lamp pair on Meridian 1 proprietary telephones. Calls in the ringing state cannot be transferred with Conference. The third party must answer before the transfer can be completed.

A conference can also be established after initiating a Call Transfer operation. After the third party answers, pressing the Conference key establishes a three-way conference.

When a switchhook flash transfers calls on analog (500/2500 type) telephones with three-party conference (C6A) Class of Service, the transferring party goes on hook, leaving the other two parties established. Telephones with a C6A Class of Service involved in a conference having more than three parties must add the last party to the conference, then flash the switchhook and go on hook to complete the transfer.

Called Party Disconnect Control

Trunks with Called Party Disconnect Control allowed are treated as trunks without disconnect supervision when conferenced.

Calling Party Name Display Denied

Call Party Name Display, and thus the Calling Party Name Display Denied enhancement, do not apply to conference calls.

Calling Party Privacy

The Calling Party Privacy (CPP) feature will pass the Privacy Indicator to the terminating set to inhibit the display of the Calling Party Name and Number if the Conference feature is used for the purpose of performing a transfer.

Camp-On, Forced

Telephones involved in Conference calls cannot be camped on to. Overflow tone is returned to telephones attempting Forced Camp-On.

Centrex Switchhook Flash

Centrex Switchhook Flash (THF) allows conference calls through the CO. It can be invoked only if there is an established call connected to an outside trunk. If the telephone is engaged in internal conference calls, THF cannot be used.

Charge Account and Calling Party Name

Conference calls produce multiple Call Detail Recording (CDR) records. Whenever a new trunk is added to a conference, the connection between the connected telephone and the trunk is recorded, and a connection to the conference loop is established. This causes CDR to generate a start record with the telephone and trunk identified as the involved parties. As trunks are removed from a conference, CDR end records are produced. These records may identify different telephones or conferences as the local parties.

China – Attendant Monitor

If any party involved in a monitored call attempts to activate conference, monitoring is immediately deactivated. With Attendant Monitor active, the attendant cannot create a conference without first disabling the Attendant Monitor feature.

China – Supervised Analog Lines

If a terminal device answers an incoming call and then initiates a conference, no battery reversal answer supervision signal is extended to the terminal device when new parties of the conference answer. However, a hook flash disconnect supervision signal is extended to the terminal device when the last party in the conference disconnects.

If a terminal device initiates a conference, battery reversal answer supervision is extended to the terminal device when the first party answers. No polarity change is made when additional parties are added to the conference. The polarity is reverted to normal when the terminal device disconnects or when the last party in the conference disconnects.

China – Toll Call Loss Plan

Toll Loss Plan is not supported when a conference is in progress. When a local party connecting to a toll call makes a conference call, the pad levels on the ONS line card are switched back to their original (non-toll call) values. Then, the existing Conference algorithm takes care of the necessary pad switching. This would not alter the existing conference call in terms of loss levels.

When a conference call joins in a toll call, the Toll Loss Plan is not effective.

When a conference call involving a toll call becomes a two-party call, the Toll Loss Plan is applied on the set and DTI2 trunk.

The conference pad switching algorithm is not changed for the Toll Loss Plan, since the 7 db requirement does not apply to a Conference call.

Controlled Class of Service

If Controlled Class of Service (CCOS) is activated at a telephone involved in a conference call, established Central Office or toll calls are not affected. The CCOS restriction level is applied immediately, and no new calls can be initiated from the conference. The telephone remains in the CCOS active state after the conference is terminated.

Controlled Class of Service, Enhanced

If Controlled Class of Service (CCOS) is activated at a telephone on a conference call, established Public Exchange/Central Office or toll calls are not affected. The CCOS restriction level is applied immediately; however, no new calls can be initiated from the conference. That telephone remains in the CCOS state after the end of the conference.

Dial Access to Group Calls

The Conference feature cannot be applied to a Group Call.

Dial Intercom

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).

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is denied if the requested party is established in a local conference, or if the requested party is involved in an enquiry call. These restrictions may apply to the unrequested party depending on the connection being used between the requested and unrequested parties.

End-to-End Signaling

The Attendant Console and the telephone receiving Attendant End-to-End Signaling cannot both activate End-to-End Signaling simultaneously.

Group Call

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.

Held Call Clearing

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.

Hot Line

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.

ISDN QSIG/EuroISDN Call Completion

A Call Completion request cannot be made on a conference call attempt.

ISDN QSIG Name Display

An incoming QSIG call with name display presentation allowed is conferenced locally. When a conferee drops out of the conference, calling party's name information is displayed and is passed on to another conferee. Name display information remains until the last local set remains on the call. With presentation restricted, the calling party's name information is not displayed as conferees leave the call.

In-Band Automatic Number Identification

If an agent activates the Conference feature while active on an In-Band Automatic Number Identification (IANI) call, the display is cleared. The display remains clear while the Conference call is active. If the conferenced party releases first, the ANI number appears on the agent's display.

Malicious Call Trace

When a station or console that is on the conference loop activates the MCT feature, the trace record shows only the conference loop number and conference number as the ORIGIN, and the Terminal Number (TN) of the station or console that activated the feature as the TERTN. No information on the other parties in the conference is given.

Malicious Call Trace - Enhanced

If MCT is activated during a conference, the trace record shows the conference number and the conference loop number. Trace records are printed for each party involved in the conference. The originator of the call's trace record is printed first.

Meridian Mail Conference Control

Three- and six-party conference allows 2500 telephones to disconnect from Meridian Mail by dial access during a conference call.

A 2500 telephone on an established call flashes the switchhook to place the existing call on Consultation Hold. After receiving special dial tone, the user dials the third party. If the third party does not answer, the call is forwarded to Meridian Mail. If the 2500 telephone flashes the switchhook again, a three-party conference is established, including Meridian Mail. If the user does not flash the switchhook at this time, Privacy is in effect and the user can disconnect from Meridian Mail by dial access before returning to the original call. This can be done if the user is in conference or on a simple two-party call.

To disconnect from Meridian Mail, press octothorpe (#) to stop the recorded greeting, octothorpe (#) to stop recording your message, and 83 to disconnect. To disconnect from any other message system connected to Meridian 1, press 3 to stop the recorded message and the asterisk (*) to disconnect.

Meridian 911

When a call is answered, and then conferenced, the trunk priority is lost (the conference consultation call is an internal call and treated as low priority by the software). This operation is the same for normal calls and 911 calls.

Meridian 911 - Call Abandon

M911 abandoned calls cannot be conferenced.

Message Registration

The party that originates a call is charged. The charge cannot be moved to another party using Conference.

Multi-Party Operations

Current Conference feature for analog (500/2500 type) telephones with C6A is not affected by conference with TSA Class of Service.

Multi-Party Operations***Call Join***

The Call Join feature allows a user of a Meridian 1, Meridian 1000 series, or digital telephone to conference in or transfer a third party to a party held on the user's telephone, without having to dial the third party. The user can then hang up.

**Multi-Party Operations -Three-Party Service
Multi-Party Operations Enhancements**

The patience tone or the Misoperation ringback is not applied to a conference party.

Music

With basic Music on Hold, when a call is placed on consultation hold while a Conference is being established, music does not play. Enhanced Music (EMUS) package 119 is required for music on consultation hold (see [“Music, Enhanced” on page 1389](#)).

Music, Enhanced

The held party receives Music when the Conference key is pressed, while the conference is being established, and whenever the conference is reduced to two parties with one party on Hold. Once the conference is established, Music is no longer provided.

A Six-party Conference operates the same as a Three-party Conference.

Network and Executive Distinctive Ringing

If a new party is to be included in an established conference, the ringing that is applied to the set of the new party depends on the sets of the established parties. The system scans the trunks and sets of the conferees for a trunk marked as distinctive or a set designated as executive. The ringing cadence of the new set depends on the highest index found by the scan.

Network Intercom

A Conference call may involve a mixture of intercom and regular DN keys.

No Hold Conference

This feature can be enabled at any time that a regular Conference-6 feature can be activated.

Off-Hook Alarm Security

The Off-Hook Alarm Security (OHAS) line lockout treatment occurs when a telephone associated with an OHAS DN initiates a Conference call and the ASTM expires. Only the Conference initiator receives the OHAS treatment; other conferees remain in Conference. If the initiator of the Conference call presses the Conference key, the OHAS DN is conferenced in with the other conferees.

On Hold on Loudspeaker

It will not be possible to conference the loudspeaker call to another party.

Override

A conference call cannot be entered by using Override.

Override, Enhanced

Telephones involved in conference calls cannot be force camped on or Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Paging

Paging trunks cannot be conferenced.

Periodic Pulse Metering

Whenever a PPM trunk is added to a conference, a CDR Start record is generated, if CDR is equipped on the trunk. The PPM pulse counts from the trunk are accumulated against the party who initiated the call. If a party who adds a PPM trunk to the conference disconnects while the conference is still in progress, read requests are sent to the PPM trunk to read the residual count. Then, the on-board counter is cleared, the residual count is added to the temporary meter, and the contents of the temporary meter are added to the terminal meter. A CDR Transfer (X) record is then printed against this party, and the temporary meter is cleared. The party that is charged is the one that has been in conference the longest. When a trunk with disconnect supervision disconnects, a CDR End record is immediately printed. For trunks that do not provide a disconnect signal, their CDR records are not printed until the last party disconnects from the conference.

Privacy Override

The Conference feature can be used to add other parties to a Privacy Override connection.

Recorded Announcement Trunk

A Recorded Announcement (RAN) trunk cannot be Conferenced.

Recorded Telephone Dictation

Dictation trunks cannot be conferenced.

Ring Again

This feature cannot be activated during a conference call.

Station Activity Records

For a set with Class of Service Call Detail Monitoring Allowed (CDMA) involved in a call with a trunk, a Station Activity Record is produced only when that set conferences in the first party. Conferencing of all subsequent parties does not generate a "D" record. An additional "D" record is produced when the last conferee with Class of Service CDMA connected to the trunk goes on hook. This does not affect any other CDR record generation during a conference.

Trunk Access from any Station

A switchhook flash on analog (500/2500 type) telephones results in special dial tone. Dialing SPRE + 4 (TAFAS access code) then picks up an incoming Trunk Access from any Station (TAFAS) call. A second switchhook flash reconnects the user to the original conference call. The call picked up by TAFAS is put on Consultation Hold. No other action can be taken with a call picked up in this way during an established conference call.

Trunk Barring

The originator of a conference call can connect only to a barred route on a consultation basis. A switchhook flash from an analog (500/2500 type) telephone results in a reestablished connection with the Originating Trunk Connection. The user of a Meridian 1 proprietary telephone must release the barred connection to return to the Originating Trunk connection, or the conference containing the Originating Trunk connection; operating the Conference key on a Meridian 1 proprietary telephone has no effect. An attendant may return to the Originating Trunk Connection, or the conference containing the Originating Trunk Connection, by releasing the barred connection. This is done by pressing the RLS DEST key; pressing the Conference key has no effect.

Trunk to Trunk Connection

Trunk to Trunk Connection allows external trunks to remain established in a call, provided that all external trunks involved have disconnect supervision. With respect to charging costs associated with a conference call, once the last set involved in the conference call disconnects, a search is made of all remaining trunks in the call to determine which call is established in the call for the longest period of time. This trunk is the chargeable Terminal Number (TN). This process is repeated to find the next chargeable TN.

500/2500 Line Disconnect

If one of the parties in the conference is connected to a 500/2500 port that is in turn connected to a Voice Response Unit (VRU), dial tone is provided to the 500/2500 port when all the other parties in the conference disconnect. This feature enhancement applies in the same way to Call Transfer and Hunting.

Feature packaging

Conference is included in basic X11 system software.

Feature implementation

LD 10 – Add/change Conference 3 or Conference 6 for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u c u	Terminal Number. For Option 11C.
CLS	(XFD) XFA (C6D) C6A	(Deny) allow transfer Class of Service. (Deny) allow six-party conference (C6A requires an XFA Class of Service).

LD 11 – Add/change Conference 3 or Conference 6 for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u c u	Terminal Number. For Option 11C.
KEY	xx AO3 AO6	Add a Conference 3 or Conference 6 key (must be key 23 for the M3000). xx = key number.

Feature operation

To add a new party to an established call on a Meridian 1 proprietary telephone, follow these steps:

- 1** Press **Conference**.
The first party is on hold and you receive a dial tone.
- 2** Dial the number of the new party.
When the new party answers, you may talk privately.
- 3** Press **Conference** to include all parties in the call.
- 4** To add more parties to the conference (up to six, including yourself), repeat steps 1-3.

Note: If you make a mistake while dialing or receive a busy signal, press **Rls** to disconnect. To return to the call, press the key beside the fast flashing indicator.

To add a new party to an established call on an analog (500/2500 type) telephone, follow these steps:

- 1** Flash the switchhook.
You hear three beeps followed by dial tone. The first party is on hold.
- 2** Dial the telephone number of the person to be included in your call.
When the call is answered, you may talk privately with the new party.
- 3** Flash the switchhook to include all parties in the call.
- 4** To add more parties to the conference (up to six, including yourself), repeat steps 1-3.

Note: If you make a mistake while dialing or receive a busy signal, flash the switchhook to return to the original caller.

Conference Warning Tone Enhancement

The Conference Warning Tone Enhancement feature was developed to meet the Italian requirements to distinguish between a conference warning tone and a true intrusion. A Conference Warning Tone warns users that they are involved in a conference connection. An Intrusion Tone warns users involved in a conference of an intrusion into their connection.

Prior to this development, the Intrusion Tone was also used as a Conference Warning Tone, and the two tones could only be distinguished by their cadences, not by their tone frequency. With this feature, a separate Conference Warning Tone can be defined, with its tone and cadence defined in LD 56. This tone and cadence can only be programmed in Flexible Tones and Cadences (FTC) table 0.

The Conference Warning Tone can be enabled or disabled via the CWFT prompt in LD 97. When the tone is enabled, a permanent speechpath connection is placed from the tone circuit to the conference circuit to provide the tone to all parties connected in a conference. The tone and cadence for the Conference Warning Tone can be programmed to be distinctively different from the tone and cadence produced by the Intrusion Tone given by such features as Barge-In, Break-In, or Busy Verify.

Operating parameters

This feature only applies to the Meridian 1 Option 11.

The Conference Warning Tone will only be contained and defined within FTC Table 0. All other FTC tables will not contain any references to the Conference Warning Tone and this tone cannot be copied to any other FTC table by a numbered response to the DFLT (Default to existing FTC tone table) prompt in LD 56. Since existing code does not allow FTC table 0 to be deleted, there is no danger of deleting the Conference Warning Tone.

For cadence tables, table numbers above 15 should be chosen for the Conference Warning Tone, because cadence tables numbers below 15 are influenced by Software Controlled table numbers.

Feature Interactions

Tones and Cadences

There are no changes to the limitations to cadence numbers entry values. The same restriction still applies.

Feature packaging

The Conference Warning Tone Enhancement feature is part of base X11 system software.

Feature implementation

LD 56 – Configure Conference Warning Tone.

Note: Only Option 11 systems will see changes to this overlay. All other system types will not be presented with Conference Tone header and prompts.

Prompt	Response	Description
REQ	CHG	Modify existing data.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0	FTC table number 0. Only table number 0 can be used to make changes to the Conference Warning Tone.
...		
RING	NO	Modify the ringing feature definitions.
HCCT	YES	Modification of the hardware controlled cadence tone definitions allowed.
...		
- EEST	NO	End-to-end Signaling type.
- CFWT		Conference Warning Tone.

- - XTON	0-(3)-255	The Conference Warning Tone number. A tone number provided by the tone circuit.
- - XCAD	0-(19)-255	The Conference Warning Tone cadence number. Cadence number must have been previously set up within LD 56 by responding to the TYPE prompt with FCAD.

LD 97 – Enable Conference Warning Tone.

Prompt	Response	Description
REQ	CHG	Modify existing data.
TYPE	XCTP	Conference/TDS/MF Sender card parameters.
CPAD	(0) 1	Conference pad values. Use software pad values. Use pad values defined by switch settings.
DTMF	0-(14)-255	Tone table of the first Dual-tone Multifrequency digit to be used.
CFWT	(NO), YES	(Disable) enable Conference Warning Tone.

Feature operation

No specific operating procedures are required to use this feature.

Console Presentation Group Level Services

A Console Presentation Group (CPG) is a subset of the consoles configured for a customer. A CPG handles attendant calls from one or more tenants and incoming trunk calls on one or more routes. CPG improves functions for the following CPG Level Services:

- Attendant Overflow Positions (AOP)
AOP DN and waiting time threshold can be specified for each CPG.
- Call Waiting Indication
Count thresholds, timers, and buzz options can be defined for each CPG.
- Incoming Call Identification (ICI)
ICI keys can be defined for each CPG. Attendants see only those ICI definitions for their own CPG.
- Listed Directory Numbers (LDN)
Each CPG allows four LDNs.
- Night Service (NSVC)
Each CPG can go into Night Service mode independent of the other groups.
- Recorded Announcement (RAN)
Each CPG can have its own recorded overflow announcements.

Operating parameters

Console Presentation Group (CPG) services and Departmental Listed Directory Numbers (DLDN) are mutually exclusive at the customer level. That is, DLDNs can be equipped on the same system with Console Presentation Groups (CPGs), but not enabled for the same customer group at the same time.

Feature interactions

Attendant Administration

Attendants can dial the access code and activate the Administration mode. In this mode, they can modify the configuration of any telephone for this customer.

Call Park

Parked calls recall to the attendant who parked them. If that Attendant Console goes into Position Busy mode, the call recalls to an attendant in the same CPG as the original.

If the attendant goes into Night Service while a call is parked, the recall is presented to the Night DN defined for that CPG. If an attendant goes into Night Service while the recall is in the attendant queue, it stays in the attendant queue until the call is abandoned.

Network-Wide Listed Directory Number (LDN)

CPG does not work with the network part of Network-Wide LDN because CPG is not supported by Network Attendant Service, which the network part requires. This feature does, however, provide two additional LDNs for each Console Presentation Group.

Secrecy

The Secrecy option specified for a customer applies to all attendants for that customer.

Supervisory console

The supervisory console specified for a customer belongs to one CPG. In the Supervisory mode, ICI indicators show only the information for ICIs in that CPG. Thresholds specified in the Customer Data Block apply only to the CPG where that console resides, and do not effect any other CPG.

Feature packaging

Console Presentation Groups (CPGS) package 172 requires:

- Multi-Tenant Service (TENS) package 86.

Feature implementation

LD 93 – Enable CPG.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TENS	Multi-Tenant data block.
CUST	0-99	Customer number.
CPGS	YES	Enable CPG Level Services.

LD 93 – Assign Attendant Consoles to a presentation group.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CPG	Console Presentation Group data block.
CUST	0-99	Customer number.
AGNO	0-63	Attendant Console group number.
ANUM	1-63 1-63	Attendant Console numbers.

LD 93 – Assign tenants to an attendant group number.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TCPG	Tenant to Console Presentation Group data block.
CUST	0-99	Customer number.
TEN	1-511	Tenant number.
AGNO	0-63	Attendant Console group number.

LD 93 – Assign a route to an attendant group number.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RCPG	Route to Console Presentation Group data block.
CUST	0-99	Customer number.
ROUT	1-511	Route number.
AGNO	0-63	Attendant Console group number.

LD 93 – Add CPG features.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change Multi-Tenant Service for a customer.
TYPE	CPGP	Console Presentation Group level parameters.
CUST	0-99	Customer number.
CPG	1-63	Console Presentation group number.
LDN0	xxxx	Listed DN 0.
NIT1	xxxx	First Night Service by Time of Day (NTOD) DN.
TIM1	hhmm	Hour minute for First NTOD DN.
NIT2	xxxx	Second NTOD DN.
TIM2	hhmm	Time for Second NTOD.
NIT3	xxxx	Third NTOD DN.
TIM3	hhmm	Time for Third NTOD DN.
NIT4	xxxx	Fourth NTOD DN.
TIM4	hhmm	Time for Fourth NTOD.
ICI	xx aaa	Incoming Call Indicators (ICI).

AQTT	1-(30)-255	Attendant queuing threshold.
AODN	xxxx	Attendant overflow DN.
CWCL	(0)-255 (0)-255	Number of waiting calls, lower threshold and upper bound.
CWTM	(0)-511 (0)-511	Time for waiting calls, lower threshold and upper bound.
CWBZ	(NO), YES (NO), YES	Call Waiting Buzz. The first field provides a two-second buzz when the upper CWCL or CWTM threshold is exceeded. The second field provides a buzz when the first call enters the queue.

Feature operation

No specific operating procedures are required to use this feature.

Controlled Class of Service

Controlled Class of Service (CCOS) alters the Class of Service restriction levels on telephones that have been defined as CCOS controlling telephones. This applies to Meridian 1 proprietary telephone users designated as CCOS controllers. While CCOS is active, Public Exchange/Central Office or toll calls made from these telephones cannot be completed without first being routed through an attendant.

Meridian 1 proprietary telephones designated as CCOS controlling telephones are assigned a CCOS key/lamp that is used to activate or cancel the system-defined CCOS restriction level on individual DNs.

Operating parameters

Controlling telephones can be any Meridian 1 proprietary telephone.

CCOS controlling telephones must refer to the Prime Directory Number (PDN) when activating or canceling CCOS on other telephones.

Automatic Call Distribution (ACD) agents cannot be restricted by CCOS.

Feature interactions

Authorization Code

The Authorization Code overrides a telephone's CCOS restriction level.

Conference

If CCOS is activated at a telephone involved in a conference call, established Central Office or toll calls are not affected. The CCOS restriction level is applied immediately, and no new calls can be initiated from the conference. The telephone remains in the CCOS active state after the conference is terminated.

Multiple Appearance DN

CCOS restriction levels are activated or canceled on controlled telephones through their Prime Directory Number (PDN). When the PDN of a Meridian 1 proprietary telephone is made CCOS active, all DNs on that telephone are also restricted. If the DN is a PDN on other telephones, those telephones are also restricted (if they have CCSA Class of Service).

Scheduled Access Restrictions (SAR)

During normal hours, CCOS restrictions override normal telephone restrictions. During off-hour periods or times when an SAR LOCK is in effect, however, Scheduled Access Restrictions apply. When the LOCK or off-hour period ends, CCOS restrictions continue to apply until they are removed or SAR becomes effective again. Whether a CCOS controller or electronic lock is used to activate CCOS, there is no indication to the user when Scheduled Access Restrictions are in effect, overriding CCOS restrictions. A telephone defined in LD 10 or 11 or a trunk defined in LD 14, which is assigned an SAR group number, has its Class of Service defined by the SAR schedule of its SAR group.

Feature packaging

Controlled Class of Service (CCOS) package 81 has no feature package requirements.

Feature implementation

LD 15 – Add/change CCOS for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB CCS	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- CCRS	UNR CUN CTD TLD SRE FRE FR1 FR2	Unrestricted. Conditionally unrestricted. Conditionally toll-denied. Toll-denied. Semi-restricted. Fully restricted. Fully restricted 1. Fully restricted 2.

LD 11 – Allow/deny CCOS on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(CCSD), CCSA	(Deny) allow CCOS.

LD 10 – Allow/deny CCOS on analog (500/2500 type) telephones.

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

TN	l s c u	Terminal Number.
CLS	(CCSD), CCSA	(Deny) allow CCOS.

LD 11 – Add/change CCOS controlling telephone assignments on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx COS	Assign CCOS controlling key.

Feature operation

To activate CCOS, follow these steps:

- 1 Press **CCOS**.

Note that this is a toggle: If CCOS is already active, pressing the key will change the CCOS state to inactive. Check the CCOS lamp to determine if CCOS is already active.

- 2 Dial the Prime Directory Number (PDN) of the telephone to be changed and press CCOS.
- 3 Press **Rls**.

To deactivate CCOS, follow these steps:

- 1 Press **CCOS**.
- 2 Dial the PDN of the telephone to be returned to its original Class of Service and press CCOS.
- 3 Press **Rls**.

Controlled Class of Service, Enhanced

Enhanced Controlled Class of Service (ECCS) allows a controller or Attendant Console to alter the Class of Service (CLS) restriction levels of other Controlled Class of Service (CCOS) telephones. The feature allows two customer-defined levels of restriction. In addition, the CCOS key can now be assigned to an Attendant Console and M3000 telephones as a programmable key.

Operating parameters

Controlling telephones can be any Meridian 1 proprietary telephone.

A CCOS controlling telephone must refer to the Prime DN when activating or canceling CCOS on other telephones.

Automatic Call Distribution (ACD) agents cannot be restricted by CCOS.

On M3000 telephones, the CCOS key can be assigned as a programmable key (0-5 only).

This feature is applicable only when the CLS lamp is lit on the controlling telephone.

The CLS key on an Attendant Console can be used only on an idle loop. (The loop lamp is lit; source and destination lamps are dark.)

Feature interactions

Attendant Administration

This feature cannot change Controlled Class Service restrictions (CCRS), ECC1 or ECC2, but can assign CLS keys to certain telephones.

Authorization Codes

The Authorization Code can override a telephone's CCOS restriction level.

Conference Calls

If CCOS is activated at a telephone on a conference call, established Public Exchange/Central Office or toll calls are not affected. The CCOS restriction level is applied immediately; however, no new calls can be initiated from the conference. That telephone remains in the CCOS state after the end of the conference.

Coordinated Dialing Plan (CDP)

The internal DN is used for programming the CLS level for CDP from the controlling telephone.

Multiple Appearance DNs

All CCOS restriction levels are activated and canceled from the Prime Directory Number (PDN) for CCOS controlling telephones. The PDN for an SL-1 telephone is made CCOS active, and all DNs for that telephone are restricted as well. If that DN is a PDN on other telephones, they are also restricted (if they have CCSA Class of Service).

Pretranslation

The DN used to program the CCOS should be the actual DN before pretranslation. When programming CCOS, the DN entered is not pretranslated.

Supervisory attendants

When the attendant is in the supervisory mode, CCOS programming is prohibited.

Feature packaging

Enhanced Controlled Class of Service (ECCS) package 173 requires:

- Controlled Class of Service (CCOS) package 81.

Feature implementation

LD 15 – Define the Class of Service restrictions for the system.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB CCS	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- CCRS	(UNR) CTD CUN FRE FR1 FR2 SRE TLD	CCOS restrictions. Unrestricted service. Conditionally Toll Denied. Conditionally Unrestricted. Fully Restricted. Fully Restricted level 1. Fully Restricted level 2. Semi-Restricted. Toll Denied.
- ECC1	xxx	Enhanced Controlled Class of Service, Level 1. xxx = (UNR), CTD, CUN, FRE, FR1, FR2, SRE, TLD.
- ECC2	xxx	Enhanced Controlled Class of Service, Level 2. xxx = (UNR), CTD, CUN, FRE, FR1, FR2, SRE, TLD.
Note: Input restrictions apply when CCSA is active. When CCSA is inactive, the telephone has the CLS assigned in LD 10/11.		

LD 11 – Assign keys for the controller telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.

TN	l s c u	Terminal Number.
KEY	xx COS	Key number for CCOS key on controller telephone (for the M3000, the key must be 0-5).

LD 10 – Configure controlled analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(CCSD), CCSA	(Deny) allow CCOS.

LD 11 – Configure the controlled Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(CCSD), CCSA	(Deny) allow CCOS.

LD 12 – Assign ECCS keys for Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.

TN	l s c u	Terminal Number.
KEY	xx COS	Key number for CCOS controller key on Attendant Console. xx = key number (must be greater than 1).

Feature operation

To activate Enhanced Controlled Class of Service (ECCS) from a Meridian 1 proprietary telephone with the feature currently inactive, follow these steps:

- 1 Press **CCOS** to begin the activation sequence.

Note that this is a toggle: if CCOS is already active, pressing the key will change the CCOS state to inactive. Check the CCOS lamp to determine if CCOS is already active.

- 2 Dial the PDN of the telephone to be changed and press **CCOS**. The controlling telephone's display, if equipped, shows the DN of the changed telephone and a 0 (zero).

- 3 To select ECC1, dial # 1.

Note that the octothorpe (#) is required. The controlling telephone's display, if equipped, shows the DN of the changed telephone and a 1.

To select ECC2, dial # 2.

Note that the octothorpe (#) is required. The controlling telephone's display, if equipped, shows the DN of the changed telephone and a 2.

- 4 Press **Rls**.

To activate ECCS from an Attendant Console, follow these steps:

- 1 Select an idle loop key.

- 2 Press **CCOS**.

Note that this is a toggle: If CCOS is already active, pressing the key will change the CCOS state to inactive. Check the CCOS lamp to determine if CCOS is already active.

- 3 Dial the PDN of the telephone to be changed and press **CCOS**. The console's display shows the DN of the changed telephone. A 0 (zero) is displayed if the telephone is active in the original CCOS mode.

If the telephone does not have CCOS or ECCS active, the console does not acknowledge that you have successfully entered a valid CCOS DN.

- 4** To select ECC1, dial # 1.
Note that the octothorpe (#) is required. The console's display shows the DN of the changed telephone and a 1.

To select ECC2, dial # 2.
Note that the octothorpe (#) is required. The console's display shows the DN of the changed telephone and a 2.

- 5** Press **Rls**.

To deactivate Enhanced Controlled Class of Service (ECCS), follow these steps:

- 1** Select an idle loop key.
- 2** Press **CCOS**.
- 3** Dial the PDN of the telephone to be returned to its original Class of Service and press **CCOS**.
- 4** Press **Rls**.

CTI Trunk Monitoring and Control

The Computer Telephony Integration (CTI) Trunk Monitoring and Control feature expands the existing functionality of Meridian CTI Interface (Meridian Link). CTI Trunk Monitoring and Control allows the Meridian 1, in conjunction with the Meridian Link interface, to provide the host application with the capability to monitor and control trunk-to-trunk calls.

The CTI Trunk Monitoring and Control feature introduces the concept of Associated trunks (AST). Previously, only Associated sets existed. An Associated trunk is configured by setting the AST prompt to YES in the Trunk Data Block. When AST = YES, the trunk can be monitored and controlled from a host CTI application via the AML interface. AST includes both Associated sets and Associated trunks. The number of AST sets and trunks that can be configured on one system is subject to Incremental Software Management (ISM) limitation.

The CTI Trunk Monitoring and Control feature includes the following four functionalities:

- Trunk Monitoring
- Trunk Call Disconnect
- Warning Tone
- Route Member Information Element (IE)

Trunk Monitoring

With the Trunk Monitoring functionality, Unsolicited Status Messages (USM) are generated to report the Associated trunk status to the CTI application via the AML interface. The status of the Associated trunk is reported when the trunk is answered at the far-end and when the trunk is disconnected at the far-end.

Trunk Call Disconnect

With the Trunk Call Disconnect functionality, the Call Disconnect Request (CALLDIS) message is enhanced to disconnect a trunk call. Trunk Call Disconnect allows the CTI application to disconnect a trunk call given either the Disconnect Party TN (in packed format) or the route and member number of the trunk. In order for the trunk call to be disconnected, all of the following conditions must be met:

- Either the Disconnect Party TN or the trunk route and member number must be valid.
- The trunk must belong to the Customer group, as indicated by the Customer number in the CALLDIS message.
- The trunk must be an Associated trunk (AST = YES in Overlay 14).
- The call must be a 2-party call, and the call state must be established.

Warning Tone

With the Warning Tone functionality, the Connection Request (CON) message is enhanced so that a short tone is provided to the originating party of a call. The Warning Tone functionality is not limited to trunk calls. This functionality also applies when the originating party is internal to the Meridian 1 system. The warning tone is provided if either the originating TN (in packed format) or the trunk route and member number is known. All of the following conditions must be met to receive this tone:

- Either the Calling Party TN or the trunk route and member number in the Calling Party DN field must be valid. If the value of the Calling Party TN field is zero, the trunk route and member number is obtained from the Calling Party DN field.
- The specified call must belong to the Customer group, as indicated by the Customer number in the CON message.
- The trunk must be an Associated trunk (AST = YES in Overlay 14).
- The call must be a 2-party call, and the call state must be established.

Route Member Number Information Element (IE)

The Route and Member Number Information Element (IE) contains the trunk route and member number on which a call arrives. The Route and Member Number IE is added to the following two AML messages:

- Present Call Indication (PCI) message: for incoming trunk calls that terminate to ACD sets
- USM (Ringing) message: for incoming trunk calls that terminate to non-ACD sets

The Trunk Call Disconnect and Warning Tone functionalities require either the packed TN or the CTI application to identify the trunk by route and member number. The new Route and Member Number IE ensures that the route and member number of the trunk involved in a trunk call is passed to the CTI application.

Incremental Software Management (ISM)

With the CTI Trunk Monitoring and Control feature, the AST ISM limit now includes the count of both Associated sets and trunks. This limits the total number of AST sets and trunks allowed on one system. When this limit is reached, no more associated sets and trunks can be configured, and an error message is displayed. If a customer requires more Associated sets or trunks once the limit is reached, an increased AST limit must be ordered and installed.

The existing ISM header in Overlay 14 is modified to indicate the number of Associated sets and trunks allowed for the system. AVAIL shows the system's ISM limits for Associated sets and trunks. USED shows the number of configured Associated sets and trunks. TOT shows the maximum number of Associated sets and trunks that can be supported on one system.

Figure 17 is an example of the updated header in Overlay 14.

Figure 17
ISM header in Overlay 14

TNS	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
AST	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

For further information on ISM, refer to the Incremental Software Management feature module in *X11 features and services*.

Operating parameters

The CTI Trunk Monitoring and Control functionalities are supported on the following trunk signaling protocols:

- R2MFC
- 2.0 Mbit E1 DTI
- Loop Start Analog
- 1.5 Mbit T1 DTI
- ISDN PRI (for selective Asia Pacific countries)
- ISDN PRI (for SS-7 conversion in China)
- QSIG
- DASS
- DPNSS
- EuroISDN ETSI
- Numeris
- Swissnet
- ITR6
- MCDN
- UK Analog

The design and operation of the above trunk signaling protocols are not modified by the CTI Trunk Monitoring and Control feature.

Ground Start Analog and ISDN Basic Rate Interface (BRI) trunks are not supported for CTI Trunk Monitoring and Control.

The CTI Trunk Monitoring and Control functionalities are supported on the LAPB AML interface only. They are not supported on the TCP/IP AML interface.

This feature modifies the Connection Request (CON), Connection Request Response (CRS), Unsolicited Status Message (USM), Call Disconnect Request (CALLDIS), and Present Call Indication (PCI) AML messages.

Configuration procedures for CTI Trunk Monitoring and Control are similar to those for Set Monitoring and Control.

For CTI Trunk Monitoring and Control, the Associated trunk for CTI Trunk Monitoring and Control (AST) prompt must be defined in Overlay 14. This prompt designates a trunk as an Associated Trunk. Also, the Event Group for USM messages (IAPG) prompt must be configured in Overlay 14. This prompt assigns an event group to a specific trunk, in order to control the USM messages for Trunk Monitoring.

If a Customized Event Group is needed, the GPXX prompt must be defined in Overlay 15.

The existing USM message format is used for the trunk status USM messages.

With Trunk Monitoring, when the AML interface is down, USM messages are not sent. No error messages, other than general maintenance messages, are generated for this condition.

The Trunk Monitoring feature mainly monitors the events of far-end answer and far-end disconnect. It is not intended to be used for monitoring the trunk state transition from idle to active or vice versa.

Trunk status USM messages are sent only when trunk status is detected. That is, when the trunk is equipped with Answer Supervision and Disconnect Supervision.

Trunk Call Disconnect functions on a trunk that is involved in an established two-party call or multi-party conference call, and in cases where the trunk is either active or on hold on an established call or a call which is in a half-disconnect state, due to far-end disconnect control.

The format of the CALLDIS message for disconnecting a trunk is the same as that for disconnecting a set.

When Trunk Call Disconnect fails, the call is not disconnected, and a CALLDIS response message is sent to the AML interface.

If more than one failure condition occurs for Trunk Call Disconnect, only one CALLDIS message is sent.

With Warning Tone functionality, when the warning tone fails, a tone is not provided, and a CRS message is sent to the AML interface.

For the Warning Tone functionality, if more than one failure condition occurs, only one Connection Request Response (CRS) message is sent.

Feature interactions

Call Detail Records

Trunk Call Disconnect, performed via the AML interface, generates the same Call Detail Records (CDR) as regular call disconnect.

Customer Controlled Routing

The modified AML messages are not supported by Customer Controlled Routing (CCR). With the Trunk Disconnect functionality, it is possible to disconnect a trunk call to a CCR Control DN. This operates in the same manner as a disconnect initiated on behalf of an Associated set currently supported by Meridian Link.

Meridian 911

The modified AML messages are not supported by Meridian 911 (M911).

Meridian Link

The CTI Trunk Monitoring and Control feature introduces new Trunk Monitoring and Control functionalities for CTI Services. These new Trunk Monitoring and Control features are made available to the host CTI application through Meridian Link. For more information on Meridian Link, refer to the *Meridian Link Release 5B/Customer Controlled Routing Release 3B Installation and Upgrade guide*.

Meridian Mail

The modified AML messages are not supported by Meridian Mail.

Meridian MAX

If ACD is involved, Trunk Call Disconnect could potentially impact the High Speed Link (HSL) interface. However, from the HSL interface there should be no difference between an AML initiated Trunk Call Disconnect and a regular call disconnect.

Feature packaging

The Trunk Monitoring and Control feature requires the following packages:

- Integrated Message System (IMS) package 35
- Command Status Link (CSL) package 77
- Application Module Link (IAP3P) package 153
- Meridian Link Module (MLM) package 209)

The following packages are also required:

- Basic Automatic Call Distribution (BACD) package 40
- Automatic Call Distribution Package B (ACDB) package 41
- Automatic Call Distribution Package A (ACDA) package 45
- Automatic Call Distribution Package C (ACDC) package 42
- Automatic Call Distribution Load Management Reports (LMAN) package 43
- Automatic Call Distribution Package D (ACDD) package 50
- Dialed Number Identification Service (DNIS) package 98
- Integrated Services Digital Network (ISDN) package 145
- 1.5 Mbps Primary Rate Access (PRA) package 146
- Integrated Service Digital Network Signaling Link (ISL) package 147
- Network Automatic Call Distribution (NACD) package 207
- Enhanced Automatic Call Distribution Routing (EAR) package (214)
- Call Identification (CALLID) package 247

Feature implementation

LD 15 – Define Customized Event Groups.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	CDB	Customer Data Block.
CUST	xx	Customer number.
...		
GPXX	x	Unsolicited status events 1,2,3,4,5, or 6. XX can be 02 to 15, specifying the group. x can be 1 to 15, but only events 3 (Ringing) and 4 (Active) are applicable to Trunk Monitoring.

LD 14 – Configure the Associated Trunk and Event Group.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Trunk type.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
AST	YES	Associated trunk for CTI Trunk Monitoring and Control. NO = Not an Associated trunk for CTI Trunk Monitoring and Control (default).
IAPG	(0)-15	Event Group for USM messages.
TGAR	(0)-31	Trunk Group Access Restriction.

Feature operation

No specific operating procedures are required to use this feature.

Departmental Listed Directory Number

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 Meridian 1 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 Meridian 1 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 Meridian 1 checks to see if there are any calls waiting in the queue. If there are calls waiting, it tests whether or not the Attendant Console, if it is next in the circular list, can answer the first call in the queue. If the call can be answered, it is presented to the Attendant Console. Otherwise it is put back into the queue and another call is sought. If no calls for the LDN are found, the Attendant Console is idled and the Release lamp is lit.

Operating parameters

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

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

Feature interactions

Attendant Overflow Position

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

Attendant Position Busy

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

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 (CAS)

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.

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.

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

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

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB LDN	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- 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. With X11 Release 8 and later, the maximum number of Attendant Consoles allowed is 63.
- LDN1	xxxx	Listed Directory Number One.
- LDA1	1 - 63 ALL	Attendant Console number associated with LDN 1. With X11 Release 8 and later, the maximum number of Attendant Consoles allowed is 63.
- LDN2	xxxx	Listed Directory Number Two.

- LDA2	1 - 63 ALL	Attendant Console number associated with LDN 2. With X11 Release 8 and later, the maximum number of Attendant Consoles allowed is 63.
- LDN3	xxxx	Listed Directory Number Three.
- LDA3	1 - 63 ALL	Attendant Console number associated with LDN 3. With X11 Release 8 and later, the maximum number of Attendant Consoles allowed is 63.
- LDN4	xxxx	Listed Directory Number Four.
- LDA4	1 - 63 ALL	Attendant Console number associated with LDN 4. With X11 Release 8 and later, the maximum number of Attendant Consoles allowed is 63.
- LDN5	xxxx	Listed Directory Number Five.
- LDA5	1 - 63 ALL	Attendant Console number associated with LDN 5. With X11 Release 8 and later, the maximum number of Attendant Consoles allowed is 63.
- ICI	xx LD0 xx LD1 xx LD2 xx LD3 xx LD4 xx LD5	Incoming Call Indication for Listed Directory Numbers Zero to Five(xx = key number 00-19).
Note: To remove an LDN, enter an X before the Directory Number. An LDN cannot be removed if any Attendant Consoles are associated with it. To remove an associated Attendant Console, enter an X at the LDA prompt before the attendant number.		

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

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
LDN	(NO), 0-3	Telephone associated with LDN (0-3 or none). Choose NO to remove this telephone from the group.

LD 11 – Add or change Departmental Listed Directory Number for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
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.

Dial Access to Group Calls

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). Meridian 1 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 the Group Call feature description contained in this document.

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 via a 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.

Feature packaging

Dial Access to Group Call requires the following packages:

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

Feature implementation

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

Prompt	Response	Description
REQ	CHG	Change.
TYPE	GRP	Group Call data block.
CUST	0-99	Customer number.
GRNO	0-63	Number of the Group Call list.
STOR	xx yyy...y	Group member number (xx) and associated DN (yyy...y).

LD 57 – Modify Flexible Feature Codes for Group Calls.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Codes.
CUST	0-99	Customer number.
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

Dial Intercom (DI) allows a customer to arrange stations within the Meridian 1 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. X11 Release 19 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, X11 Release 13 and later software

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 is an X11 Release 19 system feature that can be used with the following telephones: M2112, M2317, and M2616.

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 254 DIGs can be established per customer. For X11 Release 13 and later software, up to 2046 DIGs can be implemented.

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 2112, 2317, and 2616), and requires Class of Service Handsfree Allowed (HFA) on the destination telephone, which is set at the telephone level.

Basic Rate Interface (BRI), M3000, and SL-1 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.

Call Forward Call Waiting

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

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.

Digit Display

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

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

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.

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	•	•

Feature packaging

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

Feature implementation

LD 15 – Enable Dial Intercom for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- DGRP	(0)-253	Maximum number of DIGs that can be defined for the customer. With X11 Release 13 and later, the maximum number of DIGs allowed is 2046.

LD 10 – Add or change Dial Intercom for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change. Single line telephones cannot have both a Dial Intercom Group number and a standard DN. To add this feature, you must remove the telephone from the database and build it again, as a Dial Intercom Group member.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
DES	a...x	ODAS set designator. a...x = one-to-six character alphanumeric designator.
CUST	0-99	Customer number.
DIG	xxxx yy	xxxx = Dial Intercom group number (0-253). yy = member number (0-99) within the group. With X11 Release 13 and later, the maximum number of DIGs allowed is to 2046.

LD 11 – Add or change Dial Intercom for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx DIG aaa bb c	Add a Dial Intercom key, where: xx = key number aaa = group number (0-253) bb = member number (0-99), and c = r (ring) or v (voice). With X11 Release 13 and later, the maximum number of DIGs allowed has increased to 2046.

LD 15 – Add or change Handsfree Voice Call for the Meridian 1 system.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- OPT	(HVD), HVA	Handsfree Voice Call (Denied) allowed.

Feature operation

An example of a Dial Intercom call is listed below.

Dial Intercom Call

To make a Dial Intercom call:

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

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

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

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

Dial Intercom Handsfree Voice Call

Examples of both Handsfree Voice Call options are listed below.

HVA option

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

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

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

HVD option

Telephone A places a call to telephone B.

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

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

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

Dial Pulse/Dual-tone Multifrequency Conversion

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 Meridian 1 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 feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

Dial Pulse/Dual-tone Multifrequency Conversions is included in base X11 system software.

Feature implementation

No change to existing configuration is required for the Dial Pulse/DTMF Conversion feature.

Feature operation

No specific operating procedures are required to use this feature.

Dialed Number Identification Service

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

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

For further information on Dialed Number Identification Service, please refer to *Automatic Call Distribution Feature description* 553-2671-110.

Digit Display

There are two types of Digit Displays: Attendant Console Digit Display and Meridian 1 proprietary telephone Digit Display.

Attendant Console Digit Display

QCW Attendant Consoles can be equipped with either an 8- or a 16-digit display. This display indicates the following:

- Dialed digits
On attendant-originated calls, Busy Verify (BVR), or Barge-In, the digits dialed by the attendant are displayed. If the dialed number hunts, the Hunt destination and the dialed Directory Number (DN) are displayed. If the dialed number is call forwarded, the forwarded DN and the dialed DN are displayed.
- Incoming calls
On incoming calls and forwarded Direct Inward Dialing (DID) calls, the trunk access code and member number are displayed. For all station dial-0 calls, the calling station DN is displayed. For recalls, the destination DN is displayed.
- Display Source/Display Destination keys
Two keys are provided to allow the attendant to display the source and destination numbers for any connection completed through the console.
- Night assignment
During the assignment of night numbers, the Display Source key may be pressed after the trunk access code and member numbers have been dialed to display the correct night assignment.

- Autodial
The DN stored against an Autodial key may be displayed by pressing the Autodial key, then the Display Source key. If using an eight-digit display assignment and if the stored DN consists of more than eight digits, the Display Source key must be pressed a second time to display the remainder of the DN. When the Autodial number is changed, the new number may be displayed by pressing the Display Source key.
- Speed Call
The DN stored against a Speed Call code may be displayed by pressing the Speed Call key, dialing the Speed Call code, and then pressing the Display Source key. When the Speed Call list is changed, an entry may be displayed by pressing the Display Source key.
- Time and Date
The time may be displayed by pressing the Display Time key on the Attendant Console. The date is displayed by pressing the Display Date key.

Meridian 1 proprietary telephone Digit Display

This feature allows the automatic display of information relevant to normal call processing and feature activation on any Meridian 1 proprietary 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.
- Touchphone Digit Display (TDD)
With this option, when a call is presented to a busy M3000 Touchphone, the user of the Touchphone can press the Display key to see the Calling Line Identification information of the new incoming call.
- Tandem Digit Display (TDD)
This option is introduced in X11 Release 23. With this option, when an incoming call is presented to a busy Meridian 1 proprietary 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:

- Buzz DN
- Call Waiting party
- Voice Call party
- Autodial number
- Speed Call number

- Ring Again party, and
- Call Forward party.

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

Pressing the Autodial (ADL) key displays ADL digits, provided Tone and Digit Switch (TDS)/Serial Clock Transmit (SCT) is available to generate the Dual-tone Multifrequency tones for the ADL digits. Pressing the THF key clears the display.

Automatic Redial (ARDL)

Dialed numbers are displayed when the 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.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Meridian 1 proprietary sets with displays do not display the Outgoing Call Barring level and the Station Control Password (SCPW) when OCB FFCs are dialed. This protects the security of the SCPW.

Enhanced Override Priority Override

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

INIT ACD Queue Call Restore

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

Feature packaging

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

Feature implementation

LD 15 – Add or change Digit Display for Attendant Consoles for each customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB ATT	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- OPT	(XDP), IDP	(Exclude) include Digit Display capability for Attendant Consoles of this customer.

LD 11 – Enable or disable Digit Display for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.

TN	I s c u	Terminal Number.
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.

LD 12 – Enable or disable Digit Display for each Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	I s c u	Terminal Number.
DLEN	(8), 16	Digit Display entry length (the default is 8). This prompt applies to QCW consoles only.
KEY	xx DCW xx DDT xx DPD xx DPS xx DTM xx MDT xx MTM	Add display Call Waiting key. Add display Date key. Add display Destination key. Add display Source key. Add display Time key. Add display/change Date key. Add display/change Time key.

Feature operation

No specific operating procedures are required to use this feature.

Digital Trunk Interface

Digital Trunk Interface (DTI) provides an integrated interface for transmitting digital voice and data between a network loop and a DS-1 digital carrier terminal. Digital Trunk Interface operates similarly to a channel bank on the carrier side and an analog trunk on the Meridian 1 side. Digital Trunk Interface processes digitally the transmission and reception of Meridian 1 Data (mixed voice/data), as well as voice calls.

DTI interfaces to DS-1/D3 digital carriers, which may use infrared transmission, fiber-optic cables, microwave radio, satellite links, or leased T1 facilities. DTI may connect to any of the following:

- another Meridian 1 or an SL-100
- a non-Meridian 1 type system that can use T1 carrier facilities, and
- a digital Public Exchange/Central Office.

Related documents

For complete information regarding DTI, refer to the following documents:

- *Digital Trunk Interface/Computer-to-PBX Interface description* (553-2811-100)
- *Digital Trunk Interface/Computer-to-PBX Interface installation and data administration* (553-2811-200), and
- *Digital Trunk Interface/Computer-to-PBX Interface maintenance* (553-2811-500).

Operating parameters

Not applicable.

Feature interactions

Not applicable.

Feature packaging

Not applicable.

Feature implementation

Not applicable.

Feature operation

No specific operating procedures are required to use this feature.

Digital Trunk Interface and Primary Rate Interface Time Slot Reuse

This feature eliminates call blocking due to time slots being unavailable. By allowing a time slot reserved for a primary function to be reused for any subsequent requirements during call processing, all channels on Digital Trunk Interface (DTI) or Primary Rate Interface (PRI) loops will be available for use.

Time slots reserved for a particular DTI or PRI channel are stored in an unprotected data structure allowing easy access, such as a call register. Each time a new path is required for the same DTI or PRI channel, the data structure can be accessed to determine if there is a reserved time slot that can be reused. If the new path is intra-group (single-group switch), the time slot can be reused. If the new path requirement is inter-group (multi-group switch), the reserved time slot can be reused if a matching junctor slot is available.

A count is kept of the number of times that a time slot has been reused. The time slot is not idled until all reservations have been canceled.

This feature applies to the following loop types on single-group switches:

- 1.5 Mbps 24-channel DTI
- 2 Mbps 30-channel DTI
- 1.5 Mbps 23 B+D PRI
- 2 Mbps 30 B+D PRI, and
- 2 Mbps Japan Digital Multiplex Interface (DMI).

Operating parameters

This feature applies only to network enhanced machines.

Feature interactions

There are no interactions with other features.

Feature packaging

None.

Feature implementation

None.

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward System Access

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

- Calls to any station within the customer group
- Trunk calls (such as calls to a Public Exchange/Central Office, a TIE trunk, or paging and dictation trunks)
- Basic/Network Authorization Code (BAUT/NAUT)
- Call Detail Recording (CDR) and Call Detail Recording Charge Account, and
- Basic/Network Alternate Route Selection (BARS/NARS) and Automatic Number Identification (ANI) route selection.

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

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

Operating parameters

The features not available to DISA users are those that require a switchhook flash (such as Call Transfer, Conference, Hold, or Ring Again). Also unavailable are features requiring that predefined data be assigned for the DN (e.g., 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 may also be used as normal outgoing trunks.

Feature interactions

Access Restrictions

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

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).

Busy Verify

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

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.

Electronic Lock Network Wide/Electronic Lock on Private Lines

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

Enhanced Night Service

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.

Flexible Line Lockout

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

ISDN QSIG 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.

Feature packaging

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

Feature implementation

LD 24 – Create or change the Direct Inward System Access feature for a customer.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	DIS	DISA data.
CUST	0-99	Customer number.
SPWD	xxxx	System secure data password (0001-9999) allows modifications to the DISA data block. 0000 = disable the password (see LD 15).
DN	xxx...x	DN for DISA access.
SCOD	X, xx...xx	DISA security code (1-8 digits). X = remove security code.
AUTR	(NO), YES	Authorization Code is not or is required.
TGAR	xx	Trunk Group Access Restriction to be applied to calls made using DISA (0-15). With X11 Release 13 and later software, TGAR can be from 0 to 31.
NCOS	xx	Network Class of Service to be applied to DISA calls.
COS	UNR CUN SRE TLD CTD FRE FR1 FR2	Class of Service to be applied to DISA calls. Unrestricted. Conditionally unrestricted. Semi-restricted. Toll restricted. Conditionally toll restricted. Fully restricted. Fully restricted 1. Fully restricted 2

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

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route data block.
CUST	0-99	Customer number.
ROUT	xxx	Trunk route number.
TKTP	aaa	Trunk type.
AUTO	(NO), YES	Route is not or is arranged to auto-terminate incoming calls on the DISA DN.
ICOG	IAO, ICT, OGT	Incoming and outgoing trunk.
ACOD	xxxx	Trunk route access code.

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

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	COT, FEX, WAT	Trunk type.
TN	l s c u	Terminal Number.
XTRK	XUT	Universal trunk card (prompted for Superloops).
CUST	0-99	Customer number.
RTMB	xxx yyy	Route number and member number, where: xxx = 0-511, and yyy = 1-254.
ATDN	xxx...x	DISA DN on which incoming calls are to auto-terminate.
SIGL	GRD	Ground Start signaling.

Feature operation

To dial into the system from the public network:

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

Direct Private Network Access

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 existing Meridian 1 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 Meridian 1 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 Meridian 1 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 “#” following 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 (CDR)

Digits inserted by DISA Digit Insertion are reflected in the 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

DISA DN Data

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

LD 24 – Respond as follows:

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	DIS	DISA data.
CUST	0-99	Customer Number.
...		
RANR	0-511	Route number for DISA RAN. The valid range of a route number for Option 11 is 0-127.
	(X)	Removes and deactivates DISA RAN.
- RTMR	(0)-10-300	The maximum amount of time (in seconds) that a caller can wait for an available RAN trunk before being removed from the RAN queue and proceeding as if DISA RAN has been completed.
	(0)	Removes and deactivates the timer.
DGTS	x...x	Digits for DISA Digit Insertion. Up to 31 digits can be defined.
	(X)	Removes and deactivates DISA Digit Insertion.
- DLTN	(YES)	Dial tone needed after digit insertion.
	NO	Dial tone not needed after digit insertion.

Authcode Data

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

LD 88 – Respond to the following prompts:

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	AUB	Authcode data.
CUST	0-99	Customer Number.
...		
RANR	0-511	Route number for Authcode Last Retry RAN.
RTRY	(NO)	Disable Authcode Last Retry.
	YES	Enable Authcode Last Retry.
- RAN2	0-511	Route number for Authcode Last Retry RAN. The valid range of a route number for Option 11 is 0-127.
	(X)	Removes and deactivates Authcode Last Retry RAN.
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 b) begins dialing before the RAN is finished.	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. b) The RAN greeting is stopped as soon as the first digit is dialed. The dialed digits are appended into the call register (i.e., 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 (i.e., if DISA Digit Insertion is defined, the dialed digits are stored after the inserted digits), and the call is processed for call completion.

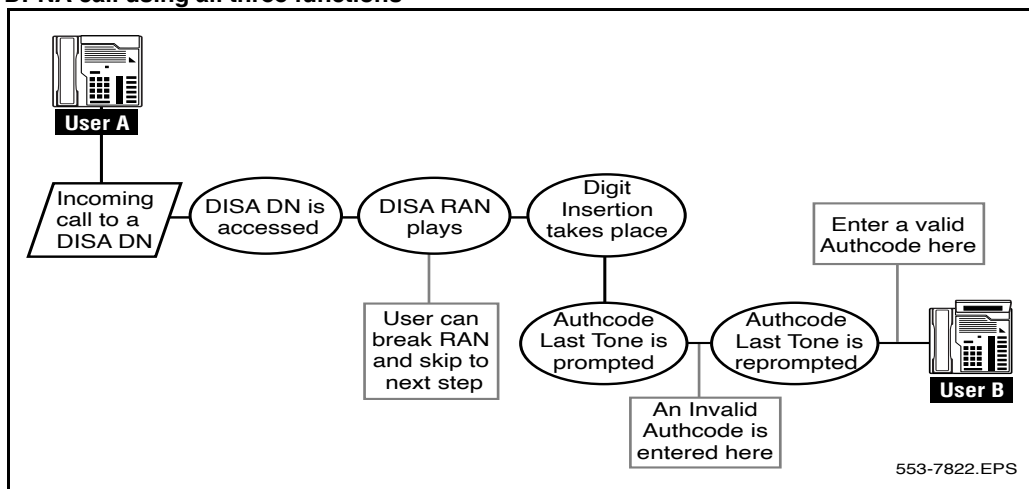
Operational Sequence of Authcode Last

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: a) A valid Authcode. b) An invalid Authcode followed by "#". c) An invalid Authcode.	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) The call is processed for call termination. b) If Authcode Last Retry is defined, Authcode Last Request dial tone is immediately given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. If Authcode Last Retry is not defined, when the interdigit timer expires the existing invalid Authcode treatment is given. c) If Authcode Last Retry is defined: — If the caller is an attendant, Authcode Last Request dial tone is immediately given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. — If the caller is not an attendant, when the interdigit timer expires Authcode Last Request dial tone is again given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. If Authcode Last Retry is not defined, when the interdigit timer times out the existing invalid Authcode treatment is given.
3.	Dials one of the following: a) A valid Authcode b) An invalid Authcode followed by "#". c) An invalid Authcode.	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) The call is processed for call termination. b) When the interdigit timer times out, the existing invalid Authcode treatment is given. c) When the interdigit timer times out, the existing invalid Authcode treatment is given.

Example of a DPNA Call Using All Three Functions

In this example, User A calls from home to a DISA DN and subsequently to an ESN number as defined in the DISA Digit Insertion. When prompted for an Authcode, User A initially enters an invalid one, before being reprompted for the authcode (See Figure 18).

Figure 18
DPNA call using all three functions



Directory Number Delayed Ringing

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 (e.g., ringing, buzzing, etc.) 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 SCN/MCN keys for this particular TN will not receive audible notifications.

Operating parameters

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

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

Attendant Administration is not supported.

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.

Automatic Wake-Up

The Automatic Wake-Up feature is not supported.

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

Second Level Call Forward No Answer

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.

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 DNDR defined, audible notification will be given after the DNDR delay has expired.

Data Calls**Private Line Ringing (PVN)****Private Line Non-Ringing**

These features are not supported.

Set-Based Administration Enhancements

This feature is not supported

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

Directory Number Delayed Ringing feature is part of basic X11 system software.

Feature implementation

LD 11 – This overlay is used to configure DNDR.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
DNDR	(0)-120	Delay value in seconds. A DNDR value of zero disables the feature. If the DNDR value is an odd number, it is rounded up to the next even number. If REQ = NEW, the delay value is 0 (the default); otherwise the existing value appears.
...		
KEY	xx SCN yyyy xx MCN yyyy	Key number, Single Call Non-Ringing, DN. The key must be SCN or MCN.

Feature operation

No specific operating procedures are required to use this feature.

Directory Number Expansion

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 Directory Number Expansion (DNXP) capability is available on systems supporting X11 Release 13 and later software.

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 SL-1 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.

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 (AIOD)

The 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.

Auxiliary processors

Any AUX or application processor that shares or exchanges Meridian 1 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 Meridian 1, and
- Standard SDI without application interface to the Meridian 1.

Background Terminal Interface (BGD)

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 (CDP)

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 (DID)

Depending on the number of Direct Inward Dialing (DID) digits outputted 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.

Electronic Switched Network (ESN)

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.

Integrated Services Digital Network (ISDN)

Refer to *ISDN Primary Rate Interface description and administration* (553-2901-100).

Feature packaging

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

Feature implementation

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 operation

No specific operating procedures are required to use this feature.

Display of Calling Party Denied

Display of Calling Party Denied (DPD) permits Analog (500/2500 type) and Meridian 1 proprietary sets to either allow or deny associated name and number from being displayed on other sets when involved in a call. This feature is supported on internal calls (same node) and calls placed over a Meridian Customer Defined Network (MCDN) Integrated Services Digital Network (ISDN). Display of Calling Party Denied Class of Service options are programmed on a per set basis.

DPD uses the following Class of Service options in LD 10 and LD 11:
Display Digits Allowed/Denied (DDGA/DDGD) and Name Display Allowed/Denied (NAMA/NAMD).

Display of Digits Denied (DDGD) Class of Service restricts digits from being displayed on another set when involved in a call. However, on the calling party's set, the dialed digits are always displayed regardless of the Class of Service assigned to the called party's set. Display of Digits Allowed (DDGA) allows the number associated with a set to be displayed when that set is involved in a call.

Display of Name Denied (NAMD) Class of Service restricts the name associated with a set from being displayed on another set when involved in a call. Display of Name Allowed (NAMA) allows the name associated with a set to be displayed when that set is involved in a call.

Table 36 outlines the possible configurations and the resulting display on both the calling and called parties' displays.

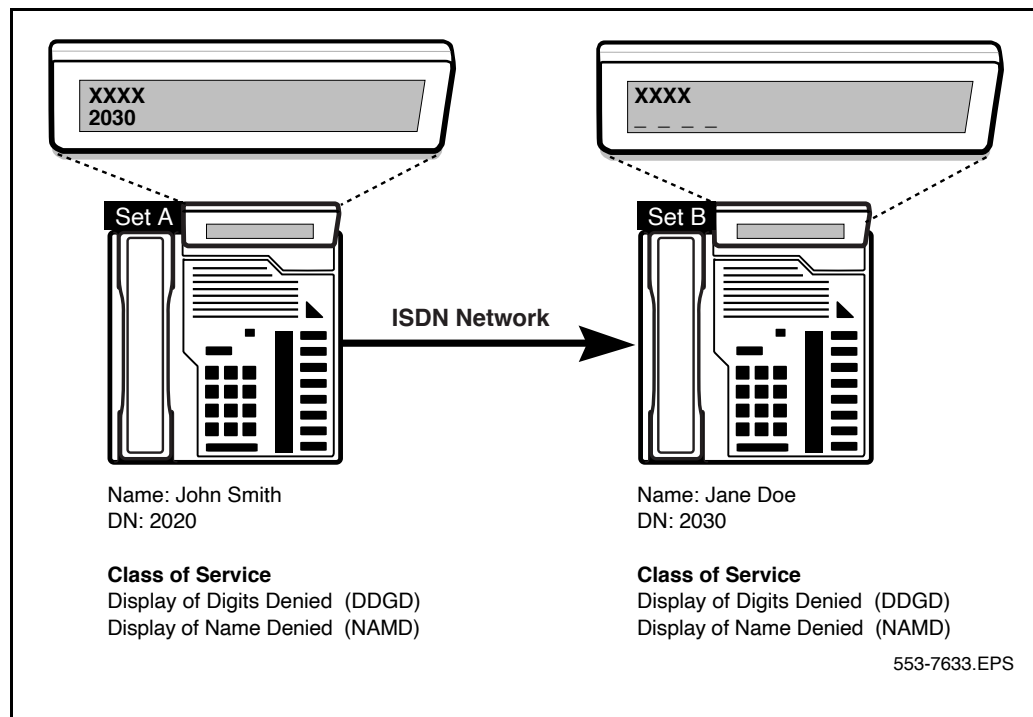
Table 36
Display Scenarios on Calling and Called Party's Sets

CALLING PARTY'S CLASS OF SERVICE	CALLED PARTY'S CLASS OF SERVICE	DISPLAY OF CALLING PARTY	DISPLAY OF CALLED PARTY
NAMA DDGA	NAMA DDGA	Name of Called Party Called Party's Number	Name of Calling Party Calling Party's Number
NAMA DDGA	NAMD DDGD	X X X X Called Party's Number	Name of Calling Party Calling Party's Number
NAMD DDGD	NAMA DDGA	Called Party's Name Called Party's Number	X X X X -----
NAMD DDGD	NAMD DDGD	X X X X Called Party's Number	X X X X -----
NAMA DDGD	NAMD DDGA	X X X X Called Party's Number	Name of Calling Party -----
NAMD DDGA	NAMA DDGD	Called Party's Name Called Party's Number	X X X X Calling Party's Number

Figure 19 illustrates the functionality of Display of Calling Party Denied (DPD) on a nodal basis when both the calling and called parties have enabled DPD Class of Service options. The calling party has configured a Digit Display Denied (DDGD) and Name Display Denied (NAMD) Class of Service. The called party has the same Class of Service options programmed. The display of the calling party's associated name and number is restricted on the called party's set. The calling party's number is replaced by a string of dashes (----), where each "-" represents a suppressed digit. The associated name is replaced by a string of four Xs (XXXX).

On the calling party's set, the name associated with the called party is replaced by a string of four Xs (XXXX). However, the dialed digits remain displayed on the calling set.

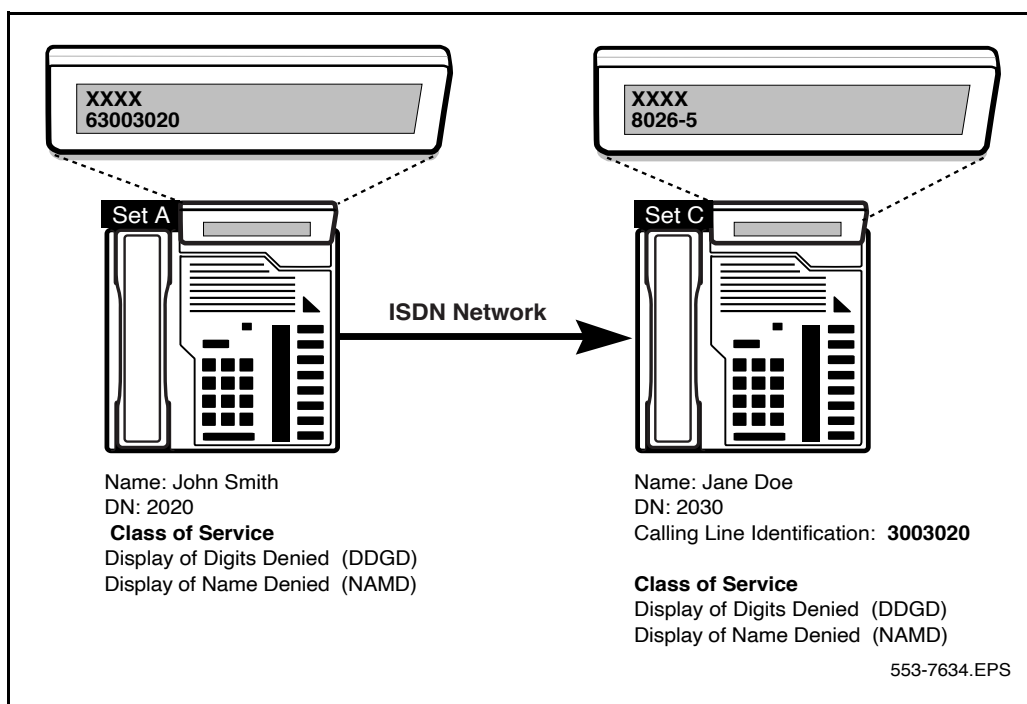
Figure 19
Calling Party and Called Party on the Same Node



As illustrated in Figure 20, for calls placed over a MCDN ISDN network, Display Digits Denied (DDGD) Class of Service on the calling party's set prevents the Calling Line Identification (CLID) from being displayed on the called party's set. In this case, the calling party's CLID is replaced by the ISDN route access code and route member number. If the calling party has configured Name Display Denied (NAMD), the calling party's associated name is not displayed on the called party's set. The associated name is replaced by a string of four Xs (X X X X).

On the calling party's set, the name associated with the called party is replaced by a string of four Xs (X X X X). However, the dialed digits remain displayed on the calling set.

Figure 20
ISDN Network Calls



Operating parameters

Display of Calling Party Denied (DPD) is only supported on internal calls, Meridian Customer Defined Network (MCDN) ISDN networks and the interface to the public network.

This feature does not support calls over DASS/DPNSS1 trunks.

Display of Calling Party Denied is not supported on ISDN BRI sets.

The dialed digits always appear on the display of the calling party's set. This occurs whether or not the called party has a Digit Display Denied (DDGD) Class of Service. However, if the dialed digits represent a Multiple Appearance Directory Number (MADN), the calling party's display reflects the Class of Service of the answering set.

Feature interactions

Attendant Console

An Attendant Console's display is not impacted by this feature. Display is provided to an attendant regardless of the Class of Service configured on a set. In order to allow calls placed over an ISDN network to be displayed on the Attendant Console, Network Attendant Service (NAS) must be configured.

Call Detail Recording

For internal calls, calling and called party's Directory Numbers are included in Call Detail Recording (CDR) records regardless of the set's Class of Service. For MCDN ISDN network calls, the calling party's or connected party's number is included in the CDR regardless of the set's Class of Service.

Call Forward All Type

When a set activates any of the call forwarding features, the displays given on the calling set and the terminating set are in accordance with the Class of Service of the sets involved in the call.

If the terminating set has Dialed Name Display Denied (DNDD), the display on the terminating set reflects the name and number of the calling party and the name and the number of the forwarding set.

If the terminating set has Dialed Name Display Allowed (DNDA), the display on the terminating set reflects the number of the calling party and the name and number of the forwarding set. In both cases, the terminating set's display is in accordance with the DPD Class of Service options of the calling and forwarding sets.

For a MCDN ISDN call, the calling party's Calling Line Identification (CLID) is replaced with the ISDN route access code (ACOD) and the route member number, and the calling party's name is replaced by a string of four Xs (X X X X).

The display given on the calling set of an internal call, which has been forwarded to a set within the same switch, includes the name and number of the terminating set along with the number of the forwarding set. If the DPD Class of Service options, which are specified for the terminating set, indicate that the display of the name and number of the terminating set be denied, then on the calling set, the name of the terminating set is replaced by a string of four Xs (X X X X). The number is replaced by dashes (- - -). If the number of the terminating set is blocked from being displayed on the calling set, the number of the forwarding set is also blocked from being displayed on the calling set, regardless of the DPD Class of Service options of the forwarding set. Conversely, if the display of the terminating set's number is allowed in the calling set, then the number of the forwarding set is also displayed on the calling set, irrespective of the DPD Class of Service options of the forwarding set.

Call Hold

When a call is retrieved from hold, the calling and called parties' displays reflect their individual DPD Class of Service options.

Call Park

When the Call Park timer expires on a parked call, a set's display reflects the Directory Number the call is parked against. The display does not include the name and DN of the calling party. When a parked call is retrieved by another set, display information is based on the DPD Class of Service of the individual sets.

Call Pickup

When a call is picked up from another set, the terminating set's display is in accordance with the Class of Service of the dialed and calling sets. The calling party's display includes the dialed DN, the terminating DN and the name of the terminated set. However, if the terminating set has Digit Display Denied (DDGD), then both the dialed and terminating sets' DNs are blocked from the calling party's display. The same occurs when Digit Display Allowed (DDGA) is configured on the terminating set. Both the dialed and terminating sets' DNs are displayed on the calling party's set, regardless of the Class of Service of the dialed set.

Call Transfer

When a set transfers a call, display information is updated according to the Class of Service of the respective sets. This occurs for both internal and ISDN network calls.

If an unsupervised call transfer occurs on an internal call, the DN of the terminating set is displayed to the calling party regardless of the DPD Class of Service options that are configured on the terminating set.

Calling Party Name Display

If Calling Party Name Display Denied (CNDD) is configured for a set, then the name associated with that set is not displayed when it is involved in a call. This is so regardless of the DPD Class of Service Options of that set.

Calling Party Privacy

Calling Party Privacy takes precedence over Display of Calling Party Denied on outgoing calls over a MCDN ISDN network. This precedence pertains to the display of the calling party's name and number on the called party's set.

Calling Party Privacy does not affect internal calls using Display of Calling Party Denied.

Conference

For internal conference calls, display information is not provided on any of the conferee's sets. When setting up a conference call, by conferencing one set at a time, the display on the conferee's set is in accordance with the Class of Service of the individual sets.

For network conference calls, display is provided. This is in accordance with the DPD Class of Service options of the individual sets.

Dial Intercom

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 (– –).

Group Call

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.

Hot Line

Display information on sets in a Hot Line call is based on the individual Class of Service of each set.

Meridian 911

An incoming M911 call with Automatic Number Identification (ANI) information always displays ANI digits on the terminating set regardless of the calling party's DPD Class of Service.

Meridian Mail

A calling party's name and/or DN within Meridian Mail are not impacted by this feature. When a Digit Display Denied (DDGD) call is forwarded to Meridian Mail, the calling party's DN is provided to Meridian Mail and is available when reviewing messages.

Multiple Appearance Directory Number

When a Multiple Appearance Directory Number (MADN) is dialed and ringing, the calling party's display does not show name information, provided that at least one of the MADN TNs has Name Display Denied (NAMD) Class of Service. Once a call is answered, the calling party's set reflects the DPD Class of Service options of the answering set.

The called party's display reflects the DPD Class of Service options of the calling party's set.

Multi Party Operations - Call Join

When three parties are joined using the Call Join capabilities of the Multi Party Operations feature, display information is not provided on any of the conferee's sets. When setting up a conference call, by conferencing one set at a time, the display on the conferee's set is in accordance with the individual set's Class of Service. If one set leaves a three party conference, display information on the remaining sets is based on the individual Class of Service of each set.

Network Attendant Services

When a call is placed to an attendant over an ISDN network with Network Attendant Services (NAS) configured and Calling Party Name Display (CPND) equipped, the Attendant Console displays the calling party's DN and name. The same occurs when an attendant places a call over the network; however, an Attendant Console's display shows the connected party name and number.

If NAS is not configured, the name and calling/connected party's number is displayed to the attendant provided that the calling/connected party has the Display of Calling Party Denied (DPD) Class of Service options configured to Allowed. If Class of Service options are set to Denied, then this information is not displayed to the attendant.

No Hold Conference

Voice Call

Display information on sets involved in a No Hold Conference and Voice call is based on the individual Class of Service of each set.

Feature packaging

For internal calls, Display of Calling Party Denied (DPD) requires Calling Party Name Display (CPND) package 95.

For ISDN Network calls the following packages and their dependencies are also required:

- Calling Party Name Display (CPND) package 95;
- Integrated Service Digital Network (ISDN) package 145; and
- Network Attendant Services (NAS) package 159.

Note: The NAS package is required to display a calling party's name and DN on the attendant console, when using the Display of Calling Party Denied feature within an ISDN PRI private network. With NAS configured and Calling Party Name Display equipped, the attendant console will display the calling party's name and DN, regardless of the Display of Calling Party Denied Class of Service of the calling party's set. Without NAS, if the Display of Calling Party Denied Class of Service of the calling party's set is Denied, the name and DN of the calling party will not be displayed on the attendant console.

Feature implementation

LD 10 – Deny Directory Number Display and Name Display for Analog (500/2500 type) sets.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	500/2500 type set data block.
TN	I s c u c u	Terminal Number. For Option 11.
...		
CLS	DDGD	Digit Display Denied DDGA = Digit Display Allowed (default).
CLS	NAMD	Name Display Denied NAMA = Name Display Allowed (default).

LD 11 – Deny Digit Display and Name Display for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ:	CHG.	Change.
TYPE:	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616 or 3000.
TN	I s c u c u	Terminal Number For Option 11.
...		
CLS	DDGD	Digit Display Denied DDGA = Digit Display Allowed (default).
CLS	NAMD	Name Display Denied NAMA = Name Display Allowed (default).

Feature operation

No specific operating procedures are required to use this feature.

Distinctive/New Distinctive Ringing

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, X11 Release 9 and later software

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, X11 Release 13 and later software

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 Waiting Redirection

The existing Distinctive Ringing CFNA 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, 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 via 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 SL-1 Call Park Recall Ring Cadence (RBCS) specified in LD 56 has precedence over the Distinctive or New Distinctive Ringing given for Call Park recall.

Night Service

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

Meridian Digital Telephones/M3000 Touchphones

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. This also applies to the M3000 Touchphone. If the M3000 custom ringing option is selected, Distinctive Ringing is overridden.

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

Feature packaging

Distinctive/New Distinctive Ringing (DNRG) package 74 has no other 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

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	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- IRNG	(NO), YES	(Disable) enable Distinctive Ringing for Dial Intercom calls.
DFNA	1-15	The number of triple-ringing cycles before Call Forward No Answer is activated for calls with Distinctive Ringing (the default is 4).

LD 17 – Specify Distinctive or New Distinctive Ringing.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record Release 19 gate opener.
PARM	(NO), YES	Change system parameters.
- NDRG	(NO), YES	(Disable) enable New Distinctive Ringing (DRNG). Prompted only if DRNG is equipped.

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

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
DRNG	(NO), YES	(Disable) enable Distinctive Ringing for incoming calls.

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

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	DRGX	Distinctive ring type (DRG1), DRG2, DRG3, DRG4, where: DRG1 = high fast tone, frequency 667/500 Hz. DRG2 = high slow tone, frequency 667/500 Hz. DRG3 = low fast tone, frequency 250/333 Hz. DRG4 = low slow tone, frequency 250/333 Hz. The DRG3/4 distinctive ringing for M2006 and M2008 telephones are different: DRG3 = low fast tone, frequency 1600/2000 Hz. DRG4 = low slow tone, frequency 1600/2000 Hz.

Feature operation

No specific operating procedures are required to use this feature.

Distinctive Ringing by DN

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 international feature Executive Distinctive Ringing (EDRG). This existing feature supports a distinctive ringing cadence when a call is made from an executive set.

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 new sub prompt is introduced for every DN key to configure 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.** Determined by the call source (calling set) and is DN-key based instead of TN based.
- **Distinctive Ringing by call destination, per DN-key.** Determined by the call destination DN-key (called set) and is based on the DN-key of the called set.

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)
- Multi Call Ringing (MCR)
- Multi Call Non-Ringing (MCN)
- One-way HOTLine (HOT)
- Two-way HOTLine
- Conference Hotline (CH)

The following Meridian sets can support DRDN:

- M2006
- M2008
- M2008HF
- M2616
- M2016
- M2216
- M2317
- M3000

Feature interactions

Attendant Extended Call

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

Call Forward All Calls

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

Call Forward No Answer, Second Level

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

Call Transfer

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

Conference

The conference call is either scanned for a call marked as distinctive or a set designed as an executive set. The conferee with the highest index determines the ringing for the new call.

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

Directory Numbers (DN) can appear on more than one multiple-line set, and can be shared between those sets and single-line sets. The four multiple-appearance options are as follows:

- Multi Call Ringing (MCR)
- Multi Call Non-ringing (MCN)
- Single Call Ringing (SCR)
- Single Call Non-ringing (SCN)

Therefore, each appearance of a DN configured on a different set is allowed 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 Distinctive Ringing by DN (DRDN) is not packaged; however, the following packages are required to make it operational:

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

Feature implementation

This section contains the overlay procedures required to configure the Distinctive Ringing by DN feature on a Meridian 1.

The required procedures are as follows:

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

LD 56 - Define the ringing cadence for analog (500/2500 type) sets, network and the distinctive ringing tone for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FTC	Flexible Tones and Cadence table.
TABL	0-31	FTC table number.
RING	YES	Tones and cadences for ringing.
...	...	
NDR1 PBX	0-(2)-15	Network Distinctive Ring 1 cadence for analog (500/2500 type) sets.
NDR1 BCS		Network Distinctive Ring 1 cadence for Meridian 1 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 Meridian 1 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 Meridian 1 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 Meridian 1 proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- CAD	7	NT8D17 TDS Cadence code.

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

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type xxxx = 2006, 2008, 2016, 2216, 2317, 2616, 3000.
TN	l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u = unit for Options 51C - 81C c = card, u = unit for Option 11C.
DES	d...d	Office Data Administration System (ODAS) Station Designator of 1-6 alphanumeric characters.
CUST	xx	Customer number as defined in LD 15. xx = 0-99 for Options 51C - 81C. xx = 0-31 for Option 11C.
...		
CLS	DRDA	Distinctive Ringing by DN enabled. (DRDD) is the default.

...	...	
KEY	xx aaa yyyy	Telephone function key assignments for this feature, where: • xx = key number. • aaa = key type for this feature. These key types include: HOT D (one way and two way hotline), MCR, MCN, SCR, SCN and CH D. • yyyy = Directory Number. Note 1: The maximum number of distinctive ringing cadences is five. Therefore, a set configured with more than five DNs, say six, can provide distinctive ringing for five of the six DNs. Note 2: 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

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 (e.g., 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 37 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.

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.

Table 37
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)	Allow	H	H	R	H	H	H
	Deny	A	A	R	R	A	A
Meridian 1 proprietary	Allow	A	H	R	H	A	H
	Deny	A	A	R	R	A	A
H = Follow Hunt Directory Number (DN) A = Intercept to attendant B = Busy tone R = RAN treatment							

Table 37
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
Attendant							
Analog (500/2500 type)	Allow	H	H	B	H	H	H
	Deny	B	B	B	B	B	B
Meridian 1 proprietary	Allow	B	H	B	H	B	H
	Deny	B	B	B	B	B	B
Internal							
Analog (500/2500 type)	Allow	H	H	R	H	H	H
	Deny	B	B	R	R	A	A
Meridian 1 proprietary	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							

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

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

Up to 20 DNDG keys can be equipped on an M2250 Attendant Console. Ten DNDG keys can be equipped on a QCW or M1250 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 13 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 13 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 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 DND 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.

Call Forward All Calls Hunt

If activated, Call Forward All Calls takes precedence over DND busy indication.

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.

Directory Number Expansion (DNXP)

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

Enhanced Override

Telephones with DND enabled cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Forced Camp-On

Telephones with DND enabled cannot be force camped on. Overflow (fast busy) tone is returned to telephones attempting Forced Camp-On.

ISDN QSIG 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.

Night Station

A Night Station DN can be placed in DND mode.

Priority Override

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

Private Lines

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

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

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- DNDL	(NO), YES	Do Not Disturb lamp for analog (500/2500 type) telephones.
TYPE	INT	Release 21 gate opener.
- DNDT	(BST) ATT RAN	Busy tone treatment for Do Not Disturb (DND) numbers. Attendant treatment for DND numbers. Recorded announcement for DND numbers.
- - RRT	xxx	Route number for the recorded announcement for calls to a DND number (prompted if DNDT = RAN).
TYPE	RDR	Release 21 gate opener.
- DNDH	(NO), YES	(Disallow) Allow Do Not Disturb Hunt.

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

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

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

Prompt	Response	Description
REQ	MRG CHG REM OUT	Merge DND groups. Add a DND group from a list of merged DND groups. Remove DND group from a merged group. Remove a DND group that consists of a list of merged DND groups.
TYPE	DND	Do Not Disturb Group data block.
CUST	0-99	Customer number.
GPNO	0-99	Number of the DND group to be created through merging of other DND groups.
GRP1	G0-G99	Number of the first DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
GRP2	G0-G99	Number of the second DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
GRP	G0-G99	Number of the DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
STOR	G0-G99	Specify the number of the DND group to be added to a list of merged DND groups. Prompted if REQ = CHG.
RMOV	G0-G99	Specify the number of the DND group to be removed from a list of merged DND groups. Prompted if REQ = REM.

LD 26 – Print Do Not Disturb group data.

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

LD 12 – Add or change Individual or Group Do Not Disturb keys on an Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx DDL	Add an Individual Do Not Disturb key, where: xx = 0-19 for M2250 consoles, and xx = 0-9 for M1250 consoles.
KEY	xx GND 0-99	Add a DND group key, where: xx = 0-19 for M2250 consoles, and xx = 0-9 for M1250 consoles.

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

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(LPD), LPA (CCSD), CCSA	(Disable) enable lamp. Controlled Class of Service (denied) allowed.

Feature operation**Individual Do Not Disturb**

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

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

To deactivate DNDI, follow the same steps.

Group Do Not Disturb

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

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

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

To deactivate DNDG:

- Press **DNDG**.

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

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

Dual Signaling on Analog Trunks

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.

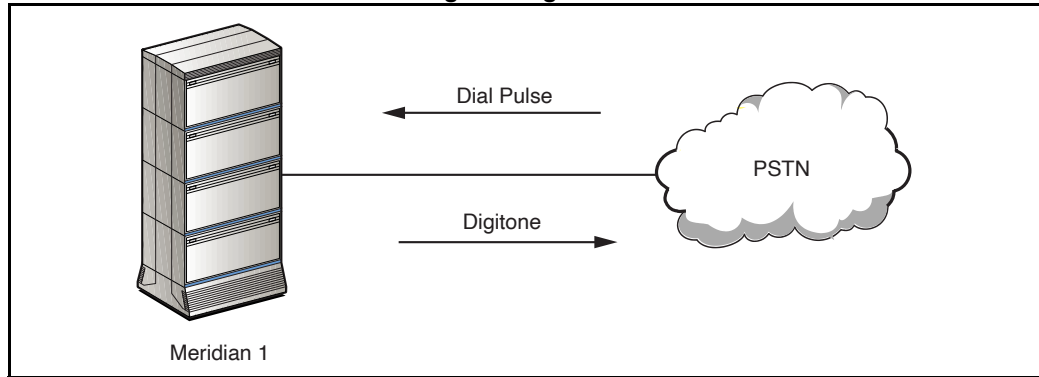
The new trunk Classes of Service in LD 14 are:

- 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 21
Meridian 1 connected to the C.O. through analog trunks interface



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

- incoming Dial Pulse - outgoing Dial Pulse (existing and default functionality)
- incoming DTMF - outgoing DTMF (existing functionality)
- incoming Dial Pulse - outgoing DTMF (new functionality)
- incoming DTMF - outgoing Dial Pulse (new functionality)

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).

This feature is supported by IPE cards and PE cards.

Feature Interactions

There is no change in interactions for this feature.

Feature Packaging

No new packages have been introduced for this feature.

Feature Implementation

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

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaa	Trunk type. xxx = DID, TIE.
TN	l s c u c u	Terminal Number. Terminal Number of Option 11C.
CLS	(DIP) DPDT DTDP	Dial Pulse. Incoming Dial Pulse -outgoing Digitone. Incoming Digitone - outgoing Dial Pulse.

Electronic Brandlining

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

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

Incremental Software Management

A new Incremental Software Management (ISM) parameter is introduced with the Electronic Brandlining feature. This ISM parameter is used to transfer custom display information from the Order Management System to X11 software. The Electronic Brandlining ISM value is copied from the appropriate tape/keycode/file into X11 software during sysload. The X11 software then sends the custom display to the display screen of a Meridian Modular set.

The Electronic Brandlining ISM value contains one of the following:

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

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

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

Overlay 22 is modified to print the Electronic Brandlining ISM parameters. When REQ = SLT (Print System Limits: Incremental Software Management) in Overlay 22, the ISM parameters and system limits are printed. The printing of the Electronic Brandlining custom display output is added after the ISM parameters, if applicable. For Option 11C, ISM keywords are printed, in addition to the ISM system limits.

Option 11C and Input-Output Disk Unit with CD-ROM (IODU/C) customers can deliver ISM parameters via keycode. A keycode is a machine-generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects ISM parameters.

In order for Option 11C and IODU/C customers to expand ISM limits, they must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in Overlay 143. To make the expansion effective, the customer must sysload. For further information on keycode installation, please refer to *Software conversion procedures*.

For customers without Option 11C or IODU/C, ISM parameters are delivered as per existing operation.

For further information on ISM, refer to the Incremental Software Management feature module in *X11 features and services*.

Custom Displays

The Electronic Brandlining feature provides the following two custom displays:

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

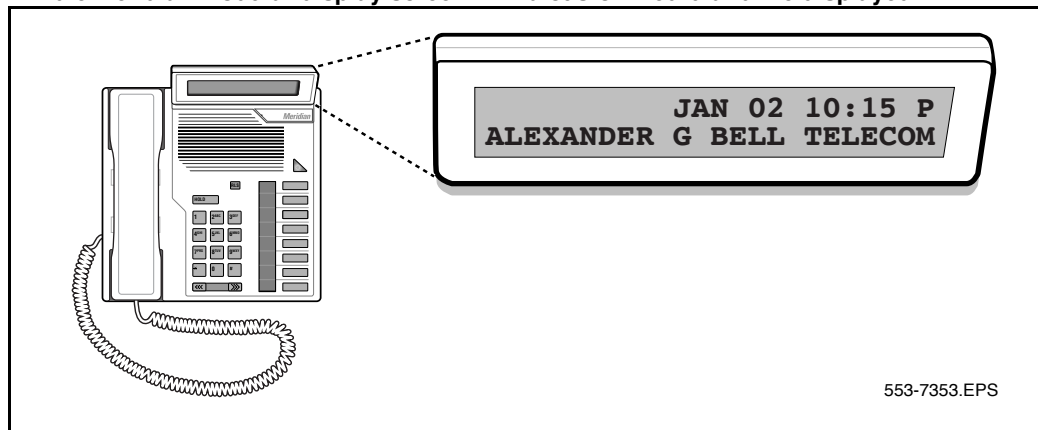
Terminal Text Broadcast Customized Text

When the Electronic Brandlining ISM 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 38 and 39). Alphanumeric and punctuation characters are supported. The customized brandline is configured on a system basis (Overlay 17).

Figure 22 shows an example of a customized brandline displayed on the idle screen of a Meridian Modular set.

Figure 22
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 38 and 39). The customized text string is configured on a system basis (Overlay 17).

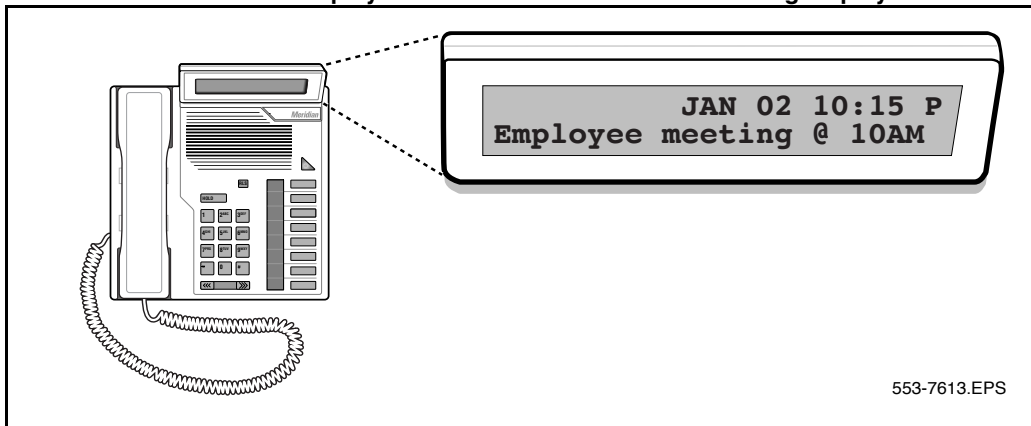
The customized text string can be composed of a single blank space. In this case, the second line of the idle display screen is blank, as per existing functionality.

To enter the customized brandline or text string in Overlay 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 Overlay 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 Overlay 17. The end of input is indicated when only a <CR> is entered or when the 24th character is entered.

Figure 23 shows an example of a customized text string displayed on the idle screen of a Meridian Modular set.

Figure 23
An idle Meridian Modular display screen with a customized text string displayed



Supported characters

Table 38 lists the 7-bit ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandlining feature.

Table 38
Valid 7-bit ASCII Roman Characters

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

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Table 39 lists the 8-bit non-ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandlining feature.

Table 39
Valid 8-bit non-ASCII Roman Characters

A0 <NASP>	A1 Ľ	A2 ¢	A3 £	A4 ´	A5 ¤
A6 Š	A7 Ď	A8 ¨	A9 ©	AA Ň	AB ě
AC Ž	AD Ÿ	AE ®	AF Ž	B0 °	B1 ±
B2 Ā	B3 Ł	B4 Ř	B5 Ľ	B6 ´	B7 Ć
B8 Ě	B9 Š	BA º	BB Ě	BC ´	BD Û
BE Ž	BF ě	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 Ð	D1 Ñ	D2 Ò	D3 Ó	D4 Ô	D5 Õ
D6 Ö	D7 ×	D8 Ø	D9 Ù	DA Ú	DB Û
DC Ü	DD Ý	DE Þ	DF ß	E0 à	E1 á
E2 â	E3 ã	E4 ä	E5 å	E6 æ	E7 ç
E8 è	E9 é	EA ê	EB ë	EC ì	ED í
EE î	EF ï	F0 ò	F1 ñ	F2 ò	F3 ó
F4 ô	F5 õ	F6 ö	F7 ÷	F8 ø	F9 ù
FA ú	FB û	FC ü	FD ý	FE þ	FF ÿ

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Note: Characters that are listed in Tables 38 and 39 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 38 and 39.

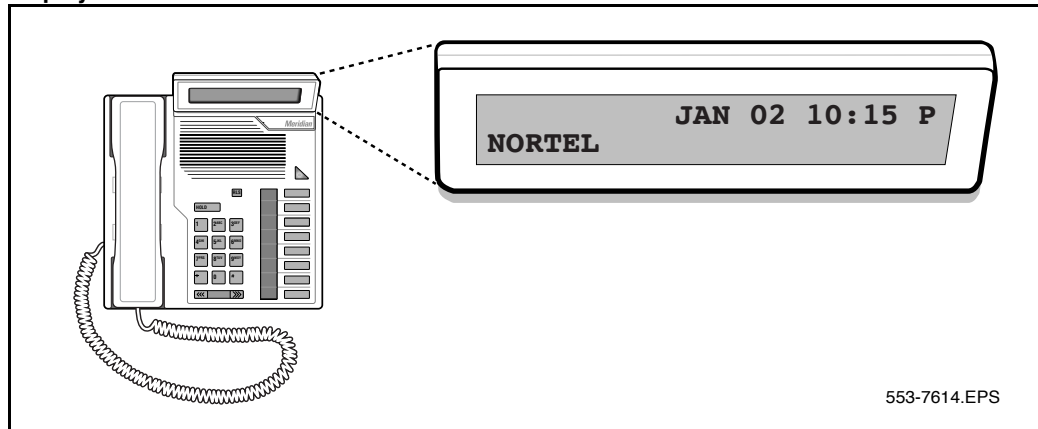
Default Electronic Brandlining Display

If the Terminal Text Broadcast custom display is not chosen, then the Electronic Brandlining ISM parameter value indexes into a default brandline. The default brandline is “NORTEL”, the Meridian Modular set manufacturer (Northern Telecom). 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 (Overlay 17). When the NORTEL_BRAND prompt is set to NO, the second line of the idle Meridian Modular display screen is blank, as per existing functionality.

Figure 24 shows the default brandline (NORTEL) displayed on an idle Meridian Modular set.

Figure 24
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 Overlay 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 ISM 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 ISM 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 ISM parameter is set to an Electronic Brandlining ISM 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 Overlays 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 Overlay 17 is password protected by level 2 system administration (PWD2). The added implementation of PWD2 in Overlay 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 Overlay 17 for the Terminal Text Broadcast configuration of a customized text string.

Feature packaging

The Electronic Brandlining feature is included in base X11 system software.

Feature implementation

LD 17 – Enable or disable the NORTEL Electronic Brandline.

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

LD 17 – Enter a customized text string.

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

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	PARM	System Parameters.
...		
IDLE_SET_DISPLAY aaaa		The current customized text string "aaaa" is shown. This information is displayed for confirmation only.
- - MODIFY	(NO) YES	Gateway to new EBLN Terminal Text Broadcast configurations. Enter NO to keep existing configuration (default). Enter YES to prompt for further EBLN Terminal Text Broadcast configuration.
- - PWD2	x...x	Password 2. The second level administration password is needed to allow configuration of the Terminal Text Broadcast customized text string.
- - SUPPORTED_TEXT_ONLY	(YES) NO	Change customized text string by text string input. Enter YES to input by text string, and the IDLE_DISP_STRING prompt is prompted. Enter NO to input character by character, and the IDLE_DISP_CHAR nn prompt is prompted.
- - - IDLE_DISP_STRING	bbbb	Enter the customized text string. IDLE_DISP_STRING is prompted only if SUPPPORTED_TEXT_ONLY = YES. A maximum of 24 supported characters are accepted and validated. For a blank display, enter <CR> only.

IDLE_SET_DISPLAY bbbb - - OK ... - - - IDLE_DISP_CHAR nn	(YES) NO c hh	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. Confirm the validated Terminal Text Broadcast customized text string (bbbb) entered at the IDLE_DISP_STRING prompt. Enter YES to keep the new text string as "bbbb". Enter NO to input a new Terminal Text Broadcast customized text string, and the SUPPORTED_TEXT_ONLY prompt is re-prompted. Enter the customized text string character by character. c = one supported character 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 re-prompted 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. Confirm the validated Terminal Text Broadcast customized text string (cccc) entered at the IDLE_DISP_CHAR nn prompts, Enter YES to keep the new text string as "cccc". Enter NO to input a new Terminal Text Broadcast customized text string, and the SUPPORTED_TEXT_ONLY prompt is re-prompted.
- - OK	(YES) NO	

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

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaaa	Telephone type, where aaaa is: 2008, 2016, 2216, 2616.
TN	I s c u c u	Terminal Number. For Option 11C.
...		
CLS	(ADD) DDS	Digit Display options Automatic Digit Display (default). Delay Display. When CLS = DDS, the display is activated after the call is answered.
...		

Feature operation

No specific operating procedures are required to use this feature.

Electronic Lock Network Wide/Electronic Lock on Private Lines

The basic Electronic Lock feature has been enhanced to provide the following capabilities:

- The feature can be implemented network wide.
- A new Class of Service, Controlled Network Class of Service (CNCS) can be selected in the Customer Data Block (LD 15).
- Locking can be implemented for Private DNs.

In a Meridian Customer Defined Network (MCDN) environment, Electronic Lock Network Wide can be used to change the Class of Service of a set in a remote location. Electronic Lock Network Wide is activated or deactivated from any node by dialing the Electronic Lock Flexible Feature Code (FFC), a password, a location code, and the DN of the set to be changed. Since the password length defined at the destination node is not known at the originating node, the Station Control Password (SCPW) length (defined in LD 15) must be defined the same for all network nodes.

If the originating node has the FFC Confirmation Tone option selected, a confirmation tone is given when the feature is successfully activated or deactivated. Overflow tone is given if the operation is unsuccessful. There is no FFC verify code for Electronic Lock.

When a locked set makes an outgoing trunk call, if Controlled Network Class of Service is defined, the Network Class of Service (NCOS) defined by CNCS is used instead of the NCOS defined in LD 10 or 11 for the set. If network signaling is configured for the trunk that normally transmits the NCOS of the set between Electronic Switched Network (ESN) nodes, the CNCS is transmitted instead of the NCOS. This prevents a locked set from reaching the exchange network by tandeming through a TIE trunk using ESN.

A new prompt (PELK) is introduced in the Customer Data Block to implement Electronic Lock on private lines. If this option is enabled, an outgoing call on a private line of a locked set is subject to the same restrictions as all other DNs on the set. The same intercept treatment would be given as for a regular DN. The restrictions for private lines, as well as other DN keys on the set, are controlled by the Controlled Class of Service (CCOS), and by the CNCS if defined. Therefore, for outgoing calls, the Class of Service restrictions and/or New Flexible Code Restriction (NFCR) apply to private line keys on locked sets. Only outgoing calls are affected. The Class of Service of a non-locked set has no affect on private lines.

Operating parameters

The Network Dialing Plan must be either a Coordinated Dialing Plan (CDP) or a Uniform Dialing Plan (UDP).

The set password lengths must be equal for all nodes in the network.

Network wide operation is only supported through an MCDN ISDN network.

The Electronic Lock feature must be equipped on both originating and remote nodes.

The FFC used is defined on the node from which Network Electronic Lock is being activated. To activate or deactivate Network Electronic Lock from any remote node, the user has to use the FFC Electronic Lock Activate (ELKA) or Electronic Lock Deactivate (ELKD) code defined on that remote node.

ISDN Basic Rate Interface (BRI) sets cannot be used to lock another set, nor can they be locked themselves.

An analog (500/2500 type) telephone with a private line DN or a Meridian 1 proprietary telephone with a private line on the Prime DN cannot be locked.

The following hardware is required:

- Primary Rate Interface – D-channel Handler Interface (DCHI)/ Multipurpose Serial Data Link (MSDL) and PRI/PRI2 cards.
- Integrated Services Digital Network Signaling Link (ISL) – DCHI cards and TIE trunks.
- Virtual Network Services (VNS) – DCHI cards and any trunks.

Feature interactions

Automatic Call Distribution (ACD)

An ACD set cannot be locked.

Call Forward (CFW)

Call Forward No Answer (CFNA)

For Call Forwarding, the COS and NCOS used for the forwarding call can be taken from either the forwarding set or from the forwarded set, depending on the option defined in the Customer Data Block.

For example, set B call forwards all calls to an external trunk. Set A calls set B. If OPT = CFF in LD 15 (Call Forward forwarded to party's COS and NCOS), the COS and NCOS of set B are used for forwarding the call to the trunk. If OPT = CFO (Call Forward originating party's COS and NCOS), the COS and NCOS of set A are used for forwarding the call to the trunk.

Direct Inward System Access (DISA)

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

Electronic Switched Network Authcode

If a station user enters an Authcode on the set, regardless of the status of the set being locked or not, the NCOS defined for the Authcode is used. The ESN Authcode feature overrides the Electronic Lock Network Wide feature.

Flexible Numbering Plan

If a network is equipped with a flexible numbering plan (i.e., not all the network DNs are the same length), hanging up before the usual end-of-dialing timeout cancels the request for activation or deactivation of Electronic Lock. Dialing an octothorpe (#) after the network DN will cause the request for activation or deactivation of the Electronic Lock to be sent immediately, instead of waiting for the usual end-of-dialing timeout to send it.

Multiple Appearance DN

The same locked or unlocked state applies to all Terminal Numbers with the same primary DN and the same SCPW. Terminal Numbers with the same DN, but not having the same SCPW, cannot be locked or unlocked.

New Flexible Code Restriction (NFCR)

With NFCR, toll denied stations are allowed or denied calling privileges according to the Facility Restriction Level (FRL) assigned to the NCOS defined in the protected line block. For a locked set, NFCR uses the FRL assigned to the CNCS to determine its calling privileges if one is defined; if no CNCS is defined, the NCOS of the locked set will be used.

Scheduled Access Restrictions (SAR)

The SAR feature overrides Electronic Lock.

Feature packaging

Electronic Lock Network Wide/Electronic Lock on Private Lines is packaged under Flexible Feature Codes (FFC) package 139.

Use of this feature requires the following additional packages:

- Controlled Class of Service (CCOS) package 81
- Network Class of Service (NCOS) package 32, and
- Integrated Services Digital Network (ISDN) package 145.

Feature implementation

Electronic Lock Network Wide

Use the following overlays to implement Electronic Lock Network Wide.

LD 15 – Modify Customer Data Block as follows:

Prompt	Response	Description
REQ	CHG	Change existing data block.
TYPE	CCS	Controlled Class of Service.
CUST	0-99	Customer number.
- CCRS	aaa	Controlled class of service (CCOS) Restricted Service.
- ECC1	aaa	Enhanced Controlled Class of Service level 1.
- ECC2	aaa	Enhanced Controlled Class of Service level 2.
- CNCS	0-99	Network Controlled Class Of Service for Electronic Lock.
- PELK	(NO), YES	Electronic Lock on Private Lines.
SCPL	(0)-8	Station Control Password length.

LD 10 – Set the Station Control Password and Controlled Class of Service Allowed for each Analog (500/2500 type) telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u c u	Loop, shelf, card, and unit. Card, and unit (Option 11).
SCPW	xxxxxxx	Station Control Password (1 to 8 digits, as defined in LD 15).
CLS	CCSA	Controlled Class of Service Allowed.

LD 11 – Set the Station Control Password and Controlled Class of Service Allowed for each Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Loop, shelf, card, and unit. Card, and unit (Option 11).
SCPW	xxxxxxx	Station Control Password (1 to 8 digits, as defined in LD 15).
CLS	CCSA	Controlled Class of Service Allowed.

LD 57 – Configure the Flexible Feature Codes for Electronic Lock.

Prompt	Response	Description
REQ	NEW, CHG	Enter new/change data.
TYPE	FFC	Flexible Feature Codes.
CUST	0-99	Customer Number.
FFCT	YES	Provide FFC confirmation tone.
CODE	ELKA	New/change Electronic Lock Activate FFC.
ELKA	xxxx	Enter the new or changed Electronic Lock Activate FFC
ELKA	<CR>	
CODE	ELKD	New/change Electronic Lock Deactivate FFC.
ELKD	xxxx	Enter the new or changed Electronic Lock Deactivate FFC
ELKD	<CR>	

LD 87 – In the ESN 2 overlay, define all NCOS to be used.

Prompt	Response	Description
REQ	NEW, CHG	Enter new/change data.
CUST	0-99	Customer Number.
FEAT	NCTL	Network Control.
...		
NRNG	0-99	NCOS range.
NCOS	0-99	Network Class of Service group number.
...		
– FRL	(0)-7	Facility Restriction level.

Electronic Lock on Private Lines

Use the following overlays to implement Electronic Lock Network on Private Lines.

LD 15 – Modify Customer Data Block as follows:

Prompt	Response	Description
REQ	CHG	Change existing data block.
TYPE	CCS	Controlled Class of Service.
CUST	0-99	Customer number.
- CCRS	aaa	Controlled class of service (CCOS) Restricted Service.
- ECC1	aaa	Enhanced Controlled Class of Service level 1.
- ECC2	aaa	Enhanced Controlled Class of Service level 2.
- CNCS	0-99	Network Controlled Class Of Service for Electronic Lock.
- PELK	YES	Electronic Lock on Private Lines.
SCPL	(0)-8	Station Control Password length.

LD 10 – Set the Station Control Password and Controlled Class of Service Allowed for each Analog (500/2500 type) telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u c u	Loop, shelf, card, and unit. Card, and unit (Option 11).
SCPW	xxxxxxx	Station Control Password (1 to 8 digits, as defined in LD 15).
CLS	CCSA	Controlled Class of Service Allowed.

LD 11 – Set the Station Control Password and Controlled Class of Service Allowed for each Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Loop, shelf, card, and unit. Card, and unit (Option 11).
SCPW	xxxxxxx	Station Control Password (1 to 8 digits, as defined in LD 15).
CLS	CCSA	Controlled Class of Service Allowed.

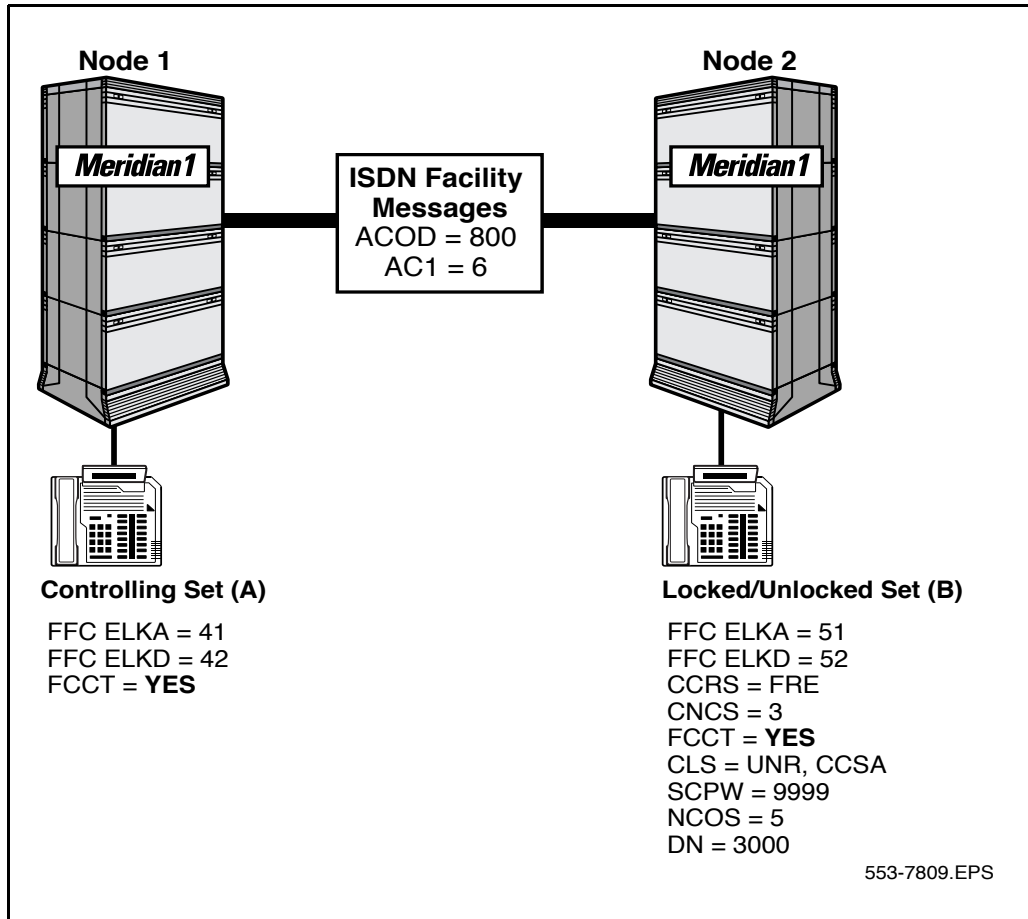
LD 57 – Configure the Flexible Feature Codes for Electronic Lock.

Prompt	Response	Description
REQ	NEW, CHG	Enter new/change data.
TYPE	FFC	Flexible Feature Codes.
CUST	0-99	Customer Number.
FFCT	YES	Provide FFC confirmation tone.
CODE	ELKA	New/change Electronic Lock Activate FFC.
ELKA	xxxx	Enter the new or changed Electronic Lock Activate FFC
ELKA	<CR>	
CODE	ELKD	New/change Electronic Lock Deactivate FFC.
ELKD	xxxx	Enter the new or changed Electronic Lock Deactivate FFC
ELKD	<CR>	

Feature operation**Electronic Lock Network Wide**

In this example, an MCDN ISDN network is set up connecting Node 1 to Node 2. Set A is the Controlling set. Set B is the set to be locked and unlocked by Set A. The digits that set A would dial to ring set B are to be in the format of a CDP or UDP dialing plan. This is standard dialing for ISDN features.

Figure 25
Network Electronic Lock



To lock set A (in Node 1) from set B (in Node 2), the user goes off-hook and dials the Electronic Lock Activate (ELKA) FFC defined in the Customer Data Block of Node 1, followed by the Station Password (SCPW) defined for set B, and the digits that set A would normally dial to ring set B (for example, 41 + 9999 + 6-343-3000).

If the FFCT option is configured as YES in LD 57 (in the Customer Data Block of Node 1), confirmation tone is provided to set A to confirm that the lock operation has been successful. Set B becomes locked if it was previously in an unlocked state.

If Set B was already locked, the above operation is ignored and Set B remains locked; however, a confirmation tone is provided to verify that the set is locked.

If the lock operation was unsuccessful, overflow tone is given.

To unlock set B (in Node 1) from set A (in Node 2), the user goes off-hook and dials the Electronic Lock Deactivate (ELKD) FFC defined in the Customer Data Block of Node 1, followed by the SCPW defined for set B and the digits that set A would normally dial to ring set B (e.g., 42 + 9999+ 6-343-3000).

If the FFCT option is configured as YES in LD 57 (in the Customer Data Block of Node 1), confirmation tone is given to set A to confirm that the unlock operation has been successful. Set B becomes unlocked if it was previously in a locked state.

If Set B was already unlocked, the above operation is ignored and Station B remains unlocked; however, a confirmation tone is provided to verify that the set is unlocked.

If the unlock operation was unsuccessful, overflow tone is given.

Electronic Lock on Private Lines

Feature operation of Electronic Lock for Private Lines is the same as for the basic Electronic Lock feature.

Controlled Network Class of Service

No specific operating procedures are required to use Controlled Network Class of Service.

Electronic Switched Network

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.

Electronic Switched Network (ESN) applications range from a single network node (combined PBX and network switching system) to a widely dispersed network with up to 256 locations. For complete information on Electronic Switched Network (ESN), refer to the *Meridian networking feature document* and *Electronic Switched Network Description*.

Basic Authorization Code

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

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 and Network Alternate Route Selection Description*.

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*.

Call Back Queuing to Conventional Mains

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

Coordinated Call Back Queuing

Coordinated Call Back Queuing (CCBQ) enables telephones eligible for Ring Again (RGA) at the Main to be offered CBQ when network calls are blocked at the serving Node. When facilities become available at the Node, the call originator at the Main is alerted by a callback (identical to an RGA callback) from the Node. Coordinated Call Back Queuing (CCBQ) requires that the Main and associated Node be equipped with Network Signaling. Refer to *Network Queuing description* 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 Meridian 1 switch within the CDP group.

X11 Release 15 and later software allows CDP to route 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 enhancement applies to CO, WATS, Data Terminal Interface (DTI), and Integrated Services Digital Network (ISDN) trunks.

CDP is described in detail in *Coordinated Dialing Plan Description*.

Flexible ESN “0” Routing

Flexible ESN “0” Routing (X11 Release 16 and later) allows the routing of calls on different routes based on a few predefined non-leftwise unique dialing sequences. “Leftwise unique” means that each entry cannot match the left most portion of any other entry in the table. For example, if “123” is an entry in the table, then no other entry may begin with “123.”

The ESN translation table will allow any or all of the following non-leftwise unique numbers (along with their associated route lists) to be entered into the ESN translation table:

- 0
- 00
- 01
- 011

Flexible ESN “0” Routing is part of the existing BARS (57) and Network Alternate Route Selection (NARS) (58) packages and has no interaction with other features besides these. Since NARS has two translation tables, two Flexible ESN “0” Routing data blocks will be included in NARS. This means that a call could be configured to route in two different ways.

This feature is applicable to all route types and network types supported by ESN. For information on the appropriate prompts and responses in Service Change (LD 90), refer to *X11 input/output guide*.

Network Alternate Route Selection

Network Alternate Route Selection (NARS) is an integral part of Northern Telecom’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 *Electronic Switched Network Description* and *Basic and Network Alternate Route Selection Description*.

BARS/NARS Incoming Trunk Group Exclusion

Incoming Trunk Group Exclusion (ITGE) is an enhancement to the BARS/NARS feature, offered on X11 Release 5 and later software. 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 *Electronic Switched Network Description* and *Basic and Network Alternate Route Selection Description*.

NARS Multiple DID Office Code Screening

Multiple DID Office Code Screening, offered on X11 Release 5 and later software, 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 (Prior to X11 Release 5, only this arrangement was addressed during on-net to off-net conversion.)
- single office code/multiple DN ranges
- multiple office codes/single DN range
- multiple office codes/multiple DN ranges

Operating parameters

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. It is offered on X11 Release 5 and later software.

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 on this enhancement is provided in *Electronic Switched Network Description* and *Basic and Network Alternate Route Selection Description*.

BARS/NARS 11-Digit Translation

This feature expands the ESN BARS/NARS translation capabilities from a maximum of four digits to a maximum of 11 digits for route selection.

Possible conflicts between translatable codes (NPA, NXX, LOC, SPN) are eliminated by 11-Digit Translation. By allowing translation of more than four leading digits, unique nonconflicting routing to a destination is possible. More than one route list can exist for each specific code of a type. For example, the NXX 727 could only translate into one route list previously.

With 11-Digit Translation, up to 128 route lists for BARS and up to 256 for NARS may be defined, extending translation deeper into the dialed code. The codes must be leftwise unique. If an NXX of 7271 is defined, any other 727 entries must be extended to four digits. Table 40 compares the number of digits that can be translated prior to X11 Release 8 with the present capability.

Table 40
Digit translation before and after X11 Release 8

Translation Type	X11 Release 7 and earlier software	X11 Release 8 and later software
LOC	3	3-7
HLOC	3	3-7
NPA	3-4	3-11
HNPA	3-4	3-4
NXX	3-4	3-8
SPN	1-4	1-11

BARS/NARS 11-Digit Translation is discussed in greater detail in *Electronic Switched Network Description* and *Basic and Network Alternate Route Selection Description*.

Network Authorization Code

The Network Authorization Code (NAUT) feature provides up to 20,000 authorization codes of 1 to 7 digits. X11 Release 13 and later software provides authorization codes of 1 to 14 digits. X11 Release 14 and later software allows 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 and Network Authorization Code Description*.

Network Call Transfer

Network Call Transfer (NXFER) enhances the operation of Call Transfer (XFER) between two switches when a call is transferred back to the originating switch. The regular Call Transfer feature requires two TIE trunks to complete the call. With Network Call Transfer (NXFER), if the call is transferred back to the originating switch as the same TIE trunk group, the originating switch completes the transfer within itself and the TIE trunks are dropped. For a detailed description of Network Call Transfer (NXFER) refer to *Basic and Network Alternate Route Selection Description*. 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).

Operating parameters

NXFER operates within the following parameters:

- Meridian 1 proprietary telephones must be equipped with a Call Transfer key.
- Network Signaling (NSIG) must be provided on both switches.

Network Signaling

Network Signaling (NSIG) provides a proprietary signaling protocol for transmission of network call information between switches that operate in a private network environment with Basic/Network Alternate Route Selection (BARS/NARS) or CDP. Network Signaling (NSIG) can be equipped at the Node and Main switches. For a detailed description of Network Signaling, refer to *Electronic Switched Network Description* and *Basic and Network Alternate Route Selection Description*.

NSIG supports transmission or reception of information between the following switch types:

- Meridian 1 Node to Meridian 1 Node
- Meridian 1 Node to Meridian 1 Main
- Meridian 1 Node to an Electronic TIE Network (ETN) switch

- Meridian 1 Main to Meridian 1 Node
- ETN switch to Meridian 1 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)

Operating parameters

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.
- Meridian 1 Node compatibility with Electronic TIE Network (ETN) switches is limited to seven-digit on-network and ten-digit off-network calls.

Network Traffic

The Network Traffic (NTRF) feature enables traffic data related to BARS, NARS, and CDP to be retrieved and output at a traffic TTY. The network traffic measurements (in addition to the switch traffic measurements) are described in detail in *Traffic measurement formats and output*.

Network Speed Call

Network Speed Call (NSC) enables a user who is normally restricted from making network calls to make such a call through BARS/NARS, provided that the destination is a number defined in a System Speed Call (SSC) list. When such a call is placed, the CLS and TGAR restrictions are lifted and a Network Class of Service (NCOS), associated with the SSC list, is assigned for the duration of the call. NSC is described in detail in *Electronic Switched Network Description* and *Basic and Network Alternate Route Selection Description*.

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 *Network Queuing Description*.

Operating parameters

Refer to the appropriate Northern Telecom Publication for each ESN feature.

Feature interactions

Refer to the appropriate Northern Telecom Publication for each ESN feature.

Feature packaging

Basic Authorization Code (BAUT) package 25 requires:

- Charge Account/Authorization Code (CAB) package 24

Basic Alternate Route Selection (BARS) package 57 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32

Coordinated Dialing Plan (CDP) package 59 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32
- Flexible Call Back Queuing (FCBQ) package 61

Network Alternate Route Selection (NARS) package 58 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32

Network Authorization Code (NAUT) package 63 requires:

- Charge Account/Authorization Code (CAB) package 24
- Basic Authorization Code (BAUT) package 25

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58, or
- Coordinated Dialing Plan (CDP) package 59

Network Call Transfer (NXFR) package 67 requires:

- Network Class of Service (NCOS) package 32
- Network Signaling (NSIG) package 37

Network Signaling (NSIG) package 37 requires:

- Network Class of Service (NCOS) package 32

Network Traffic (NTRF) package 29 requires at least one of the following:

- Basic Alternate Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58
- Coordinated Dialing Plan (CDP) package 59
- Priority Queuing (PQUE) package 60
- Flexible Call Back Queuing (FCBQ) package 61, or
- Off Hook Queuing (OHQ) package 62

Network Speed Call (NSC) package 39 requires:

- System Speed Call package (SSC) package 34

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57, or
- Network Alternate Route Selection (NARS) package 58

Off Hook Queuing (OHQ) package 62 requires

- Basic Queuing (BQUE) package 28

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57, or
- Network Alternate Route Selection (NARS) package 58.

Feature implementation

Refer to the appropriate Northern Telecom Publication for each ESN feature.

Feature operation

Refer to the appropriate Northern Telecom Publication for each ESN feature.

Emergency Services Access

Purpose of this overview

The purpose of this overview is to provide a synopsis of the Emergency Services Access (ESA) feature description. For complete information on ESA, please refer to *Emergency Services Access Feature Description and Administration* (553-3001-313).

Emergency Services Access feature overview

Emergency Services Access (ESA) is a totally new 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).

The focus of the Emergency Services Access (ESA) feature is to provide the following capabilities:

- A special ESA Directory Number access (such as 911) can be defined to access emergency services. This number can be dialed without having to first dial an ESN access code.
- The Meridian 1 recognizes that the dialed ESN DN is an emergency call, and provides special treatment.
- Route the call to special trunks designated to handle ESA calls (either dedicated to handle only ESA calls, or shared to handle other types of calls as well).

- Provide flexible Automatic Numbering Identification (ANI) number translation for non-DID numbers (and for DID numbers, if desired by the customer).
- Send out the ANI of the station with the call, so that the PSAP can use it to determine the caller's location.
- Support a networking environment, that is, where the ESA call is originated on one node, and then routed across the network to another node for onward routing into the Public Network and the PSAP.
- Provide On-site Notification, so that the customer's staff knows that an ESA call is in progress.

There are four major components of ESA that provide the functionality described above.

With 'ESA Call Recognition' an Emergency Services Access DN (such as 911) can be configured on the Meridian 1. When a caller dials the ESA DN (there is no need to first dial an Access Code), the Meridian 1 automatically recognizes the call as an Emergency Services Access call and sets up special treatment.

With 'ESA Call Routing' outgoing trunk routes may be designated to handle ESA calls.

With 'ESA Calling Terminal Identification' the Meridian 1 composes an ESA calling number for outgoing ESA calls.

With 'On Site Notification' a Meridian 1 output device (such as a terminal or a set) may be configured to provide an on-site alerting capability for ESA calls. The last two capabilities allow emergency and security personnel to respond more promptly in the event of an ESA call.

Packaging

ESA is comprised of three different packages, which must be implemented separately depending on the functionality that a customer desires (as outlined in the Feature implementation section on page 860).

The Emergency Services Access (ESA) package 329 provides ESA Call Recognition, ESA Call Termination Identification, and ESA Call Routing. It also provides basic number translation, such as the addition of NXX and NPA (area and office) codes, but not non-DID to DID translation (this is provided by the ESA_CLMP package). The ESA_SUPP package provides supplementary capabilities, such as networking capabilities (for example, incoming ISDN to CAMA number conversions), and On Site Notification. The ESA_CLMP package provides translation of non-DID to DID numbers.

System configurations

The most common Meridian 1 system configurations that are possible with ESA are as follows:

- non-networking, handling DID ESA calls or non-DID ESA calls
- networking configuration, handling ESA calls for the following scenarios:
 - Non-ISDN network, originating node is non-Meridian 1
 - Non-ISDN network, originating node is a Meridian 1
 - ISDN network, originating node is non-Meridian 1
 - ISDN network, originating node is a Meridian 1
- standalone configuration (on-site call answering). A standalone configuration is one where ESA calls are answered on the business premises, rather than being forwarded to the PSAP. The calls, however, may then be redirected to the PSAP, if required.

Feature implementation

The following steps are required to implement ESA:

- 1 Modify the customer CLID database to allow ESA calling number composition, using Overlay 15.
- 2 Configure CLID entries for non-ISDN routes, so that when an incoming non-ISDN trunk initiates a tandem ESA call, the ESA Calling Terminal Identification function will compose an ESA calling number to identify the incoming trunk. This is done using Overlay 16.
- 3 Configure a CLID entry for analog (500/2500 type) sets, Meridian 1 proprietary sets, and Basic Rate Interface (BRI) sets, using Overlays 10, 11, and 27 respectively.
- 4 Configure OSN Notification data:
 - Configure an OSN output device using Overlay 17.
 - Configure an OSN set using Overlay 11.
 - Configure terminal designator (DES) data for (500/2500 type) sets, Meridian 1 proprietary sets, and BRI sets, using Overlays 10, 11, and 27 respectively.
- 5 Configure ESA:
 - Configure ESA data using Overlay 24.
 - Configure ESA route data using Overlay 16.
 - If BARS/NARS is used, configure ESA digit manipulation and call routing using Overlay 86, and ESA call recognition using Overlay 90. This is to allow Access Code + Emergency Services Directory Number (ESDN) dialing to be recognized and treated as an ESA call.

End-to-End Signaling

The End-to-End Signaling (EES) feature enables a station to send Digitone end-to-end signaling through an established outgoing connection. Prior to X11 Release 19, the signaling to both originating and terminating parties consists of digits in Dual-tone Multifrequency (DTMF) code. With X11 Release 19 and later, improved EES provides faster, more reliable service, and also provides an optional feedback tone to the originator, as specified in LD 56. In addition, improved EES eliminates the use of a conference loop for sending EES tones to the connected parties.

To use improved 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).

Customers requiring DTMF feedback tone should continue to use the original EES support. This support, provided in X11 Release 18 and earlier, is also provided as an option in X11 Release 19 and later (in LD 15, set EEST = YES, DTMF = YES). Customers who do not need DTMF tones, however, should use improved EES, provided in X11 Release 19 and later.

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

With X11 Release 16 and later, 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.

Release 19 improved EES makes no changes to the attendant operation. Like any other telephone, the Attendant Console can use improved EES (Release 19 and later) or enhanced EES (Release 5 and later).

Operating parameters

X11 Release 5 and later software enables a telephone to send and receive DTMF codes, thereby extending the EES capability to internal analog (500/2500 type) telephone calls and incoming trunk calls.

EES was only applicable on established outgoing calls on X11 Release 4 and earlier software.

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.

Prior to X11 Release 19, there must be a conference loop and Tone and Digit Switch (TDS) slot available to perform End-to-End Signaling. By choosing improved EES in Release 19, you can eliminate 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.

EES 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 (AEES)

An Attendant Console in AEES 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 (ATX)

EES is used to send the Automatic Dialing (ADL) digits to the Public Exchange/Central Office (CO). Prior to Release 20, the 911 agent manually dials the digits, which are outpulsed to the CO as EES digits. With 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.

When you combine manual dialing with the ADL key, if EEST = YES and DTMF = YES in LD 15 (X11 Release 5 EES), you hear the DTMF feedback tone as a result of manual dialing and a single feedback tone (X11 Release 19 feedback tone) as a result of pressing the ADL key. To get uniform feedback tone when using the ADL key along with manual dialing, set the DTMF prompt to NO in LD 15 (X11 Release 19).

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 (CDR) Record

An option in the Customer Data Block (LD 15) defines whether EES digits should be captured in the CDR record or not. This can prevent EES digits that contain sensitive information, like account numbers and passwords, from appearing in the CDR record.

Conference End-to-End Signaling

Improved EES (Release 19) does not apply when the parties are in a conference call. Conference EES works as it did prior to Release 19: 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 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 Master Mode connectivity.

In the case of tandem with ISDN trunks, the necessary information to allow the End-to-End Signaling feature is tandemmed to the ISDN trunk. At this point, it becomes the responsibility of the end user switch to provide the End-to-End Signaling service.

Multi-Party Operations – Three-Party Service

The party receiving the patience tone or the Misoperation ringback is not able to use EES.

Silent Observe

Improved 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.

AEES Feature interactions**Attendant Administration**

While in the Attendant Administration mode, pressing the AEES key is ignored.

**Attendant Barge-In
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.

Conference

While in AEES mode, the receiving party cannot initiate a conference call.

Digit Key (Meridian Hospitality Voice Services)

Attendant End-to-End Signaling and Digit Key are mutually exclusive. Being in AEES mode overrides the use of the Digit Key.

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.

Night Service
Position Busy
Centralized Attendant Service

These features work together with AEES. However, do not press one of these feature keys while using AEES, or the DTMF signals may be blocked.

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.

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

LD 15 – Enable End-to-End Signaling tone feedback.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- - EEST	(NO), YES	NO = No EES feedback tone is given to the telephone. YES = EES feedback tone is given; the type is defined by the DTMF prompt.
- DTMF	(NO), YES	NO = Use the improved EES for single feedback tone. YES = Use the current EES for DTMF feedback tone. For Option 11, DTMF should be set to NO.
...		

TYPE	CDR	Release 21 gate opener.
- ECDR	(NO), YES	NO = Do not capture EES digits in the CDR record. YES = Capture EES digits in the CDR record.

LD 12 – Add End-to-End Signaling key to Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx EES	Add EES key (xx = key number) (cannot be key 0 or 1).

LD 56 – Specify the cadence for the EES feedback tone.

Prompt	Response	Description
REQ	CHG, NEW	Change, or add.
TYPE	FTC	Flexible Tones and Cadences.
TABL	x	FTC table number.
HCCT	YES	Hardware Controlled Cadence.
EEST		No response expected; this is an informational prompt.
- TDSH	i bb cc tt	TDS external, burst, cadence, and tone.
- XTON	0-255	NT8D17 TDS tone code.
- XCAD	0-255	NT8D17 cadence code for FCAD.

Feature operation

No specific operating procedures are required to use this feature.

End-to-End Signaling Display Enhancement

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 Meridian 1 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.

EESDSP 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. For QCW4 type Attendant Consoles, the digits appear on the one line display. For M1250 and M2250 type Attendant Consoles, the digits appear on the second line of the display. If disabled, the Attendant Console display does not change.

Call Party Name Display (CPND)

With the EESDSP option enabled, EES digits appear after the Call Party Name Display (CPND) name of the connected party. Initial digits and name characters may move out of the display window if necessary.

With the EESDSP option disabled, the set display does not change from the established CPND display.

Conference End-to-End Signaling

The EESDSP option changes the display of the EES digits as dialed for all the EES features, including Conference EES.

End-to-End Signaling

The EESDSP option has no effect on the digits dialed before the system is in EES mode. In EES mode, digits dialed from a set with a digital display appear on the display when the EESDSP option is enabled. When you disable the EESDSP option, the display does not show the dialed EES digits.

Improved End-to-End Signaling

The EESDSP feature changes the display of EES digits the same for both Improved End-to-End Signaling (IEES) and EES.

Feature packaging

The End-to-End Signaling Display Enhancement (EESDSP) feature requires End-to-End Signaling (EES) package 10.

Feature implementation

LD 15 – Enable the End-to-End Signaling Display Enhancement feature.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Customer Features and options.
CUST	xx	Customer number.
....		
EEST	(NO) YES	EES Tone to originating party. Do not send feedback to the originator. Send feedback tone to the originator. In Release 19 and later, enhanced EES signaling is provided when EEST=YES and DTMF=NO.
- DTMF	(YES) NO	EES feedback tone. Use the current EES for DTMF feedback tone. Use the Improved EES (Release 19) for single tone feedback (only prompted if EEST=YES).
EESD	(NO) YES	EES digit display. Do not display the EES digits. 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

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). Northern Telecom 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.

Northern Telecom complies with the FCC Equal Access rules in dockets 90-313, 91-35, and their appendixes, in a software up-issue of X11 Release 14 (14.59 or later), and X11 Release 17 and later. X11 Release 19 supports the expanded codes described in the following section.

Note: X11 Releases 15 and 16 do not support Equal Access.

Carrier Access Code

Prior to the first quarter of 1995, the CAC is defined as 10XXX, where '10' is the Equal Access identifier and XXX is the CIC. During the first quarter of 1995, Carrier Identification Code Expansion will occur. The CAC will become 101XXXX (an Equal Access identifier of '101' followed by a four-digit CIC). For a period of approximately 18 months following introduction of the new format, both old and new formats will be accepted. During 1996, support for the 10XXX format will terminate. Meridian 1 software permits both formats.

Equal Access dialing plans

X11 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 (10XXX or 101XXXX)

NPA = Numbering Plan Area (area code in the North American Numbering Plan)

NXX = end-office code
(N = any digit except 0 or 1; X = any digit (0–9))

XXXX = any four digits

CC = Country Code

NN = National Number

Route types

Equal Access Compliance supports COT, FEX, WAT, DID, and TIE routes.

A TIE route is supported only if standard signaling is specified in LD 16 (SIGO = STD). To enable Equal Access call restrictions to function properly, Digital Trunk Interface (DTI) TIE routes must be voice only. (DTI TIE routes configured as voice/data are not supported for connection to a Public Exchange/Central Office.) TIE routes must be either outgoing or incoming/outgoing (ICOG = IAO or OGT).

Call restriction

Call restriction relies on fixed pattern recognition to determine which calls can be denied. Switch administrators can restrict two kinds of direct-dialed Equal Access calls: North American calls with the 101XXXX+1+NPA+NXX+XXXX format and international calls with the 101XXXX+011+CC+NN format. If either restriction option is chosen, the administration must verify that the Original Carrier Access Code (OCAC) flag is correctly set.

Call restrictions do not affect attendant calls.

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

Operating parameters

There are no feature requirements.

Feature Interactions

There are no interactions with other features.

Feature packaging

Equal Access compliance is included in base X11 software. Network Class of Service (NCOS) package 32 is required to configure Equal Access.

Feature implementation

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; Northern Telecom 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 Meridian 1 end of dial timers, End-of Dial Timer for non-Digitone Trunks (EOD) and End-of Dial-Timer for Digitone Trunks (ODT), are defaulted to 14 and four seconds respectively. ODT can be raised to seven seconds to prevent Digitone stations from bypassing Equal Access restrictions of Digital Distance Dialing international calls.

The interdigit timeout for non-leftwise-unique prefixes 0 and 01 is fixed for a given carrier network. Therefore, Equal Access connects the call to the Central Office trunk if the user dials Carrier Access Code + 0 and allows the end-of-dialing timer to expire. Equal Access blocks the same call if the caller presses the octothorpe (#) key and cancels the EOD or ODT. The caller cannot bypass the EQAR prompt in LD 16 provided that the EOD and ODT are set long enough to exceed the inter-digit timeout on the carrier networks.

Before and during the permissive period, when both the three-character and the four-character CIC are allowed, current Equal Access users must set the Original Carrier Access Code (OCAC) flag to YES in LD 17. The default is NO, indicating that only the new CAC format is acceptable. A YES setting for OCAC in LD 17 lets customers use both the original and the new CAC formats. All customers who currently have Equal Access configured should set OCAC to YES in LD 17 immediately after SYSLOAD when installing new software that includes the new expansion feature. When the original CAC is no longer acceptable (sometime in 1996), OCAC should be set to NO.

New Equal Access customers do not need to change the OCAC flag until the feature is configured.

Feature operation

No specific operating procedures are required to use this feature.

BARS/NARS routing

Equal Access determines restrictions without looking at a call's originating type (ESN or Direct Access). Routing has no effect on Equal Access call restriction: calls receive the same restriction treatment whether they originate from a trunk access code or from BARS/NARS. Equal Access is not a BARS/NARS feature and does not require BARS/NARS dialing.

To configure BARS/NARS to route Equal Access calls, simply use a special number (SPN) of 10 (the Equal Access code) to identify the calls as Equal Access calls and route them accordingly.

Example

Configure BARS/NARS for Equal Access call routing, assuming that calls originate from Customer 0 and go out over Route 10. To route Equal Access calls originating from Customer 0 over Route 10, using route list index 100 and access code 1 (AC1), configure the database as follows.

The configuration in this example routes all Equal Access calls placed through BARS/NARS with access code 1 (AC1) over route 10. Note that the SPN is "10," to support the original CIC format, rather than "101," as required under the new CIC format. Set the SPN to "101" if support for the original CIC format is unnecessary or if another dialing sequence beginning with "10" is introduced into North American Numbering Plan.

LD 17 – Set OCAC as appropriate.

Prompt	Response	Description
REQ	CHG	Change existing route data.
TYPE	CFN PARM	Configuration Record. Release 19 gate opener.
PARM	YES	Change system parameters.
- NDRG	(NO), YES	(Disable) enable new distinctive ringing.
- OCAC	(NO), YES	Support original CAC format (must be set to YES during interim period, NO following interim period).

LD 86 – Set the route list index to Route 10.

Prompt	Response	Description
REQ	NEW, CHG	Create, or change database.
CUST	0-99	Customer number.
FEAT	RLB	Route List Block.
RLI	100	Use route list index 100 to route Equal Access calls.
ENTR	0	Route entry number for this route list index (0 if this is the first entry).
ROUT	10	Send Equal Access calls over Route 10.

LD 90 – Establish an SPN for the Equal Access code.

Prompt	Response	Description
REQ	NEW	New ESN translation table entry.
CUST	0-99	Customer number.
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	10	SPN (Equal Access code).
RLI	100	Use route list index 100 to route Equal Access calls.

LD 87 – Configure a NCOS for Equal Access.

Prompt	Response	Description
REQ	CHG	Change NCTL data.
CUST	0	Customer number.
FEAT	NCTL	Change NCTL block.
NCOS	4	Network Class of Service group number.
EQA	YES	This NCOS permits Equal Access call restriction capabilities.

LD 10 or LD 11 – Assign a NCOS to a set.

Prompt	Response	Description
REQ	CHG	Change existing set data.
TYPE	aaa	Specify set type.
TN	l s c u	Terminal Number.
NCOS	4	Network Class of Service group number.

LD 16 – Enable Equal Access for this route.

Prompt	Response	Description
REQ	CHG	Change existing route data.
TYPE	RDB	Change Route Data Block.
CUST	0	Specify customer number.

ROUT	10	
EQAR	(NO), YES	Enter YES to enable Equal Access and selective blocking for this route. A YES response triggers the next two prompts.
- NTOL	(DENY), ALLOW	Specify that Equal Access North American calls billed to originating telephone are to be denied.
- ITOL	(DENY), ALLOW	Specify that Equal Access international calls billed to originating telephone are to be denied.

The configuration in this example routes Equal Access calls placed via NARS/BARS using AC1 over route 10 and blocks all Equal Access toll calls for NCOS = 4. Note that Equal Access toll calls placed via direct trunk access to route 10 also will be blocked.

Feature operation

No specific operating procedures are required to use this feature.

Fast Tone Digit Switch

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 output 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 Meridian 1 system.

Feature interactions

There are no interactions with other features.

Feature packaging

Fast Tone and Digit Switch (FTDS) package 87 has no feature package dependencies.

Feature implementation

LD 17 — Change duration of Digitone burst.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. Release 19 gate opener.
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.

Flexible Direct Inward Dialing

Prior to the introduction of the Flexible Direct Inward Dialing (FDID) feature, hotels's 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 Meridian 1 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).

When a guest checks into a hotel and requests a direct line to their room, the request is entered in the PMS or BGD. A PMS message is then sent to the Meridian 1 to associate the FDID to the guest's room set.

When a guest checks out, a PMS message is sent to the Meridian 1 to cancel the FDID number associated to the guest's room set. The canceled FDID DN is then returned to the PMS system as an available DID and can be assigned to another guest. Incoming calls to a canceled FDID DN are rerouted to the Attendant DN.

Note: The range of available FDID DNs must be large enough so the same DN is not reassigned immediately.

Only incoming DID calls are affected by FDID. Outgoing calls and room to room calls are not affected.

Operating parameters

If a system has both the PMS and Background Terminal, use the PMS to assign or cancel FDIDs to ensure the database between the Meridian 1 and the PMS is updated properly. It is not recommended to use the BGD to assign or cancel FDID DNs if a PMS is present due to the following operating parameters:

- When a FDID number is cancelled, the FDID is returned to an unused pool of numbers to be managed by the PMS system. If a background Terminal is used, these FDID number have to be managed manually.
- DID assignment and DID cancellation messages sent from the Background Terminal are not echoed to the Property Management System. Since the PMS is not aware of such changes, its database may be out of synch with the Meridian 1. Therefore, it is recommended that the new DID assignment/cancellation messages not be done via the BGD if a PMS system is present.
- As per existing operation, the PMS will drive the database resynchronization between the PMS and Meridian 1 database. Messages are sent from the PMS to the Meridian 1 to update the Meridian 1 database. If the Meridian 1 database is updated more frequently than the PMS database, use the Room Status Print command on the BGD to print the list of room DNs that associate with the FDID DNs. Corresponding changes can then be made to the PMS database.

If a PMS is present, software changes are required by the PMS.

A room set is defined with Controlled Class of Service Allowed (CCSA). The following sets are supported as room sets:

- Analog (500/2500 type) sets
- SL-1 and M1309 sets

- Meridian digital sets
 - M2009
 - M2012
 - M2018
 - M2112
 - M2616
 - M2317

The M3000, and ACD sets are not supported as room sets. Flexible Direct Inward Dialing is not supported on sets with DTA (data terminal allowed) Class of Service.

Feature interactions

Call Redirection

All Call Redirection by the room DN will apply to the associated DID DN. If the DID DN is forwarded to voice mail, then the external call to the room set is forwarded to voice mail.

Hospitality Management

The FDID feature simultaneously exists with the Hospitality Management (HOSP) feature but cannot share the same Incoming DID Digit Conversion (IDC) table.

Room Status

The FDID feature modifies the print format to include the FDID DN for each room DN. Refer to the *Input/Output guide* for print commands.

Feature packaging

The Flexible Direct Inward Dialing (FDID) requires package 362 along with the following packages:

- New Flexible Code Restriction (NFCR) package 49
- Controlled Class of Service (CCOS) package 81
- Background Terminal (BGD) package 99
- Incoming DID Digit Conversion (IDC) package 113

A system supporting PMS requires the Property Management System Interface (PMSI) package 103 that requires:

- Controlled Class of Service (CCOS) package 81
- Background terminal (BGD), package 99
- Room Status (RMS), package 100

Feature implementation

This section contains the overlay procedures required to configure the Flexible Direct Inward Dialing feature on a Meridian 1.

The required procedures are as follows:

- Configure maximum of Incoming Digits allowed, using LD 15.
- Create a table to convert incoming Direct Inward Dialing digits, using LD 49.
- Assign the FDID table number to the digit conversion for required DID trunk routes, using LD 16.

LD 15 - Configure maximum of Incoming Digits allowed.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	FCR	New Flexible Code Restriction.
CUST	xx	Customer number to be assigned with this feature. xx = 0-99 for Options 51C - 81/81C. xx = 0-31 for Option 11C.
...	...	
IDCA	YES	Incoming DID Digit Conversion allowed. (NO) Incoming DID Digit Conversion denied is the default.
- DCMX	1-255	Maximum number of IDC conversion tables.

LD 49 –Create conversion list of incoming Direct Inward Dialing digits.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	IDC	Incoming Digit Conversion.
CUST	xx	Customer number, as defined in LD. xx = 0-99 for Options 51C, 61C, 81 and 81C. xx = 0-31 for Option 11C.
DCNO	1-254	Digit Conversion Tree number (IDC tree number). Note: Number 0 is not allowed for IDC tree number.
FDID	YES	Flexible DID IDC tree. (NO) is the default.
IDGT	0-9999 0-9999	Incoming Digits (DN or range of DNs to be converted).

LD 16 - Enable digit conversion for required DID trunk routes.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD. xx = 0-99 for Options 51C, 61C, 81 and 81C. xx = 0-31 for Option 11C.
ROUTE	xxx	Route number of DID route. xxx = 0-511 for Options 51C, 61C, 81 and 81C. xxx = 0-127 for Option 11C.
...	...	
IDC	YES	Incoming DID Digit Conversion allowed. (NO) Incoming DID Digit Conversion denied is the default.
- DCNO	(0)-254	Day IDC tree number as defined in LD 49 for this feature.
- NDNO	(0)-254	Night IDC tree number as defined in LD 49 for this feature.

Feature operation

Print FDID DN settings

You can use your BGD to print out the status of a guest room DN with these settings:

For one DN:

PRint STatus <room DN> **FD**

For a group of consecutive DNs:

PRint STatus <room DN1> <room DN2> **FD**

For all DNs:

PRint STatus **ALl** **FD**

PMS messages sent to the Meridian 1

Flexible Direct Inward Dialing (FDID) contains the following list of messages sent by the PMS to the Meridian 1:

- To assign a temporary DN to the room set:
SE ST <room DN> FD <did DN>
where SE = SEt, ST = SStatus, FD <did DN> =
DID Assignment message.
- To cancel a temporary DN from the room set:
SE ST <room DN> FD Off
where SE = SEt, ST = SStatus, <room DN> = A single room DN,
FD X = DID Cancelation message.
- To cancel temporary multiple DNs to room sets:
SE ST <room DN1> <room DN2> FD Off
where SE = SEt, ST = SStatus, <room DN1> <room DN2> =
A range of room DNs
- To cancel temporary multiple DNs from the room sets:
SE ST AL FD Off
where SE = SEt, ST = SStatus, AL = AL1 room DNs, FD X =
DID Cancelation.

An unassigned DID DN trunk call is directed to the Attendant DN.

Note: The FDID feature does not support the FIND command.

Flexible Feature Codes

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 enhancement allows the use of digits 0 through 9, and the asterisk (*) and octothorpe (#) to activate features. The existing Special Prefix (SPRE) dialing feature is still supported, with or without the FFC feature enabled. However, the Special Prefix (SPRE) must be assigned in LD 15 in order for FFCs to operate for those features that also use SPRE codes.

The FFC package allows analog (500/2500 type) telephones to activate these features:

- Automatic Wake Up (AWU)
- Electronic Lock (ELK)
- Override, and
- Remote Call Forward (RCFW).

Customers define one or more codes at their discretion in LD 57 (FFC). For Service Change updates, refer to the *X11 input/output guide*.

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 via FFC only if that telephone can currently access the same feature via 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 Meridian 1 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) and digital 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.

X11 Release 15 and later software supports Flexible Feature Codes.

The FFCs selected must be unique numbers up to seven digits long. They cannot conflict with any Directory Number (DN) already in the dialing plan.

LD 57 can allow no more than 100 FFCs to be modified in a single pass through Service Change.

Customers using the octothorpe (#) as part of their dialing plan can use a predefined string of digits for end-of-dialing indicators.

Changes to the Station Control Passwords (SCPWs) do not take effect until after a data dump and SYSLOAD. Configuring the system or enabling the feature changes SCPL = 0 in LD 15 to any length. This change takes effect immediately. Any other change to SCPL in LD 15 requires a data dump and SYSLOAD before taking effect. When the Station Control Password Length (SCPL) is changed, all associated passwords change accordingly at the next data dump and SYSLOAD. Changing SCPL from three to five automatically inserts leading zeros before all existing three-character passwords. Conversely, changing SCPL from five to three automatically truncates the leading characters of all existing five-character passwords.

Feature interactions

Attendant and Network-Wide Remote Call Forward

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.

Attendant Blocking of Directory Number

If a Flexible Feature Code is dialed after pressing the SACP key to initiate an Attendant Blocking of DN attempt, overflow tone will be provided and the attempt canceled.

Automatic Wake Up

Telephones can activate Automatic Wake Up (AWU) features for their own station with Common Controlled Switching Arrangement Class of Service.

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.

Controlled Class of Service (CCOS)

If Electronic Lock (ELK) is activated, the CCRS Class of Service is used whether 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 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 (i.e., 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 (i.e., 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.

ISDN QSIG Call Completion

Analog (500/2500 type) set can use Flexible Feature Codes (FFCs) to activate Call Completion to Busy Subscriber requests.

Special Prefix (SPRE)

Users are still able to use SPRE dialing (if the feature is enabled) with or without FFC defined.

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

LD 15 – Set parameters for Flexible Feature Code.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB CCS	Customer Data Block. Release 21 gate opener.

CUST	0-99	Customer number.
- CCRS	aaa	Controlled Class of Service (CCOS) (assigned when Electronic Lock (ELK) is activated), where: aaa = UNR (Unrestricted), TLD (Toll Denied), CTD (Conditionally Toll Denied), CUN (Conditionally Unrestricted), SRE (Semi-restricted), FRE (Fully Restricted), FR1 (Fully Restricted Level 1), FR2 (Fully Restricted Level 2).
TYPE	FFC	Release 21 gate opener.
- SCPL	x	Station Control Password Length (SCPL), 0-8. Entering 0 disables ELK and Remote Call Forward (RCFW) features at next data dump and SYSLOAD.
- FFCS	(NO), YES	(Do not) change FFC end-of-dialing indicator.
- - STRL	x	String length 1-3 (prompted only if FFCS = YES).
- - STRG	aaa	Character string to be used (up to string length; prompted only if FFCS = YES).

LD 10 – Set Station Control Password Length for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
SCPW	xx...xx X	Station Control Password (must be same length as SCPL in LD 15; enter X to delete password).
CLS	CCSA	Enable CCOS for Electronic Lock (ELK) and Remote Call Forward (RCFW).

LD 11 – Set Station Control Password Length for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
SCPW	xx...xx	Station Control Password. Must be the same length as SCPL in LD 15.
	X	Enter X to delete the password. Delete the password only if SCPL = 0; otherwise receive an error code for no password to fit the SCPL.
CLS	CCSA	Enable CCOS for ELK and Remote Call Forward (RCFW).

LD 57 — Define numbers for Flexible Feature Code.

Prompt	Response	Description
REQ	NEW, CHG, OUT	Build new FFC data block, change FFC data block, remove FFC code.
TYPE	FFC	Flexible Feature Codes.
CUST	0-99	Customer number.
FFCT	(NO), YES	FFC Confirmation Tone.
CEPT	(NO), YES	Conférence Européen des Postes Tel defaults are (not) allowed, to be defined (prompted only if REQ = NEW).
REP*	n <CR>	Single-character replacement for * and # in CEPT defaults. Create defaults only.
ALL	(NO), YES	(Do not) remove all FFCs (prompted only if REQ = OUT).
CODE	aaaa ALL <CR>	FFC type. All prompts. No prompts.
- ASRC	xxxx	Automatic Set Relocation code.
- ATDA	xxxx	Autodial Activate code.
- ATDD	xxxx	Autodial Deactivate 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.
- CDRC	xxxx	Call Detail Recording Charge Account code.
- 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.
- 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.
- GRPF	xxxx	Group Call code.
- GRCL	xxxx	Group Call List number.
- 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.
- IMS	xxxx	Integrated Message System Access code.
- LILO	xxxx	Log-in, Log-out code for analog (500/2500 type) ACD telephones.
- MNTC	xxxx	Maintenance Access code.
- MSBA	xxxx	Make Set Busy Activate code.
- MSBD	xxxx	Make Set Busy Deactivate code.
- MTRC	xxxx	Malicious Call Trace code.

- MWRA	xxxx	Multiple Wake Up Repeat Activate code.
- MWUA	xxxx	Multiple Wake Up Activate code.
- MWUD	xxxx	Multiple Wake Up Deactivate code.
- NRDY	xxxx	Not Ready Activate or Deactivate code for analog (500/2500 type) ACD telephones.
- OVRD	xxxx	Override/Priority Override code.
- PUDN	xxxx	Pick Up Directory Number 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.
- 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.

- SPCC	xxxx	Speed Call Controller code.
- SPCU	xxxx	Speed Call User code.
- SSPU	xxxx	System Speed Call User code.
- TFAS	xxxx	Trunk Answer from Any Station code.
- TRMD	xxxx	Terminal Diagnostics code.
- TRVS	xxxx	Trunk Verification code.
- USCR	xxxx	User Selectable Call Redirection.
- USTA	xxxx	User Status code.

Feature operation

For some features, the user can dial a different FFC to activate or deactivate a feature or to verify some feature operations. The tone for each event (activate, deactivate, verify) is the same as the default Confirmation Tone (special dial tone).

The Electronic Lock and Remote Call Forward FFCs are described here because Electronic Lock is packaged with Flexible Feature Codes and affects Remote Call Forward.

For information about using FFCs for other features, see the individual feature descriptions.

Electronic Lock

Electronic Lock (ELK), packaged with FFC, provides an SCPW for changing the status from the telephone. The SCPW also protects against changes to the Remote Call Forward (RCFW) feature. Entering a password length of 0 in LD 15 (SCPL) disables password control for both ELK and RCFW. Operating ELK requires enabling CCOS package 81.

To change the Class of Service from a telephone:

- 1 Dial the Electronic Lock Activate (ELKA) code.
- 2 Dial the SCPW. The telephone's Class of Service is changed to the CCRS value defined in LD 15.

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

- 1 Dial the Electronic Lock Deactivate (ELKD) code.
- 2 Dial the SCPW. The telephone's Class of Service is changed to the values defined in LD 10 and LD 11.

Because the Class of Service defined for CCRS in LD 15 is usually lower than the Class of Service defined in LD 10 or LD 11, the Class of Service for a telephone is lowered by dialing the Electronic Lock Activate (ELKA) FFC and the password associated with that telephone. The user can activate from a remote telephone by dialing the ELKA FFC, the SCPW and the Directory Number to be changed. The same operation can deactivate the feature, using the Electronic Lock Deactivate (ELKD) code programmed in LD 57.

ELK operation has the following requirements:

- CCOS allowed, with CCSA Class of Service in LD 10 and LD 11, and CCRS defined in LD 15
- Set the password length in LD 15, at the SCPL prompt
- Add passwords in LD 10 and LD 11, at the SCPW prompt, and
- FFCT = YES in LD 57.

To change the SCPW for ELK:

- 1 Select a free extension.
- 2 Dial the SCPC code.
- 3 Dial the SCPW for your telephone.
- 4 Dial the new password.
- 5 To confirm, dial the new password again.
- 6 Hang up or press **Rls**.

Flexible Numbering Plan

The Flexible Numbering Plan (FNP) feature allows any station in the network to be represented by a flexible number of digits up to a maximum of 10 digits. FNP allows flexibility for the length of the location codes from node to node. Also, the total number of digits to dial a station can be different for different stations. It allows a network to function with location codes and DNs of varying lengths. It can be used under the Coordinated Dialing Plan, universal numbering plan or the group dialing plan to provide varied network configurations.

For detailed information about FNP, see *Flexible Numbering Plan description, operation, and administration* (553-2751-105).

Flexible Orbiting Prevention Timer

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 via 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.

This enhancement to the Orbit Prevention feature allows the Flexible Orbiting Prevention Timer (FOPT), previously fixed at 14 seconds, 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 feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

Flexible Orbiting Prevention Timer is included in base X11 system software.

Feature implementation

LD 15 – Respond to the new FOPT prompt by entering an even value between 0-30 seconds, to define the Orbit Prevention Timer.

Prompt	Response	Description
...		
FOPT	0-(14)-30	Flexible Orbiting Prevention Timer. The number of seconds in two-second intervals that CFW should be suspended on a set that has just forwarded a call off node. If an odd number is entered, the number is rounded up to the next even number, and the message "FOPT ROUNDED TO xx" is printed.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Trunk to Trunk Connections

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 Meridian 1 user can conference two or more trunks and then drop out of the conference, leaving the other trunks connected. This is an unsupervised Conference.

When Flexible Trunk to Trunk Connections is used in conjunction with the Trunk Barring feature, **one** of the following options may be selected:

- Additional set level restrictions can be added to the existing Customer level Trunk Barring.
- The restrictions placed by Trunk Barring, based upon the set's Flexible Trunk to Trunk Connections Class of Service, can be lifted.
- All set based trunk to trunk connections can be controlled for Conference and Transfer, depending upon the set's Flexible Trunk to Trunk Connections Class of Service, whether or not the route is barred by TBAR.

The functionality of the Flexible Trunk to Trunk Connections feature is activated by Flexible Trunk to Trunk Connections Options (FTOP prompt) in the Customer Data Block and controlled by the Station's Class of Service. The options that are available at a Customer level are dependent upon whether or not Trunk Barring (package 132) is configured.

Functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured

When Flexible Trunk to Trunk Connections is used without Trunk Barring configured, the following Classes of Service are provided at a set level:

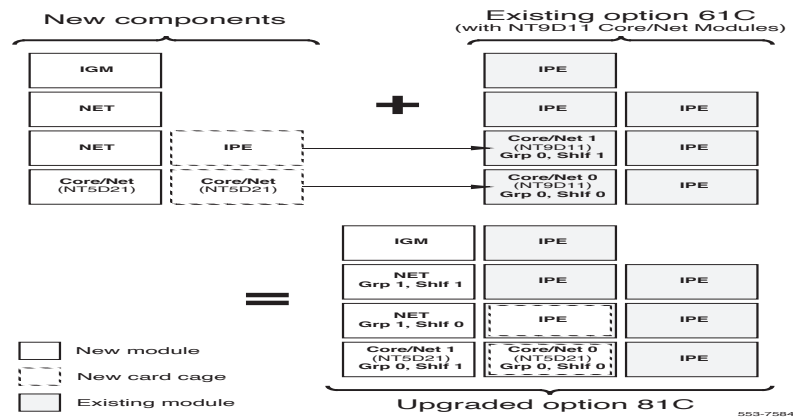
- When CLS = FTTU, Flexible Trunk to Trunk Connections Unrestricted, trunk to trunk connections are allowed for both Conference and Transfer. Flexible Trunk to Trunk Connections Unrestricted (FTTU) is the default for existing sets upon conversion to X11 Release 23 software.
- When CLS = FTTR, Flexible 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 26 illustrates the functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured.

Figure 26
Functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured



In Figure 26, 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 26, 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:

- Set B can complete the Call Transfer between Trunk Routes A and C, as long as no other restrictions apply.
- Set B can conference Trunk Routes A and C and then disconnect. In this case, Trunk Routes A and C remain connected, as long as no other restrictions apply.

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:

- Set B cannot transfer Incoming Trunk Route A to Outgoing Trunk Route C.
- Set 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 Set B to Trunk Route C is not affected by Flexible Trunk to Trunk Connections.

Referring to Figure 26, 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:

- Set B cannot complete the Call Transfer from Trunk Route A to Trunk Route C.
- Set B can complete the supervised Conference with Trunk Routes A and C, as long as no other restrictions apply. If Set B drops out of this conference, Trunk Routes A and C are disconnected.

Table 41 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.

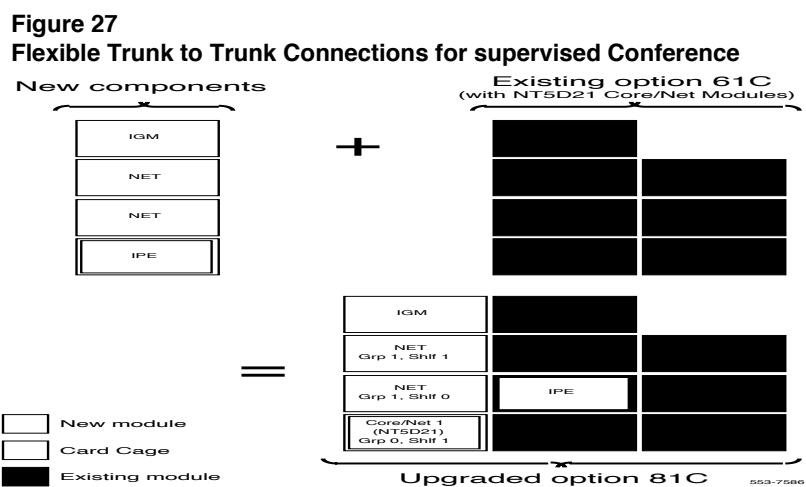
Table 41
CLS and FTOP Matrix for Flexible Trunk to Trunk Connections without Trunk Barring configured

Station Classes of Service (LDs 10 and 11)	Customer Level Options (LD 15)	
	FTOP = FRES (Default)	FTOP = FTLY
CLS = FTTU (Default for existing sets upon conversion to X11 Release 23 software)	No effect on Class of Service. Existing restrictions still apply.	Allows trunk to trunk connections for both Transfer and Conference.
CLS = FTTR	No effect on Class of Service. Existing restrictions still apply.	Blocks all trunk to trunk connections for Transfer and Conference.
CLS = FTTC (Default for new sets)	No effect on Class of Service. Existing restrictions still apply.	Allows trunk to trunk connections for supervised Conference only. Denies trunk to trunk connections for Transfer and unsupervised Conference.

Functionality of Flexible Trunk to Trunk Connections for supervised Conference

For supervised Conference, at least one internal set must be involved in the conference. With the Flexible Trunk to Trunk Connections feature configured, if the last set that drops out of the conference has Class of Service set to Flexible Trunk to Trunk Connections Restricted (FTTR) or Flexible Trunk to Trunk Connections Conditional (FTTC), the call is disconnected. If the last set that drops out of the conference has Class of Service (CLS) set to Flexible Trunk to Trunk Connections Unrestricted (FTTU), the call is not disconnected.

Figure 27 illustrates the functionality of Flexible Trunk to Trunk Connections for supervised Conference.



Referring to Figure 27, Sets 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. Sets A, B, and C and Trunk Routes 1 and 2 are involved in a conference.

- If Set A is the last internal set 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 Set A. Other restrictions, however, may cause the call to disconnect. This is an unsupervised conference. The present functionality is maintained.
- If Set B is the last internal set 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 Set B.
- If Set C is the last internal set 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 Set 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 Overlay 56.

When the Flexible Trunk to Trunk Connections feature is used with Trunk Barring (TBAR) configured, additional flexibility in controlling the trunk to trunk connections for Transfer and Conference is provided.

If Flexible Trunk to Trunk Connections is implemented with the Trunk Barring feature, the following four options are available at a customer level:

- When FTOP = FRES, Flexible Trunk to Trunk Connections Restricted, the Flexible Trunk to Trunk Connections feature does not function. The customer can still configure the set's Class of Service; however, the Class of Service does not take effect. Flexible Trunk to Trunk Connections Restricted (FRES) is the default value.
- When FTOP = TBFT, Trunk Barring Flexible Trunk to Trunk Connections, additional restrictions are applied, depending upon the set's Class of Service. Trunk to trunk connections barred by TBAR always remain restricted. Connections not barred by TBAR utilize the set's Class of Service.

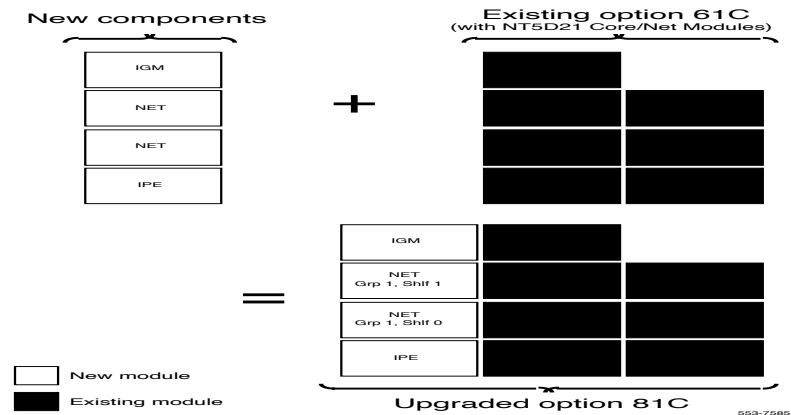
- When FTOP = FTTB, Flexible Trunk to Trunk Connections Trunk Barring, Flexible Trunk to Trunk Connections lifts TBAR restrictions for routes barred by TBAR, based upon the set's Class of Service. Flexible Trunk to Trunk Connections does not apply any new restrictions for non-barred routes.
- When FTOP = FTLTY, 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 28 illustrates Flexible Trunk to Trunk Connections functionality with Trunk Barring configured and FTOP set to TBFT in Overlay 15.

Figure 28
Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = TBFT



In Figure 28, Set 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 28, 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 Unrestricted (**FTTU**), the following is true:

- Set B can complete the Call Transfer between Trunk Routes 1 and 2.
- Set 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.
- Set 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.

Referring to Figure 28, 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 Restricted (**FTTR**), the following is true:

- Set 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.
- Set 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 28, 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:

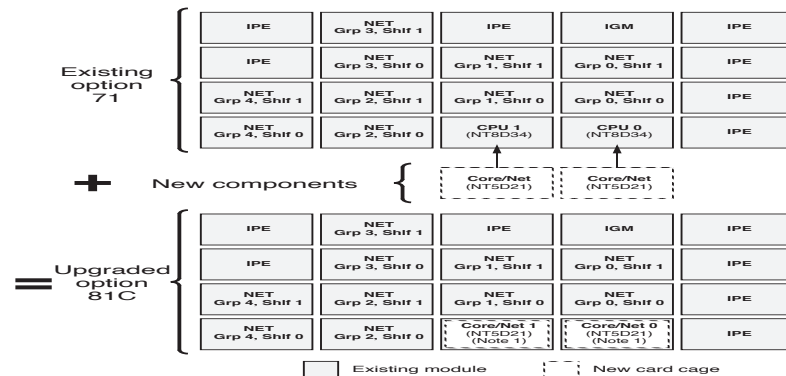
- Set B cannot complete the Call Transfer from Trunk Route 1 to Trunk Route 2
- Set B can complete the supervised Conference with Trunk Routes 1 and 2. If Set B drops out of this conference, Trunk Routes 1 and 2 are disconnected.
- Set B cannot complete both Transfer and Conference from Trunk Routes 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 29 illustrates Flexible Trunk to Trunk Connections functionality with Trunk Barring configured and FTOP set to FTTB.

Figure 29

Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB



Note 1: The network shelf portion of Core/Net modules is usable for future network expansion if fewer than 5 groups are currently equipped. A network group installed in Core/Net modules can be any group number but must be assigned to port 0 of the CNI card in slot 12.

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In Figure 29, 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 29, 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 Set B is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), all TBAR restrictions for Transfer and Conference are lifted.

On a TBAR unrestricted trunk, Set B receives a call on incoming Trunk Route 1. The call is established. Set 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:

- Set B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- Set B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, Set B receives a call on incoming Trunk Route 3. The call is established. Set 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 Set B has CLS set to FTTU, the TBAR restriction is lifted for Set B. Therefore:

- Set B can transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4
- Set B can conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.

Referring to Figure 29, 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 Set B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the existing TBAR functionality is retained.

On a TBAR unrestricted trunk, Set B receives a call on incoming Trunk Route 1, which is a TBAR unrestricted trunk. The call is established. Set 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:

- Set B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- Set B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, Set B receives a call on incoming Trunk Route 3. The call is established. Set 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 Set B has Class of Service set to FTTR, the TBAR restriction is not lifted for this set.

- Set B cannot transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4.
- Set B cannot conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.

Referring to Figure 29, 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 Set B is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), TBAR restrictions for supervised Conference are lifted. TBAR restrictions for Transfer and unsupervised Conference are maintained.

On a TBAR unrestricted trunk, Set B receives a call on incoming Trunk Route 1. The call is established. Set 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:

- Set B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- Set B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, Set B receives a call on incoming Trunk Route 3. The call is established. Set 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:

- Set B cannot transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4.

However, as Set B has Class of Service set to FTTC, the TBAR restriction is lifted for supervised Conference. Therefore:

- Set B can conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.
- Once Set B drops out of the conference, the two remaining TBAR trunks are disconnected.

Since all sets that are already present in the system default to a Class of Service of Flexible Trunk to Trunk Connections Unrestricted (FTTU), when the Customer Option is changed to Flexible Trunk to Trunk Connections Trunk Barring (FTTB), TBAR restrictions for all sets are lifted for Conference and Transfer. Therefore, the set's Class of Service must be changed to Flexible Trunk to Trunk Connections Restricted (FTTR), in order to maintain the existing TBAR functionality. The sets that are new to the system default to a Class of Service of FTTC.

Flexible Trunk to Trunk Connections Options (FTOP) = Flexible Trunk to Trunk Connections Only (FTLY)

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), trunk to trunk connections are allowed for both Conference and Transfer, irrespective of whether or not TBAR is activated.

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), trunk to trunk connections are denied for both Conference and Transfer, irrespective of whether or not TBAR is activated.

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), trunk to trunk connections are allowed for supervised Conference only. Trunk to trunk connections for Transfer and unsupervised Conference are denied, irrespective of whether or not TBAR is activated.

Table 42 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 42
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 upon conversion to X11 Release 23 software)	Existing TBAR functionality.	Existing TBAR functionality.	Lifts all TBAR restrictions for Transfer and Conference.	Allows Transfer and Conference, irrespective of whether or not TBAR is activated, unless other restrictions exist.
CLS = FTTR	Existing TBAR functionality.	Blocks all trunk to trunk connections for both Transfer and Conference.	Existing TBAR functionality.	Blocks all trunk to trunk connections for Transfer and Conference.
CLS = FTTC (Default for new sets)	Existing TBAR functionality.	Allows trunk to trunk connections for supervised Conference on non-TBAR routes. Denies Transfer and unsupervised Conference on all trunk to trunk connections not blocked by TBAR.	Lifts TBAR restrictions for supervised Conference only. Maintains TBAR restrictions for unsupervised Conference and Transfer.	Blocks trunk to trunk connections for Transfer and unsupervised Conference. Allows trunk to trunk connections for supervised Conference.

Operating parameters

Flexible Trunk to Trunk Connections is configured at a set level, by defining the Class of Service (CLS) prompt in Overlays 10 or 11.

All existing sets default to a Class of Service of Flexible Trunk to Trunk Connections Unrestricted (FTTU) upon initial software conversion. When new sets are added and configured, they default to a Class of Service of Flexible Trunk to Trunk Connections Conditional (FTTC). When new systems are installed with X11 Release 23 software, the Class of Service default is also FTTC at a set level.

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 set 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 set 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 set attempts to join the conference over a barred trunk route and through a set 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 sets drop from the conference, Flexible Trunk to Trunk Connections does not affect the Conference disconnection.

Multiple Appearance, Single Call Arrangement DNs allow a single call to be active on the DN, regardless of its number of appearances. If the Single Call Ringing DN is established in a call, another appearance of the DN can enter into the call, if the Privacy feature is not in effect, by going off hook or by pressing the Multiple Appearance Single Call DN key. Flexible Trunk to Trunk Connections restrictions for Conference are applicable in such a case.

As per the existing operation, answer and disconnect supervision is a requirement for Transfer and Conference.

Flexible Trunk to Trunk Connections does not support Basic Rate Interface (BRI) sets or Attendant Console operations.

Flexible Trunk to Trunk Connections supports Analog and ISDN trunks. R2MFC and AC15 signaling is also supported. Flexible Trunk to Trunk Connections does not support Service trunks, such as Recorded Announcement (RAN), Paging (PAG), Dictation (DIC), Music (MUS), and Automatic Wake Up Recorded Announcement (AWR).

Call Redirection features are not supported with Flexible Trunk to Trunk Connections.

With Flexible Trunk to Trunk Connections, unless the Trunk to Trunk Connection feature is configured, two outgoing trunk connections are blocked for Transfer and unsupervised Conference.

Customer Controlled Routing (CCR), Meridian Link, and Application Module Link (AML) applications are not affected by the Flexible Trunk to Trunk Connections feature.

Note: When adding a new set, the default Class of Service is Flexible Trunk to Trunk Connections Conditional (FTTC). This could impact an application's ability to conference or transfer a call to an outgoing trunk. In the case where this functionality is required, the Class of Service must be changed on the set to Flexible Trunk to Trunk Connections Unrestricted (FTTU).

Flexible Trunk to Trunk Connections blocks the initiation of Conference. Applications, such as Break In, Barge In, Bridging, and Overriding, are not supported.

Feature interactions

Access Restrictions

Access Restrictions limits terminal access to the exchange network, private network, and certain features and services. During the call origination process, access checks are made by the system on the following:

- Class of Service of an individual terminal

- Trunk Group Access Restrictions (TGAR) code of a terminal, if a direct trunk access code is dialed or as an optional feature when a Basic Alternate Route Selection (BARS) or Network Alternate Route Selection (NARS) access code is dialed
- area code and exchange code, if dialed by terminals with toll denied or conditional toll denied Class of Service, using direct trunk access codes and Code Restriction Tables
- Network Class of Service (NCOS) of a terminal, if Basic Alternate Route Selection (BARS)/Network Alternate Route Selection (NARS) or Coordinated Dialing Plan (CDP) access codes are dialed, or if direct trunk access codes are dialed and New Flexible Code Restriction (NCFR) tables are programmed

Previously restricted connections by any feature other than Trunk Barring cannot be lifted or avoided by the Flexible Trunk to Trunk Connections feature. Basically, all existing restrictions apply with the exception of Trunk Barring restrictions.

Call Transfer

If Flexible Trunk to Trunk Connections allows a set to transfer to an outgoing trunk, Access Restrictions can still block the transfer. If a set is denied transfer by the Flexible Trunk to Trunk Connections feature, then the transfer is blocked regardless of Access Restrictions.

For a transfer to be completed, both Access Restrictions and Flexible Trunk to Trunk Connections must allow the transfer.

Conference

If the Flexible Trunk to Trunk Connections feature allows a set to conference to an outgoing trunk, then Conference is allowed unless it is blocked by other existing restrictions. If a set disconnects from a conference, Flexible Trunk to Trunk Connections restrictions verify whether the set is allowed to transfer the call between the two trunks. If allowed, this unsupervised conference is completed, unless and until barred by another feature.

Attendant Console Operations

Flexible Trunk to Trunk Connections does not support Attendant Console operations. If an attendant attempts to extend an originating trunk connection on a route barred by the Trunk Barring feature, overflow tone is provided. The Flexible Trunk to Trunk Connections feature does not lift this restriction.

Although Attendant Consoles have a Conference key, Flexible Trunk to Trunk Connections does not apply any restrictions.

Basic Alternate Route Selection **Network Alternate Route Selection** **Coordinated Dialing Plan** **Flexible Numbering Plan**

Regardless of the method of dialing used to originate the call with the outgoing trunk, Flexible Trunk to Trunk Connections restrictions apply for Transfer and Conference.

Call Redirection

Call Forward features

When a set performs Call Forward to an external trunk and receives an incoming trunk call, it may result in a trunk to trunk connection. The Flexible Trunk to Trunk Connections Station Class of Service is not applied when forwarding incoming trunk calls to a barred route.

Call Pickup

The new Station's Classes of Service, introduced by the Flexible Trunk to Trunk Connections feature, do not impose any restrictions on Call Pickup.

Meridian Mail Trunk Access Restriction

Flexible Trunk to Trunk Connections limitations do not apply to Meridian Mail Trunk Access Restriction (MTAR). Irrespective of the Station's Class of Service, external calls are prevented from being transferred/conferenced to Meridian Mail.

Multi-Party Operations - Call Join

The functionality of Flexible Trunk to Trunk Connections applies to conferences made by the Call Join operation.

No Hold Conference

When a Meridian 1 proprietary set is established with a trunk call and a No Hold Conference is initiated, Trunk Barring restrictions do not apply, and the conference is completed. However, if the last internal set 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 set drops out of the conference.

Scheduled Access Restrictions

With the Flexible Trunk to Trunk Connections feature configured, existing restrictions are not avoided. Additional restrictions imposed by Flexible Trunk to Trunk Connections Classes of Service are introduced when Scheduled Access Restrictions is configured.

Toll Operator Break In

The Flexible Trunk to Trunk Connections Classes of Service have no impact on Toll Operator Break In.

Trunk Access From Any Station

There is no limitation with the new Flexible Trunk to Trunk Connections Station Classes of Service that can restrict the station from picking up the call by Trunk Access From Any Station (TAFAS).

Trunk to Trunk Connection

Flexible Trunk to Trunk Connections takes precedence over the Trunk to Trunk Connection feature.

Virtual Network Services

Flexible Trunk to Trunk Connections does not apply any restrictions to existing Virtual Network Services (VNS) functionality.

Feature packaging

Flexible Trunk to Trunk Connections is included in base X11 System Software.

Feature implementation

LD 15 – Configure Flexible Trunk to Trunk Connections.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	NET	Trunk and network options.
CUST	xx	Customer number.
...		
FTOP		Flexible Trunk to Trunk Connections Options.
	(FRES)	FTT feature is inactive.
	TBFT	FTT adds new restrictions on connections not barred by TBAR.
	FTTB	FTT lifts TBAR restrictions for routes barred by TBAR. FTT cannot add any new restrictions for non-barred routes.
	FTLY	All set based trunk to trunk connections for Transfer and Conference are controlled by FTT only.
...		

LD 10 – Configure Flexible Trunk to Trunk Connections for analog (500/2500 type) sets.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	500/2500 type telephone set data block.
TN	I s c u c u	Terminal number. For Option 11C.
...		
CLS	(FTTC)	Flexible Trunk to Trunk Connections Conditional (default for new sets).
	FTTU	Flexible Trunk to Trunk Connections Unrestricted (default for existing sets upon software conversion to X11 Release 23).
	FTTR	Flexible Trunk to Trunk Connections Restricted.
...		

LD 11 – Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	xxxx	Telephone type, where xxxx is: SL1, 2006, 2008, 2009, 2016, 2018, 2212, 2216, 2317, 2616, 3000.
TN	I s c u c u	Terminal number. Option 11C.
...		
CLS	(FTTC)	Flexible Trunk to Trunk Connections Conditional (default for new sets).
	FTTU	Flexible Trunk to Trunk Connections Unrestricted (default for existing sets upon software conversion to X11 Release 23).
	FTTR	Flexible Trunk to Trunk Connections Restricted.
...		

Feature operation

No specific operating procedures are required to use this feature.

Flexible Voice/Data Terminal Number

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. Prior to this development, one B-channel on a set was assigned for voice traffic and the other for data traffic. Existing Meridian 1 proprietary sets cannot use the capabilities of this feature.

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 set. Another key is assigned to the data DN. This key is designated as the data mode key. All data calls are placed and received via this key. Any other secondary DN keys assigned to a dynamic voice/data TN can place and receive voice calls only.

With the static capabilities of this feature, each B-channel on the set is configured as either voice or data. This provides the opportunity for two voice or two data B-channels on the same TCM loop. This configuration doubles the density of the digital line card (XDLC). Since the TN has either a voice or data Class of Service, calls placed from any DN key on the set are either voice or data.

Operating parameters

There are no restrictions against placing data calls on hold.

When a Terminal Number (TN) is in the voice mode, the short hunting feature is terminated when a Data Mode (DTM) key is encountered.

Data calls to a dynamic voice/data TN are not redirected. All TN redirection features such as Call Forward All Calls and Hunting are applicable to voice calls only. If a data call is not presented to the DTM key the call is given reorder tone.

A Data Mode (DTM) key can be assigned to M2000 series Meridian 1 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 All Calls - Internal

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 via 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

LD 11 – Assign Static Voice Terminal Number.

Prompt	Response	Description
REQ:	NEW, CHG	New, or Change.
TYPE:	xxxx	Telephone type, where xxxx = 2006, 2008, 2016, 2216 or 2616.
TN	l s c u c u	Terminal Number where u = 0 - 31. For Option 11C.
CLS	FLXA VCE	Flexible voice/data allowed. FLXA is only required if voice TN unit is less than 15. (FLXD) = Flexible voice/data denied. This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA, Voice Class of Service (VCE) is assigned the upper TN unit (16 - 31).

LD 11 – Assign Static Data Terminal Number.

Prompt	Response	Description
REQ:	NEW, CHG	New, or Change.
TYPE:	xxxx	Telephone type, where xxxx = 2006, 2008, 2016, 2216 or 2616.
TN	l s c u c u	Terminal Number, where u = 0 - 31. For Option 11C.
CLS	FLXA DTA	Flexible voice/data allowed. FLXA is only required if data TN unit is greater than 15. (FLXD) = Flexible voice/data denied. This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA, Data Class of Service (DTA) can be assigned to the lower TN unit (0 -15).

LD 11 – Assign Dynamic Terminal Number.

Note: Terminal Numbers with Voice Class of Service and Flexible Voice/Data Allowed can become dynamic voice/data Terminal Number by assigning a secondary SCR/SCN key at the DTMK prompt. The DN specified with this key becomes the data DN.

Prompt	Response	Description
REQ:	NEW, CHG	New, or Change.
TYPE:	xxxx	Telephone type, where xxxx = 2006, 2008, 2016, 2216 or 2616.
TN	l s c u c u	Terminal Number where u = 0 - 31. For Option 11C.
CLS	FLXA VCE	Flexible voice/data allowed. (FLXD) = Flexible voice/data denied. This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA Voice Class of Service (VCE) can be assigned to the upper TN unit (16 - 31) and Data Class of Service (DTA) can be assigned to the lower TN unit (0 -15). A Single Call Ringing (SCR) key can be designated a Data Mode (DTMK) key.
DTMK	xx	Key assignment for Data Mode Key. This key must be a single appearance SCR/SCN key and cannot be assigned key 00.
- KEY	00 aaa xxxx	Prime Directory Number Key, where aaa = SCR, SCN, MCR or MCN and xxxx = Voice Directory number
- KEY	xx SCR yyyy xx SCN yyyy	Single Call Ringing Single Call Non Ringing Data Mode Key, where xx = key number and yyyy = Data Directory Number.

When call processing switches between voice and data mode on the dynamic Terminal Number, some Class of Service option data is automatically modified. In data mode, the dynamic TN has options Warning Tone Denied (WTD) and Maintenance Telephone Denied (MTD). When switched back to voice mode, the original settings for these options is automatically restored, and the Class of Service is not printed.

Feature operation

There are no specific operating procedures for this feature.

Global Incremental Software Management Enhancement

With X11 Release 24, two ISM counters are added (three for small systems) and changes are made to the counting criteria for three existing ISM counters. The new ISM counters are Digital Telephones, Analogue Telephones, and TMDI (small systems only). The changed ISM counters are ACD Agents, AST, and Mobility TNs. The Mobility TNs' counter name has been changed to Wireless Telephones.

Note: For more information regarding TMDI and Option 11C, please refer to the *1.5 Mb DTI/PRI Administration and Maintenance Guide* (553-3011-310).

New ISM counters

The Digital Telephones ISM counter will count every digital telephone configured in Overlay 11, except wireless sets. This includes AST sets, ACD agents, and AST sets configured as ACD agents. It does not include Meridian Mail/Call Pilot or Phantom sets, which count against System TNs ISM.

The Analogue Telephones ISM counter will count every analog telephone configured in Overlay 10, except wireless sets and phantom sets. This includes AST sets, ACD agents, and AST sets configured as ACD agents.

The TMDI ISM counter will count every TMDI configuration on a small system.

Modified ISM Counters

The ACD Agent counter is modified to exclude Meridian Mail and Call Pilot ports. All ACD Agents configured in Overlay 10 and 11 count against the ACD Agents and Analogue Telephones or Digital Telephones counters. See Table 43 for details. The port configured in Overlay 11 for Meridian Integrated Products such as MICB is an ACD Agent. It will count against ACD Agents and Digital Telephones counters.

AST telephones count against AST, and Analogue Telephones or Digital Telephones counters.

The Wireless Telephones counter (formerly named Mobility TNs) is modified to include CT2 and (M)DECT sets configured in Overlay 10 as well as the currently counted Microcellular sets configured in Overlay 11. See Table 43 for details.

Table 43
X11 Release 24 ISMs counted

A TN configured in Overlay 10 or 11	Release 24 ISMs counted
	Note: This table only reflects ISM counters that are new or have been changed with X11 Release 24.
A digital voice set	Digital Telephones
A digital data set	Digital Telephones
An ATA set	Digital Telephones
An MCA set	Digital Telephones
A Desktop Evolution set	Digital Telephones
An Analog set	Analogue Telephones
A CLASS set	Analogue Telephones
Line-Side T1/E1	Analogue Telephones
A Phantom analog set	None
An MCMO (CT2) set	Wireless Telephones
An (M)DECT set	Wireless Telephones

A TN configured in Overlay 10 or 11	Release 24 ISMs counted Note: This table only reflects ISM counters that are new or have been changed with X11 Release 24.
An Microcellular set	Wireless Telephones
An ACD analog set	ACD Agents and Analogue Telephones
An ACD Digital set	ACD Agents and Digital Telephones
A Meridian Mail/Call Pilot ACD port	None
A Meridian Integrated ACD port	ACD Agents and Digital Telephones
An analog AST set	AST and Analogue Telephones
A digital AST set	AST and Digital Telephones
An analog AST and ACD set	AST, Analogue Telephones and ACD Agents
A digital AST and ACD set	AST, Digital Telephones and ACD Agents
An AST and Meridian Mail ACD set	None

Operating parameters

When telephone users are added, deleted, or modified in Overlays 10 and 11, the appropriate ISM counter and print header will be updated accordingly.

ISM printing in Overlay 22 is modified to include the Digital Telephones and Analogue Telephones ISM information.

The Install Program, or Install Loader for Option 11C, and Overlay 143 are modified to accommodate the new and modified ISMs.

In Overlays 10, 11, 22, and for the KSHO command in LD 143, if the limit of an ISM is set to the maximum value of 32767, it will not print. However, the TNs ISM is an exception, and the information prints regardless of the value set. For the KDIF command in LD 143, if the limit of an ISM is set to the maximum value of 32767 in both the compared keycodes, the ISM information will not print. As previously noted, the TNs ISM is an exception, and the information prints regardless of the value set.

New/upgrade user installation for Option 11C

It is recommended that customers follow the existing installation procedure as documented in the Option 11C NTP suite.

In the Install Menu, the user has to verify the limit values for all ISM parameters, including Digital Telephones, Analogue Telephones, ACD Agents, Wireless Telephones, and TMDI channels against the value on the keycode sheet. If the keycode limits do not match, new keycode parameters must be installed.

After sysload is completed, ISM counter information can be printed in LD 22 for ISMs that do not have the limit set to the maximum value of 32767.

Changing ISM value limit in same software load for Option 11C

It is recommended that customers follow the existing procedure as documented in the Option 11C NTP suite.

The value of ISM limits can be updated either through sysload or the Instant Incremental Software Management (IISM) feature by purchasing a new keycode sheet generated with the changed values. In the Install Menu, the user can change the limit values for Digital Telephones and Analogue Telephones or other ISM counters. After the upgrade is completed, the ISM counter information can be printed through Overlay 22.

New/upgrade user installation for large systems

It is recommended that users follow the existing procedure as documented in the NTPs.

After sysload is completed, the ISM counter information can be printed in Overlay 22.

Changing the ISM value limit in same software load for large systems

It is recommended that users follow the existing procedure as documented in the NTPs.

The value of ISM limits can be updated either through sysload or the IISM feature. After the update is completed, the customer can print the new ISM limits through Overlay 22.

For more information, please refer to the *Incremental Software Management* feature in the *Software Feature Guide*.

Group Call

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 Meridian 1 system can have up to 64 groups assigned. Each group has up to ten member DNs. X11 Release 13 and later software allows 20 members per group. 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 Option 11C, six members per group are allowed.

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 the data calls.

The maximum number of members per group is 10 (20 with X11 Release 13 and later software).

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

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 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.

Directory Number Delayed Ringing

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

Hold

Only the originator of a Group Call can put the Group Call on hold.

Make Set Busy or 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).

Speed Call Delimiter

Speed Call Delimiter does not interact with Group Call List.

Telephone features

The following features cannot be applied on a Group Call:

- Call Forward No Answer
- Call Forward Busy
- Call Join
- Call Park
- Call Transfer
- Conference
- Hunting
- Privacy Release
- Ring Again

Feature packaging

Group Call (GRP) package 48 has no feature package dependencies.

Feature implementation

LD 18 – Add or change a Group Call list.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	GRP	Group Call data block.
CUST	0-99	Customer number.
GRNO	0-63	Number of the Group Call list.
STOR	xx yyy...y <CR>	Group member number (xx) and associated DN (yyy...y). End input of stored Group Call entries

LD 11 – Add or change Group Call for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx GRC yy	Add a Group Call key, where: xx = key number, and yy = Group Call list number (0-63).

LD 20 – Print Group Call data.

Prompt	Response	Description
REQ	PRT	Print.

TYPE	GRP	Group Call data.
CUST	0-99	Customer number.
GRNO	0-63 <CR>	Number of the Group Call group. Print data for all Group Call groups.

Feature operation

To make a Group Call:

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

To make a Group Call using a Flexible Feature Code, see the Dial Access to Group Call feature module contained in this document.

Handset Volume Reset

This enhancement 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 feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

The Handset Volume Reset feature is included in base X11 system software.

Feature implementation

LD 17 – Define the Handset Volume Reset setting.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ATRN	Configuration Record. Release 19 gate opener.
...		
ATRN	YES	Aries (Meridian Modular) transmission parameters.
...		
- 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.

No specific operating procedures are required to use this feature.

Handsfree Transmission Parameter Download

This feature provides new parameters in order to support the handsfree transmission parameter download on Meridian digital telephones. These parameters are downloaded to each telephone upon system reload or set power up, after the handset parameters.

Two new prompts are defined in LD 17 allowing control of handsfree transmit and receive loudness ratings.

Operating parameters

There are no feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

The Handsfree Transmission Parameter Download feature is included in base X11 system software.

Feature implementation

LD 11 – Modify the system hardware and software parameters:

Prompt	Response	Description
...		
CLS	(HFD), HFA	Digital Telephone Handsfree (denied) allowed. Note: Not allowed on M2006, M2008, M2016S, or M2216 sets. M2016 must be defined as a 2616 with HFD Class of Service allowed for M2018 and M2616 sets. HFA is the default for M2317 and M3000 sets.

LD 17 – Create or modify the digital telephone data blocks:

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ATRN	Configuration Record. Release 19 gate opener.
ATRN	YES	Meridian Modular telephone transmission parameters. Only prompted if response to TYPE is CFN.
- HRLR	(0)-8, 32-40	Handsfree receive objective loudness rating.
- HTLR	(0)-11, 32-54	Handsfree transmit objective loudness rating.

LD 22 – Print Handsfree transmission parameter download settings.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	CFN ATRN	Configuration Record. Meridian Modular telephone transmission parameters. Note: When the Handsfree transmission download parameters are printed they are output as their dB value (i.e., 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).

The following cross-references the value that is input in response to the HRLR and HTLR prompts to the actual dB value:

Input value	HRLR (dB)	HTLR (dB)
0	+42.00	-44.00
1	+42.85	-43.50
2	+43.70	-43.50
3	+44.55	-43.00
4	+45.40	-42.50
5	+46.25	-42.00
6	+47.10	-42.00
7	+47.95	-41.50
8	+48.80	-41.00
9	N.A.	-40.50
10	N.A.	-40.50
11	N.A.	-40.00
12	N.A.	N.A.
13	N.A.	N.A.
14	N.A.	N.A.
15	N.A.	N.A.
16	N.A.	N.A.
17	N.A.	N.A.
18	N.A.	N.A.
19	N.A.	N.A.
20	N.A.	N.A.

Input value	HRLR (dB)	HTLR (dB)
21	N.A.	N.A.
22	N.A.	N.A.
23	N.A.	N.A.
24	N.A.	N.A.
25	N.A.	N.A.
26	N.A.	N.A.
27	N.A.	N.A.
28	N.A.	N.A.
29	N.A.	N.A.
30	N.A.	N.A.
31	N.A.	N.A.
32	+42.00	-44.00
33	+41.15	-44.50
34	+40.30	-45.00
35	+39.45	-45.00
36	+38.60	-45.50
37	+37.75	-46.00
38	+36.90	-46.50
39	+36.05	-46.50
40	+35.20	-47.00
41	N.A.	-47.50

Input value	HRLR (dB)	HTLR (dB)
42	N.A.	-48.00
43	N.A.	-48.00
44	N.A.	-48.50
45	N.A.	-49.00
46	N.A.	-49.50
47	N.A.	-49.50
48	N.A.	-50.00
49	N.A.	-50.50
50	N.A.	-51.00
51	N.A.	-51.00
52	N.A.	-51.50

Input value	HRLR (dB)	HTLR (dB)
53	N.A.	-52.00
54	N.A.	-52.50
55	N.A.	N.A.
56	N.A.	N.A.
57	N.A.	N.A.
58	N.A.	N.A.
59	N.A.	N.A.
60	N.A.	N.A.
61	N.A.	N.A.
62	N.A.	N.A.
63	N.A.	N.A.

Note: All values are Objective Loudness Ratings (OLR) measured without inserted loss or gain for trunk card interfaces and computed per IEEE methods. Receive ratings are at maximum volume. Transmit ratings are measured in an anechoic environment with less than 25 dBA room noise.

Feature operation

Whenever a download, which happens following SYSLOAD or when the telephone line cord is plugged in, occurs, 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.

No specific operating procedures are required to use this feature.

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, including the significant enhancements provided in X11 Release 19, please refer to *X11 system management applications*.

Hot Line

Flexible Hot Line

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 Meridian 1, 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 Meridian 1 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 only applies to analog (500/2500 type) telephones.

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 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.

Enhanced Flexible Feature Codes - Busy Number Redial

The Busy Number Redial feature cannot be used on Flexible Hot line sets.

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.

Hunting

Calls will hunt before being routed to the attendant.

ISDN QSIG Call Completion

Call Completion cannot be used in conjunction with the Hot Line feature.

Phantom Terminal Numbers (TNs)

Hot Line does not support phantom TNs.

Feature packaging

Flexible Hot Line is contained in Enhanced Hot Line (HOT) package 70. There are no feature package dependencies.

Feature implementation

LD 10 – Add or change Flexible Hot Line for analog (500/2500 type) telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	MNL	Manual signaling – requires transfer denied (XFD) Class of Service.
FTR	HOT 1-31 xxx...x	Add Flexible Hot Line (X11 Releases 4 through 9). xxx...x = Flexible Hot Line Directory Number (DN).
FTR	HOT D 1-31 xxx...x yyy...y	Add Flexible Hot Line (X11 Release 10 and later software). 1-31 = maximum digits for Hot Line DNs. xxx...x = Flexible Hot Line DN. yyy...y = Phantom DN for a two-way Hot Line.

Feature operation

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

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

Enhanced Hot Line

Enhanced Hot Line (EHOT), available in X11 Release 10 and later software, 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 (ACD)

A Hot Line DN key can be assigned to an ACD 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.

Call Forward Busy No Answer and Hunting

Any Hot Line telephone can be assigned Call Forward Busy/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 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.

Controlled Class of Service (CCOS)

When a Hot Line DN is on a telephone that has CCOS 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.

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 Class of Service.

Internal Call Detail Recording (CDR)

Hot Line stations can be assigned the appropriate Class of Service that allows CDR 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.

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 DN

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 (RMS)

The Room Status feature is incompatible with any telephone for which going off-hook activates Hot Line.

System Speed Call (SSC)

When the 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.

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

LD 17 – Assign the number of Speed Call lists, including Hot Line lists.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration record. Release 19 gate opener.
MSCL	0-8191	Maximum number of Speed Call lists.

LD 15 – Add or change Enhanced Hot Line for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
OPT	(HTU), HTR	Hot Line (unrestricted) or restricted. This program determines whether the call is going to a Hot Line DN or to any available DN. HTR restricts Hot Line calls to Hot Line DNs, but HTU does not.

LD 18 – Compute Hot Line Speed Call list memory size and disk records (X11 Release 17). Use this prompt sequence to determine if there are enough memory and disk records for new Speed Call lists. Compare the output with the MEM AVAIL and DISK AVAIL values output before the REQ prompt.

Prompt	Response	Description
REQ	COMP	Compute disk and memory.
TYPE	SCL	Speed Call lists.
NOLS	1-8191	Number of lists to be added.
DNSZ	4-16-31	Maximum length of DN allowed for Speed Call list.
SIZE	1-1000	Maximum number of DN entries in Speed Call list.

LD 18 – Add or change a Hot Line Speed Call list.

Prompt	Response	Description
REQ	NEW, CHG, OUT	Add, change, or remove a Speed Call list.
TYPE	HTL	Hot Line List.
CUST	0-99	Customer number.
LNSO	0-8190	Hot Line List number (only one Hot Line List per customer).
NCOS	0-99	NCOS to be assigned to calls accessing the list.
DNSZ	xx	Maximum number of digits in a list entry (4, 8, 12, 16, 20, 24, 28, or 31).
SIZE	1-1000	Maximum number of entries in the Speed Call list.

STOR	xxx yy...y	xxx = list entry number (0-9, 0-99, or 0-999). yy...y = digits to be stored against the entry (must be equal to or less than DNSZ).
- WRT	(YES), NO	Data (is) is not correct and list (can) cannot be updated. The WRT prompt follows SIZE and STOR prompts asking for confirmation of the data just entered. If data is correct, enter YES or <CR>. A response of NO to WRT after SIZE returns the REQ prompt. A response of NO to WRT after STOR causes the data just entered to be ignored and a restart message (SCH3213) to be generated. A response of **** aborts the program. The last STOR value is lost but all other values for which WRT was YES are saved. In X11 Release 17 and later software, the following information is output with the WRT prompt: ADDS: MEM: xxxxx DISK: yy.y (xxxxx is the amount of protected memory; yy.y is the number of disk records required for the new speed call list. Check the MEM AVAIL and DISK REC AVAIL values output before the REQ prompt).

LD 10 – Add Enhanced Hot Line for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	DTN, DIP EHTA (LDN), LNA (XFD), XFA (CWD), CWA (XRD), XRA	Digitone or dial pulse service (manual service is not allowed). Enhanced Hot Line allowed. Last Number Redial (denied) allowed – optional. Call Transfer (denied) allowed – optional. Call Waiting (denied) allowed – optional. Ring Again (denied) allowed – optional.
FTR	HOT D nn x...x HOT L 0-999	Direct Hot Line DN. nn = number of digits (1-31) for target DN x...x. Hot Line List entry number defined in LD 18.

LD 11 – Allow or deny Enhanced Hot Line for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000.
TN	l s c u	Terminal Number.
KEY	nn HOT D cc x...x nn HOT L aaa nn HOT D cc x...x xxxx nn HOT L aaa xxx...x nn CH D cc x...x nn CH L aaa	One-way Hot Line key. One-way Hot Line List key. Two-way Hot Line key. Two-way Hot Line List key. Combined No Hold Conference and Direct Hot Line feature (X11 Release 14 and later software). Combined No Hold Conference and Hot Line List feature (X11 Release 14 and later software). nn = key number. cc = number of digits for target DN (1-31). x...x = target DN (ð 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 an analog (500/2500 type) telephone:

- 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**.

Hunting

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 Meridian 1 are:

- Circular hunting
- Linear hunting
- Secretarial hunting
- Short hunting

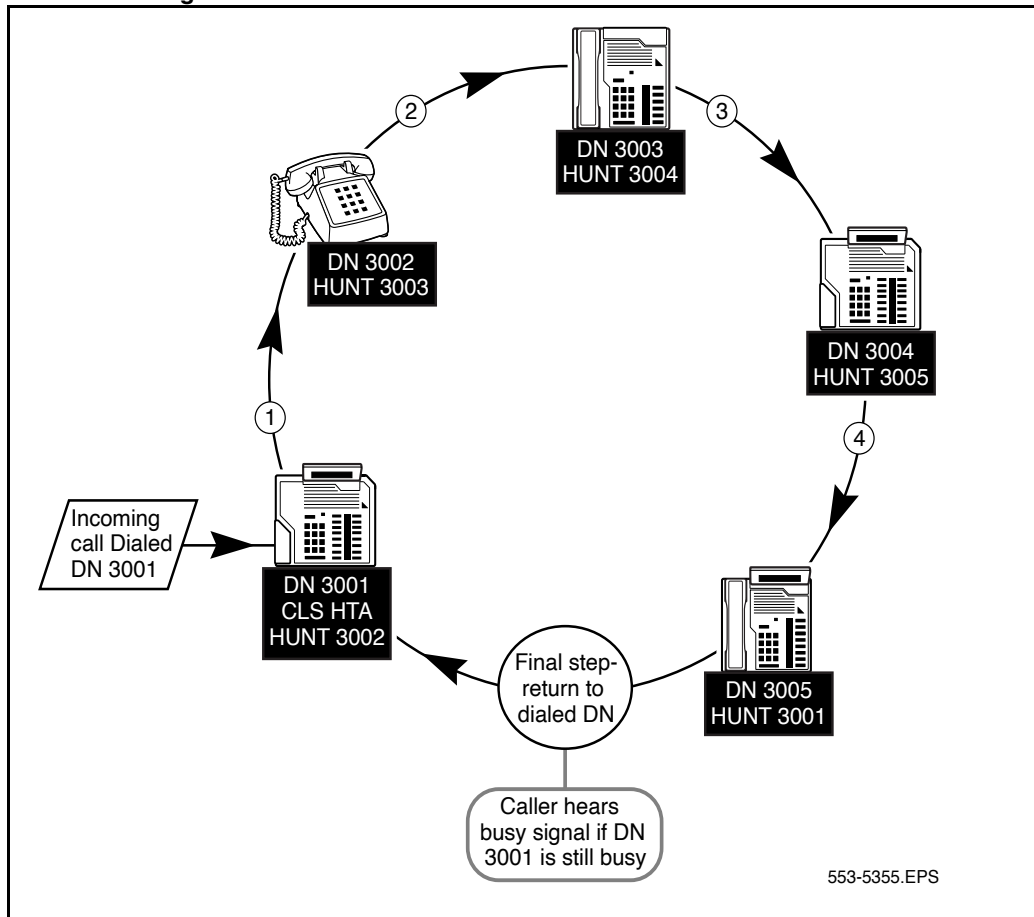
The following pages describe and illustrate each of these ways to hunt.

In addition, Data Port Hunting is described on page 978, and Trunk Hunting is described on page 984.

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 30 shows an example of circular hunting.

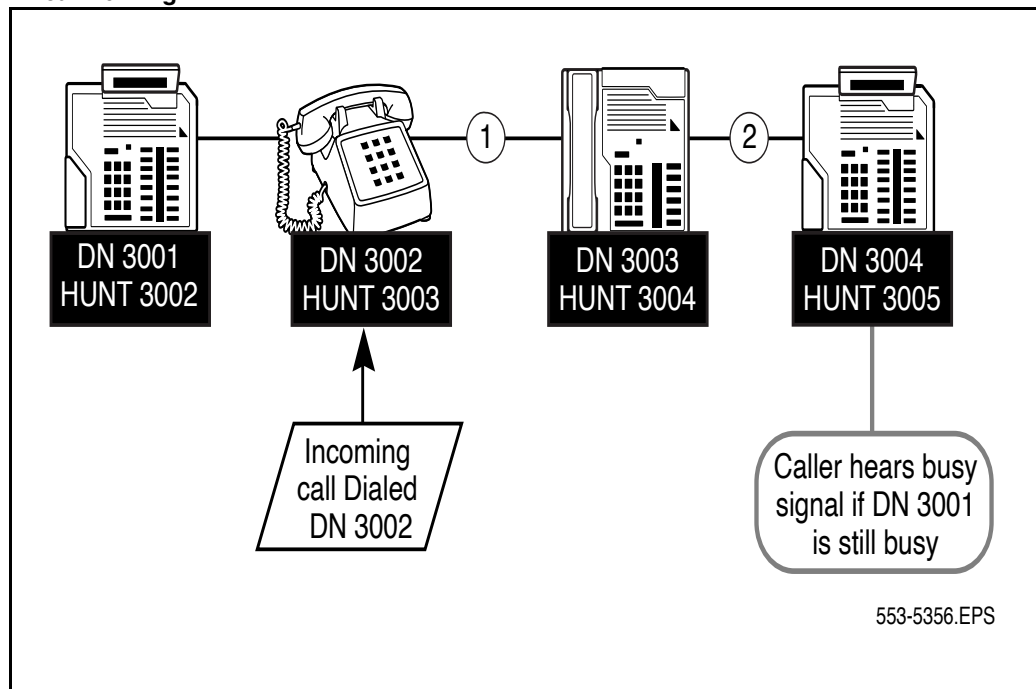
Figure 30
Circular Hunting



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 31 shows an example of Linear Hunting.

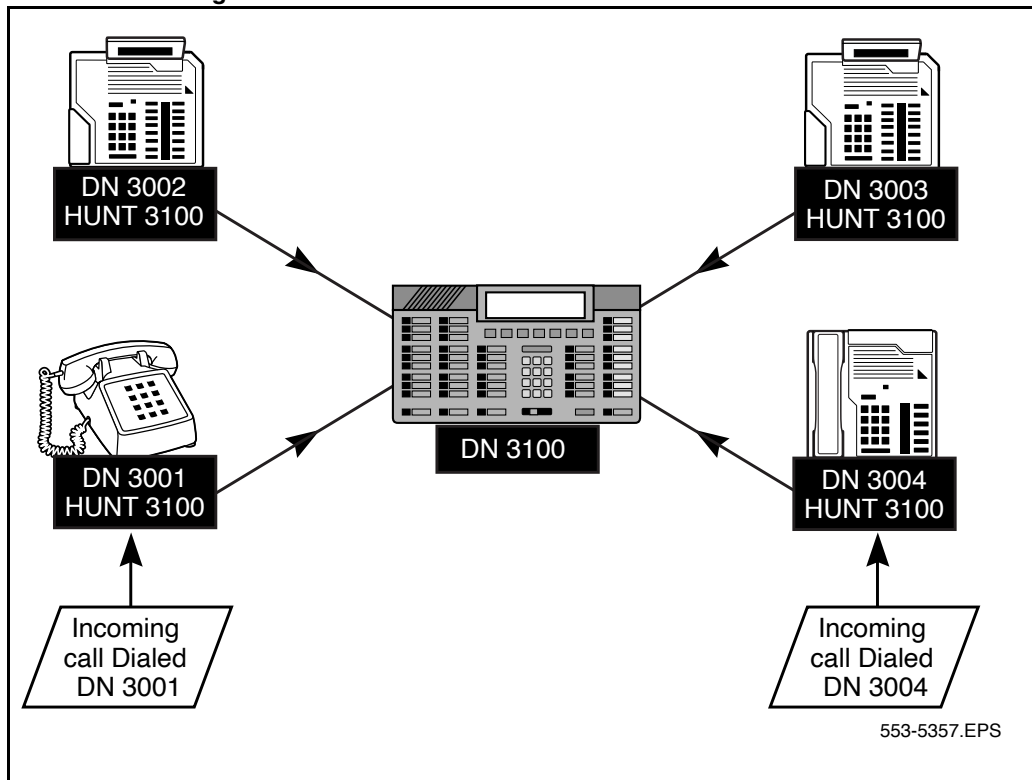
Figure 31
Linear Hunting



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 32 shows an example of Secretarial Hunting.

Figure 32
Secretarial Hunting



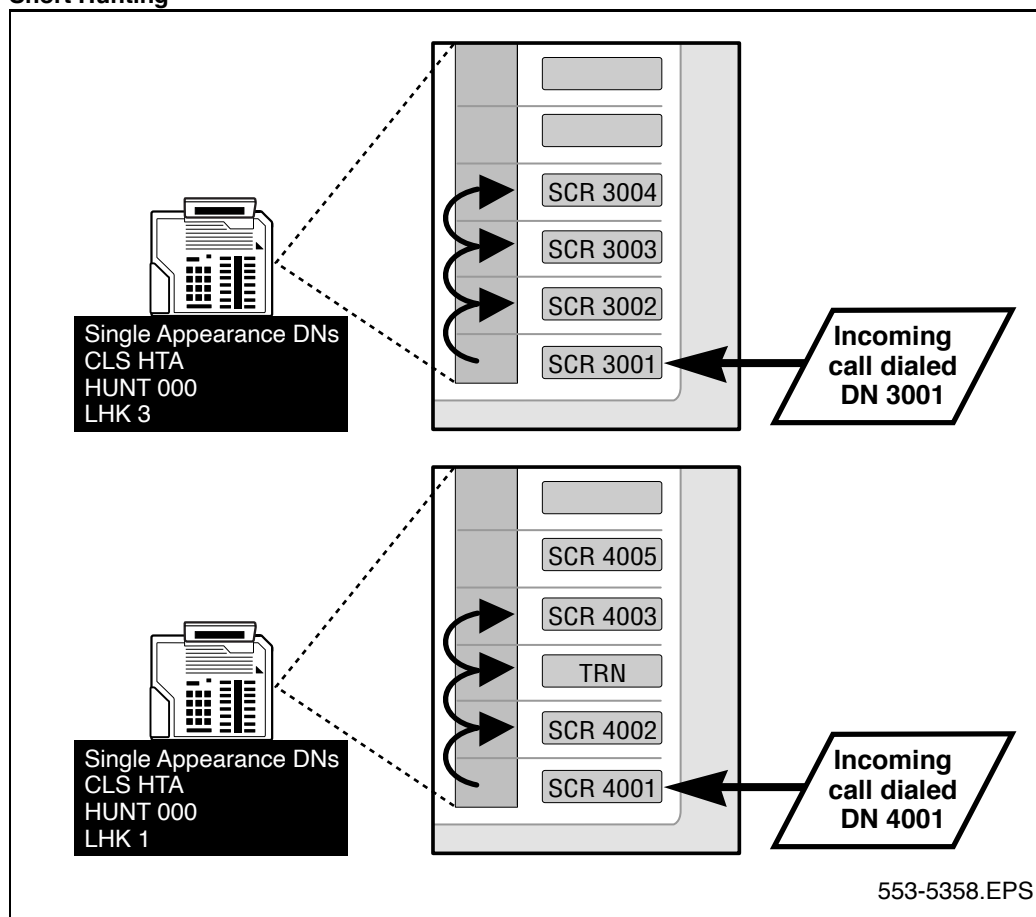
Short Hunting

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. Thus the hunt chain might become Hunt DN A, Hunt DN B, Short Hunt Sequence C, Short Hunt Sequence D, or Hunt DN E.

Figure 33 shows an example of Short Hunting.

Figure 33
Short Hunting



Operating parameters

The maximum number of hunt steps varies according to the system, as follows:

- 18 hunt steps are allowed with S, M, MS, LE, N, ST, and 21 systems.
- 30 hunt steps are allowed with VLE, XL, XN, NT, XT, 21E, 61, 71, and 81 systems.

Feature interactions

Advice of Charge for EuroISDN

Calls charged with Advice of Charge that are either extended, transferred or redirected to another set via Hunting are charged against the last station that answers the call and the controlling station releases.

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.

Call Detail Recording on Redirected Incoming Calls

The Call Detail Recording on Redirected Incoming Calls feature does not affect how these features operate; 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 All Calls takes precedence over Hunting.

Call Forward Busy

Hunting takes precedence over Call Forward Busy for Direct Inward Dialing (DID) calls. When the station receiving a DID call has both Call Forward Busy and Hunting Allowed (HTA) Class of Service, the call is routed along the hunt chain. If all stations in the hunt chain are busy, the call is forwarded to the attendant.

Call Forward/Hunt Override (CFHO)

A hunt can be overridden by the CFHO feature, through the use of a Flexible Feature Code.

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 (CRTOD)

When 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 or Station-to-Station Call Waiting

Hunting takes precedence over Call Waiting. If all steps in the hunt chain are busy, Call Waiting is activated.

Calling Party Privacy

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 (i.e., at the tandem node) from being displayed on the terminating set. In this case, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

Dial Access to Group Calls

Hunting cannot be applied to a Group Call.

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.

Multiple Appearance Directory Numbers (MADNs)

With X11 Release 17 and earlier software, call redirection parameters are derived from the Terminal Number data block (TNB, in LD 20) of the first TN in the DN block for that DN (DNB, in LD 22) with hunting control enabled. Hunting control is enabled by Hunting Allowed (HTA) Class of Service (CLS) for analog (500/2500 type) telephones. For Meridian 1 proprietary telephones, the DN key must also be less than or equal to the Last Hunt Key (LHK, in LD 11).

A printout of the DN block (using LDs 20 and 22) for digital telephones shows an "H" beside the TN that has Hunting enabled. For analog (500/2500 type) telephones, a printout of the TN blocks indicates if the Class of Service HTA is set for Hunting control. If no TN for that DN has Hunting control enabled, no Hunting is attempted.

The selected TN gives the Hunting parameters and determines the current ordering of the TNs in the TN list of the DN block at the time the DN block is accessed. When a telephone is service changed, the Terminal Number (TN) is moved to the top of the DN list regardless of the TN's numerical value. The Hunting pattern can be different if the TN ordering is changed. The DN block for each busy DN is checked each time Hunting is attempted for call redirection.

When a TN is found with Hunting control enabled, Short Hunting takes precedence over normal Hunting (i.e., Linear, Circular, and Secretarial, which use the Hunt DN). If the TN selected by the Hunting search is a digital telephone, the call will be redirected by Short Hunting, if possible, before attempting to use the Hunt DN. Thus, a hunt chain can go from Hunt DN A to Hunt DN B to Short Hunt sequence C to Short Hunt sequence D to Hunt DN E.

With X11 Release 18 and later software, Hunting can be controlled by the MADN Redirection Prime (MARP) Terminal Number (TN). If the MARP system option is disabled, Hunting proceeds as if MARP did not exist.

If all the telephones in the Multiple Appearance Directory Number (MADN) group are Meridian 1 proprietary telephones, ringing telephones are placed at the top of the DN list, and non-ringing telephones are placed at the bottom.

If a Multiple Appearance Directory Number appears in a group with several telephone types, the telephone type affects the position of the TN in the list. The analog (500/2500 type) telephones are listed at the top, and Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves its TN to the top of the list. A service change to a Meridian 1 proprietary telephone moves it to the bottom of the list. Call redirection follows the TN order from top to bottom.

The MARP TN is always checked to determine if and how the call is to be redirected by Hunting, regardless of where the MARP TN resides in the TN list of the DN block. No searching of the TN list of the DN block is needed. Hunting will follow the hunt chain based on the originally dialed DN. The actual functioning and requirements for Hunting are not changed by the MARP feature. The basic change introduced by the MARP feature is to always have a designated TN, the MARP TN, as the TN supplying the call redirection parameters.

If the MARP TN does not have Hunting control enabled, no Hunting is attempted. Other features for redirecting calls to busy DNs may be attempted based on the MARP TN.

A Short Hunting sequence begins when the MARP TN of a busy DN can perform Short Hunting. When a Short Hunt begins, it completes on that telephone before going to the Hunt DN. The precedence of Short Hunting over normal Hunting is maintained. Once a Short Hunting sequence is started on a digital TN, all the DNs in the Short Hunt sequence on that TN are attempted before redirecting the call to the TN's Hunt DN. Thus, a Hunt Chain connects Short Hunting sequences through Hunt DNs only.

Recovery on Misoperation of Attendant Console

Hunting takes precedence over the Misoperation feature.

Ring Again on No Answer (RANA)

If RANA has been applied to a station going through a Hunt sequence, Ring Again is applied to that station and not the ringing station.

Station Camp-On

Hunting takes precedence over Camp-On.

Feature packaging

Hunting is included in base X11 system software.

Feature implementation

LD 10 – Add or change Hunting for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
HUNT	xxx...x	Hunt DN. xxx...x removes the DN from the hunt chain.
CLS	(HTD), HTA	(Deny) allow hunting.

LD 11 – Add or change Hunting for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
HUNT	xxx...x 000	Hunt DN. xxx...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.

Data Port Hunting

This feature was known as ADM Trunk Hunting (ATH) with X11 Release 5, and ADM Trunk Hunting Enhancement (ATHE) with X11 Release 12. Trunk Hunting (TH) is supported on X11 Release 16 or 17 for ST, NT, RT, and XT systems only. Data Port Hunting is available with X11 Release 18 and later for all supported systems.

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 Meridian 1 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 Communications 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 Communications Adapter (MCA) data ports that interface through Integrated Services Data Line Cards (ISDLs) or Data Line Cards (DLCs).

Data ports can act only as terminating parties. The user dials the access code of the trunk route to access the data ports.

Operating parameters

All data port trunks within a route must be of a single type. ADM and MDM data ports cannot be mixed in the same data port trunk route.

Only an attendant can extend incoming calls from stations or trunks (CO, FX, WATS, TIE, Direct Inward Dialing [DID], Common Controlled Switching Arrangement [CCSA]) to data port trunk routes. Calls cannot be extended, transferred, or conferenced from a station to a data port group.

In Night Service mode, any station can transfer incoming calls to data port routes.

Trunk access restrictions (TARG, TGAR) should be applied to data port trunk routes to prevent stations with co-located ADMs from directly accessing data ports with modems, and vice versa.

Class of Service restrictions do not apply to data port trunks.

Ring Again, Basic/Network Alternate Route Selection (BARS/NARS), and trunk access restrictions (TARG, TGAR) are the only features that may be applied on calls to data port routes.

Feature interactions

Conference

The Conference feature is not supported with data ports.

Ring Again

When a user activates Ring Again against the data port extension Access Code (ACOI), the Meridian 1 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

Data Port Hunting is included in base X11 system software.

Feature implementation

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	0-99	Customer number.
ROUT	0-511	Trunk route number.
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	0-3	Data port time out. 0 = No timeout. 1 = 15 minutes. 2 = 30 minutes. 3 = 60 minutes

- PSEL	(DMDM), TLNK	Protocol selection. T-Link or DM-DM protocol. Prompt offered to MCU (TKTP = MMPM).
- OPE	(NO), YES	(Do not) change data port operating parameters. Prompt offered to MCU (TKTP = MMPM).
- - PSDS	(NO), YES	(Do not) allow PSDS protocol. Prompt offered to MCU (TKTP = MMPM).
- - TRAN	(ASYN), SYN	Port transmission type; if PSDS = YES, then TRAN must be SYN. Prompt offered to MCU (TKTP = MMPM).
- - PAR	(SPAC), EVEN, ODD, MARK	Parity type, where: SPAC = space parity EVEN = even parity ODD = odd parity, and MARK = mark parity.
- - DTR	(OFF), ON	Forced DTR (if ON) or dynamic DTR (if OFF). Prompt offered to R232, and to MCU (TKTP = MMPM).
- - DUP	(FULL), HALF	Full duplex/half duplex. Prompt offered to MCU (TKTP = MMPM).
- - DCD	(ON), OFF	(ON) = dynamic CD. OFF = forced CD. Prompt offered to R232, and to MCU (TKTP = MMPM).
- - MOD	(NO), YES	Modem, (Network): when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
- - INT	(OFF), ON	SL-1/100 Interworking. Prompt offered to MCU (TKTP = MMPM).
- - CLK	(OFF), ON	(OFF) = External Clock, ON = Internal, when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
- - V25	(NO), YES	V.25 bis offered only when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
- - HDLC	(NO), YES	High Level Data Link Control offered only when V25 = YES. Prompt offered to MCU (TKTP = MMPM).

- - DEM	(DCE), DTE	Data Equipment Mode. DCE or DTE mode. Prompt offered to R232.
- - PBDO	(OFF), ON	Port Busy upon DTR off. Presented when DCE, Dynamic DTR. Prompt offered to R232. ON = enabled. (OFF) = disabled.

LD 14 – Add or change a data port trunk.

Prompt	Response	Description
REQ	NEW, CHG	New or change.
TYPE	ADM, MDM, R232, R422, MMPM	Trunk type.
TN	l s c u	Loop Shelf Card 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.

Trunk Hunting

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, X11 Release 3 and later software

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 Meridian 1 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 Meridian 1 has no control over the order of incoming trunks.

Feature interactions

There are no interactions with other features.

Feature packaging

Trunk Hunting is included in base X11 system software.

Feature implementation

LD 16 – Implement Linear or Round Robin Trunk Hunting for a trunk route.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route data block.
CUST	0-99	Customer number.
ROUT	0-511	Trunk route number.
SRCH	(LIN), RRB	Linear or Round Robin Hunting.

Feature operation

No specific operating procedures are required to use this feature.

In-Band Automatic Number Identification

The In-Band ANI (IANI) feature provides the ability to display a ten-digit calling party number during setup (signaling) over a non-Integrated Services Digital Network (ISDN) T1 trunk. The Automatic Number Identification (ANI) digits are displayed when they auto-terminate to an Automatic Call Distribution (ACD) Directory Number (DN) agent telephone with digit display. The IANI feature supports ten digits for ANI, or three and four digits for Dialed Number Identification (DNIS). IANI sends these digits to three places: the Call Detail Recording (CDR) records, the host, and the agent telephone.

When a Direct Inward Dialing (DID) or TIE trunk originates a call, the software determines whether the call is on an IANI trunk group. If it is, the ten ANI digits are collected, and the call auto-terminates at the ACD DN specified for that trunk, provided that the ACD telephone has digit display and Standard Delayed Display (DDS) Classes of Service. The call, sent by Dual Tone Multifrequency (DTMF) signaling prior to call termination, is not received until all the digits are received by the software.

When the call is presented to the ACD DN, a PCI message is simultaneously sent across the Application Module Link (AML) carrying the ANI digits. The message contains the ANI number, the ACD DN, and the ACD Agent ID. For a complete description of ISDN/AP, see *Meridian Link ISDN/AP general guide*.

If an auto-terminating ACD DN is not configured for the trunk, the call intercepts to the attendant, and the ANI number is displayed on the Attendant Console. If the call is extended to an ACD DN, the IANI digits are displayed after it is extended.

CDR records

Because IANI and Integrated Services Digital Network (ISDN) cannot be configured on the same trunk group, the IANI report is able to appear in place of the Calling Line Identification (CLID) records. The ANI number is shown on the second line of the CDR report in the following format:

N 002 00 T00004 01 03/24 10:15 00:00:38 4155551212*****

where

N	= record type
002	= record sequence number
00	= customer number
T00004	= trunk route and member number
01	= ACD Agent Position ID
03/24	= date (month/day)
10:15	= time (hour:minute)
00:00:38	= duration (hours:minutes:seconds)
4155551212*****	= ANI number (ten digits followed by *****)

For a complete description of CDR output, see *Call Detail Recording description and formats*.

Operating parameters

IANI operates on T1, Direct Inward Dialing (DID), and TIE trunks only.

IANI cannot be configured on the same trunk with Electronic Switched Network (ESN), Integrated Services Digital Network (ISDN), or Dialed Number Identification Service (DNIS).

The auto-terminating Automatic Call Distribution (ACD) Directory Number (DN) is configured in LD 14. Any ACD agent specified to answer IANI calls also receives standard ACD calls. When a standard ACD call is received on a non-ISDN or non-ANI trunk, no ANI numbers are displayed.

If an IANI call terminates on a non-ACD DN, no ANI digits appear on the telephone display. Likewise, no PCI messages are sent across the Application Module Link (AML).

Auxiliary Processor Link (APL) is not supported.

Should the system initialize while an agent is active on an IANI call, there will be no impact on the call. However, if any call modification (such as, Call Transfer or Conference) takes place, the ANI number is lost.

A Dual Tone Multifrequency (DTMF) receiver is required to interpret the DTMF tones with an IANI number.

Feature interactions

The IANI feature interacts heavily with ACD. For a complete description of the ACD features involved, see *Automatic Call Distribution feature description*.

ACD Answer Call Supervisor Emergency

If the agent presses the Supervisor (ASP) key or the Emergency (EMR) key, the digit display is cleared when the supervisor answers the call. The display remains clear while the supervisor is active on the call. If the supervisor releases first, the ANI number reappears on the agent's telephone display.

ACD Interflow

If an IANI call interflows to another predesignated local ACD DN, the ANI number is displayed on the overflow agent's digit display. The source ACD DN is displayed following the ANI number.

ACD Night Call Forward

If an ANI call is forwarded to an ACD DN, the ANI number is displayed on the ACD Agent telephone.

ACD Overflow by Count

If an IANI call overflows to another ACD DN, the ANI number is displayed on the overflow agent's digit display. The source ACD DN is displayed following the ANI number.

Activity code

If the Activity Code (ACNT) key is activated during an IANI call, the display is cleared. Once the activity code has been entered and the ACNT key pressed again, the ANI number reappears on the agent's display.

Attendant Recall

If an ACD Agent is active on an IANI call and activates the Attendant Recall (ARC) key to call the attendant, the agent's display shows the attendant number when the attendant answers the call. The ANI number reappears when the attendant releases.

Call Consultation

If the agent is active on an IANI call and presses the TRN key for call consultation, the display is cleared. When the agent restores the IANI call, the ANI number reappears.

Call Park

If an agent parks an IANI call and it times out and recalls the agent, the ANI number is not displayed.

Call Transfer

If an agent transfers an IANI call to another ACD DN, the ANI number is displayed on the terminating set's display.

Conference

If an agent activates the Conference feature while active on an IANI call, the display is cleared. The display remains clear while the Conference call is active. If the conferenced party releases first, the ANI number appears on the agent's display.

Display (DSP) key

If the agent is active on an IANI call and presses the DSP key to display another key feature, the ANI number does not reappear when the DSP function is complete.

Hold

If an ACD Agent places an IANI call on hold, the ANI number reappears when the call is restored.

Network ACD (NACD)

If an IANI call diverts to a target node as a result of Network ACD (NACD), the ANI number appears at the target node.

R2MFC CNI/CDR Enhancements

Inband Automatic Number Identification (IANI) trunks do not support Calling Number Identification (CNI). If a CNI is available in addition to the IANI on an IANI trunk, the IANI would be used for the CLID.

Time and date

If the agent presses the Time and Date (TAD) key while on an IANI call, the time and date remain displayed throughout the call. To display the ANI number again, place the call on hold and retrieve it. The ANI number reappears.

Time overflow

If an ACD Agent receives an IANI call due to time overflow, the ANI number is displayed. The source ACD DN follows the ANI number on the display.

Virtual Agents

Virtual Agents are not supported for IANI calls.

Feature packaging

In-Band ANI (IANI) is not a separately packaged feature. Implementing IANI requires the following packages:

- Basic ACD (BACD) package 40
- ISDN Signaling (ISDN) package 145
- 1.5 Mbps Primary Rate Access (PRA) package 146
- Inter Exchange Carrier (IEC) package 149, and
- Dialed Number Identification Service (DNIS) package 98.

If Application Module Link (AML) is required, Command Status Link (CSL) package 77, and Integrated Messaging System (IMS) package 35, must be included.

For CDR records, Call Detail Recording (CDR) package 4 is required.

Feature implementation

LD 16 – Identify the route as an In-Band Automatic Number Identification route.

Prompt	Response	Description
REQ	NEW, CHG	Add or change an IANI route.
TYPE	DID, TIE	Direct Inward Dialing (DID) or TIE route.
ISDN	NO, YES	Enable or disable ISDN (cannot be configured on same route as IANI).
AUTO	(NO), YES	(Do not) specify as an auto-terminating route.
IANI	(NO), YES	(Disable) enable the IANI route.

LD 23 – Send the IANI messages across the Auxiliary Processor Link (APL).

Prompt	Response	Description
REQ	NEW, CHG	Add or modify an IANI route.
TYPE	ACD	IANI calls terminate at an auto-terminating ACD DN.
ISAP	YES, (NO)	Enable IANI messaging across the AP link. The ISAP prompt replaces the DNIS prompt in X11 release 15 and later software.

Feature operation

No specific operating procedures are required to use this feature.

Incoming DID Digit Conversion

The Incoming DID Digit Conversion (IDC) feature allows digits received from the Central Office (CO) to be converted to unrelated extension numbers within the system. This conversion is accomplished using a translation table dedicated to a Direct Inward Dialing (DID) route. The digit conversion table is set up to map the received (external) DID digits into the local (internal) Directory Number (DN).

IDC can be selectively applied to DID routes. A unique conversion table is available for each route.

Full Digit Conversion

All the digits received are converted to another string of digits as specified in the conversion table.

Different strings of digits can be converted to the same internal Directory Number (DN).

Partial Digit Conversion

Not all of the digits received from the Central Office (CO) are converted. The remaining digits may remain unchanged, and the whole string of digits is forwarded to the Directory Number (DN) translator.

It is possible to convert a partial string of digits to another partial string of digits of a different length (for example, 23xx to 4xx or 2xx to 49xx). The range of DNs to convert can include a mix of DN lengths.

No Digit Conversion

If the digits received are not defined in the conversion table, they are assumed to represent an internal Directory Number (DN). They are forwarded to the DN translator without any change.

An empty IDC table should not be programmed in a live DID route. If this is done all calls to the DID route intercept to the attendant.

Direct Call Termination

Incoming calls from non-Direct Inward Dialing (DID) trunks are not affected by Incoming DID Digit Conversion (IDC). If a call from a trunk on a route with IDC is received, the digits are translated into a pass (continue) or a converted telephone of local digits. These digits replace the dialed digits. Additional dialed digits are then forwarded directly for call processing. The IDC processor has no further influence on the call. Once the internal digit processor receives the digits, it alone determines the disposition of the call. It may be able to terminate the call, or it may be required to intercept the call due to invalid digits, a busy station, or Call Forward.

When DEXT = NO (LD 16) the Meridian 1 proprietary telephone display looks like this:

AAAA:MMM

where:

AAAA = route access code, and

MMM = Route Member Number.

The display may show the name of the route if Call Party Name Display (CPND) is allowed.

When DEXT = YES (LD 16) the Meridian 1 proprietary telephone display looks like this:

AAAA:MMM Pxxxx

where:

AAAA = route access code

MMM = Route Member Number

P = Special character (identifying the received digits), and

xxxx = Originally dialed digits (preconverted).

When DEXT = NO (LD 16) the Attendant Console display looks like this:

AAAA:MMM iiii xxxx

where:

AAAA = route access code

MMM = Route Member Number

iiii = Internal DN (called party), and

xxxx = route name if Call Party Name Display (CPND) is allowed.

When DEXT = YES (LD 16) the Attendant Console display looks like this:

AAAA:MMM#:xxxx iiii

where:

AAAA = route access code

MMM = Route Member Number

= Special character (identifying the received digits)

xxxx = originally dialed digits, and

iiii = Internal DN (called party).

Incoming Call Redirection

If an incoming call is redirected to a Centralized Attendant Services (CAS) or local attendant, the local DN is used to extend the call. If an incoming call reaches a Night DN, Hunt DN, Call Forward DN, or similar destination, then both the internal DN and the directory of local DNs are used to redirect the call.

Operating parameters

IDC applies to Direct Inward Dialing (DID) routes only. Auto-terminate trunks to Dialed Number Identification Service (DNIS) do not support IDC. All digits received from an incoming call translate to a maximum of four digits. Acceptable received digits for an incoming call are 0 through 9.

New Flexible Code Restriction (NFCR) is required to operate IDC. Since NFCR trees and IDC tables share the same structure, the total combined number of NFCR trees and IDC tables cannot exceed 255 per customer.

Feature interactions

EuroISDN Continuation

The Incoming Digit Conversion (IDC) feature converts incoming digits from a DID route. This feature is supported on the incoming EuroISDN DID routes. Digits received as a called party number are converted if the IDC feature is activated on the route. Digit analysis is then performed on the converted digits by the Meridian 1.

EuroISDN Master Mode

IDC is supported on the incoming EuroISDN Master Mode connectivity DID routes. If IDC is equipped, digits received as a called party number are converted, and digit analysis is then performed on the converted digits.

ISDN QSIG Name Display

IDC trunk and name information is passed and displayed to the terminating party when no name information is received from the Direct Inward Dial (DID) trunk. The Incoming DID Digit Conversion (IDC) feature is activated, and name information is associated with the converted digit sequence.

Name information received from a DID trunk takes precedence over an IDC trunk name.

Feature packaging

Incoming Digit Conversion (IDC) package 113 requires New Flexible Code Restriction (NFCR) package 49.

Feature implementation

LD 15 – Specify maximum number of Incoming Digit Conversion trees allowed.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FCR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- NFCR	(NO), YES	(Disable) enable New Flexible Code Restriction (NFCR).

- MAXT	1-255	Maximum number of NFCR trees.
- IDCA	(NO), YES	(Disable) enable IDC.
- DCMX	1-255	Maximum number of IDC tables.
Note: The sum of the values for MAXT and DCMX cannot exceed 255 per customer.		

LD 49 – Create tables to convert incoming Direct Inward Dialing digits.

Prompt	Response	Description
REQ	NEW	Create tables.
TYPE	IDC	IDC tables.
CUST	0-99	Customer number.
DCNO	0-254	IDC tree number.
IDGT	0-9999 0-9999	DN or range of DNs to be converted. Examples: To convert the external DN 3440 to 510, enter: <i>PromptResponse</i> IDGT3440 3440510 To convert external DNs in the range 3440–3465, enter: <i>PromptResponse</i> IDGT3440 3465 3440444 3441445 — — — — — — 3465469

LD 16 – Enable digit conversion for required DID trunk routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
IDC	(NO), YES	(Do not) use digit conversion for this route.
- DCNO	0-254	IDC tree number.
- NDNO	0-254	IDC conversion table for Night mode.
- DEXT	(NO), YES	(Do not) allow Digit Display.

Feature operation

No specific operating procedures are required to use this feature.

Incremental Software Management

Incremental Software Management (ISM) is a feature that provides flexibility and control over system configuration and implementation. With ISM, software ordering and pricing is based on the total count of Terminal Numbers (TNs), Automatic Call Distribution (ACD) positions (agents and supervisors), ACD Directory Numbers (ACD-DNs and Control DNs), Associate Telephone (AST) DNs, Recorded Announcement (RAN) Broadcast routes, and RAN and Music Broadcast connections that are to be purchased for a system. For specific system requirements and limits, refer to the *Pricing Manual*.

The customer-requested configuration parameters are communicated to Nortel (Northern Telecom) when a new system or upgrade order is placed. The requests are then defined during software disk preparation and are provided to the customer on security cartridge.

The number of configurable Terminal Numbers (TNs) is provided in increments of 100, ACD positions in increments of 5, the number of allowable ACD-DNs and AST DNs in increments of 1. With X11 Release 23, RAN and Music Broadcast connections can also be purchased incrementally. System parameters must be defined for an order to be processed.

With X11 Release 17, the system TNs are incremented with the ACD agents. Prior to Release 17, ACD agents were not counted against system TNs.

With X11 Release 17.67 and later software, when the allowable limits are exceeded, any additional entry is blocked, and an error message is shown every time a subsequent entry is attempted.

With X11 Release 23, ISM parameters are introduced for the following features:

- Electronic Brandlining
- Music Broadcast
- Recorded Announcement (RAN) Broadcast

For information on the above features, please refer to the appropriate feature modules in this guide.

System monitoring

To assist in monitoring system growth, each time an overlay is used, a header appears in the affected overlay, reflecting system status. The header indicates the total, available, and used quantities of TNs, ACD-DNs, ACD positions, AST DNs, Digital Subscriber Loops (DSLs), Logical Terminal Identifiers (LTIDs), D-channels (DCHs), Application Module Links (AMLs), RAN Broadcast routes, and RAN and Music Broadcast connections that are configured. The counts are updated each time system activity adds or deletes one of the tracked items. When the limits are exceeded, an error message appears.

ACD parameters are preset for each system. The numbers in the header are not necessarily real limits and are subject to system configuration. Contact your Nortel representative for information regarding your system limits.

A header, reflecting ISM parameters, is added to the following overlays:

- Overlay 10: analog (500/2500 type) telephones
- Overlay 11: Meridian 1 proprietary telephones
- Overlay 12: Attendant Consoles
- Overlay 13: Digitone receivers and tone detectors
- Overlay 14: trunks
- Overlay 16: routes
- Overlay 17: D-channels (DCH) and Application Module Links (AMLs)

- Overlay 23: ACD-DNs, and
- Overlay 27: Digital Subscriber Loops (DSLs) and Logical Terminal Identifiers (LTIDs).

Examples of header increments

The following examples show the header changes when TNs, ACD positions, ACD-DNs, RAN Broadcast routes, D-Channels, Application Module Links, Digital Subscriber Loops (DSLs), and Meridian Packet Handlers (MPH) are added or deleted. These overlays have not been modified by the ISM feature, except for the addition of the new headers.

Example 1 – Adding an analog (500/2500 type) set

Table 44 shows the Overlay 10 header **before** an analog (500/2500 type) set is added.

Table 44
Overlay 10 header prior to service change

MEM AVAIL: (U/P): 189162	USED: 154594	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 15	USED: 385	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Table 45 is the Overlay 10 implementation table for adding an analog (500/2500 type) set.

Table 45
LD 10 – Add an analog (500/2500 type) set

Prompt	Response	Description
REQ	NEW	Add a new telephone.
TYPE	500	Telephone type.
TN	I s c u c u	Terminal Number. For Option 11.

Table 46 shows the Overlay 10 header **after** an analog (500/2500 type) set is added.

Table 46
Overlay 10 header after service change

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 14	USED: 386	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Example 2 - Adding an analog (500/2500 type) set as an ACD agent

Table 47 shows the Overlay 10 header **before** an analog (500/2500 type) set associated with an ACD-DN is added.

Table 47
Overlay 10 header prior to service change

MEM AVAIL: (U/P): 189162	USED: 154594	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 14	USED: 386	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Table 48 is the Overlay 10 implementation table for adding an analog (500/2500 type) set associated with an ACD-DN.

Table 48
LD 10 – Add an analog (500/2500 type) set with an ACD-DN

Prompt	Response	Description
REQ	NEW	Add a new telephone.
TYPE	500	Telephone type.
TN	I s c u c u	Terminal Number. For Option 11.
...		
CLS	AGTA	ACD services for analog (500/2500 type) sets allowed.
...		
FTR	ACD x...x yyyy	Feature name and related data, where: x....x = the ACD DN and yyyy = the ACD position.

Table 49 shows the Overlay 10 header **after** an analog (500/2500 type) set associated with an ACD-DN is added.

Table 49
Overlay 10 header after service change

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 13	USED: 387	TOT: 400
ACD AGENTS AVAIL: 4	USED: 11	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Example 3 – Adding a Meridian 1 proprietary set

Table 50 shows the Overlay 11 header **before** a Meridian 1 proprietary set is added.

Table 50
Overlay 11 header prior to service change

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 13	USED: 387	TOT: 400
ACD AGENTS AVAIL: 4	USED: 11	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Table 51 is the Overlay 11 implementation table for adding a Meridian 1 proprietary set.

Table 51
LD 11 – Add a Meridian 1 proprietary set

Prompt	Response	Description
REQ	NEW	Add a new telephone.
TYPE	xxxx	Telephone type, where xxxx is: SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11.

Table 52 shows the Overlay 11 header **after** a Meridian 1 proprietary set is added.

Table 52
Overlay 11 header after service change

MEM AVAIL: (U/P): 189042	USED: 154714	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 12	USED: 388	TOT: 400
ACD AGENTS AVAIL: 4	USED: 11	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Example 4 – Adding a Meridian 1 proprietary set as an ACD agent

Table 53 shows the Overlay 11 header **before** a Meridian 1 proprietary set associated with an ACD-DN is added.

Table 53
Overlay 11 header prior to service change

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 12	USED: 388	TOT: 400
ACD AGENTS AVAIL: 4	USED: 11	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Table 54 is the Overlay 11 implementation table for adding a Meridian 1 proprietary set associated with an ACD-DN.

Table 54
LD 11 – Add a Meridian 1 proprietary set with an ACD-DN

Prompt	Response	Description
REQ	NEW	Add a new telephone.
TYPE	2216	ACD telephone type 2216.
TN	l s c u c u	Terminal Number. For Option 11.
...		
KEY	xx ACD yyyy zzzz	ACD telephone key function assignment, where: xx = Key 0 yyyy = ACD DN zzzz = agent's position ID

Table 55 shows the Overlay 11 header **after** a Meridian 1 proprietary set associated with an ACD-DN is added.

Table 55
Overlay 11 header after service change

MEM AVAIL: (U/P): 189042	USED: 154714	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 11	USED: 389	TOT: 400
ACD AGENTS AVAIL: 3	USED: 12	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Example 5 – Adding an Attendant Console

Table 56 shows the Overlay 12 header **before** an Attendant Console is added.

Table 56
Overlay 12 header prior to service change

MEM AVAIL: (U/P): 189042	USED: 154714	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 11	USED: 389	TOT: 400

Table 57 is the Overlay 12 implementation table for adding an Attendant Console.

Table 57
LD 12 – Add an Attendant Console

Prompt	Response	Description
REQ	NEW	Add a new console.
TYPE	1250	Console type.
TN	I s c u c u	Terminal Number. Assign this TN as the Primary TN. For Option 11.
CDEN	DD	Double Card Density.
SETN	I s c u c u	Second Terminal Number. Assign this TN as the Secondary TN. For Option 11.

Table 58 shows the Overlay 12 header **after** an Attendant Console is added.

Table 58
Overlay 12 header after service change

MEM AVAIL: (U/P): 188867	USED: 154889	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 9	USED: 391	TOT: 400

Example 6 – Adding a Digitone Receiver

Table 59 shows the Overlay 13 header **before** a Digitone Receiver is added.

Table 59
Overlay 13 header prior to service change

MEM AVAIL: (U/P): 188867	USED: 154889	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 9	USED: 391	TOT: 400

Table 60 is the Overlay 13 implementation table for adding a Digitone Receiver.

Table 60
LD 13 – Add a Digitone Receiver

Prompt	Response	Description
REQ	NEW	Add a new Digitone Receiver.
TYPE	DTR	Digitone Receiver data block.
TN	I s c u c u	Terminal Number. For Option 11.

Table 61 shows the Overlay 13 header **after** a Digitone Receiver is added.

Table 61
Overlay 13 header after service change

MEM AVAIL: (U/P): 189857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 8	USED: 392	TOT: 400

Example 7 – Adding a trunk

Table 62 shows the Overlay 14 header **before** a trunk is added.

Table 62
Overlay 14 header prior to service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 8	USED: 392	TOT: 400
RAN CON AVAIL: xxxx	USED: xxxxx	TOT: xxxxx
MUS CON AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
AST SET AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

Table 63 is the Overlay 14 implementation table for adding a trunk.

Table 63
LD 14 – Add a trunk

Prompt	Response	Description
REQ	NEW	Add a new trunk.
TYPE	TIE RAN MUS	TIE trunk. Recorded Announcement trunk. Music trunk.
TN	I s c u c u	Terminal Number. For Option 11.

Table 64 shows the Overlay 14 header **after** a trunk is added.

Table 64
Overlay 14 header after service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 7	USED: 393	TOT: 400
RAN CON AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
MUS CON AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
AST SET AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

Example 8 – Adding a route (for large systems)

Table 65 shows the Overlay 16 header **before** a RAN route is added.

Table 65
Overlay 16 header prior to service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
RAN RTE AVAIL: 510	USED: 1	TOT: 511

Table 66 is the Overlay 16 implementation table for adding a RAN route.

Table 66
LD 16 – Add a route

Prompt	Response	Description
REQ	NEW	Add a new trunk.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route Number. For Option 11.
TKTP	RAN	Recorded Announcement trunk.

Table 67 shows the Overlay 16 header **after** a route is added.

Table 67
Overlay 16 header after service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
RAN RTE AVAIL: 509	USED: 2	TOT: 511

Example 9 – Adding a D-channel (DCH)

Table 68 shows the Overlay 17 header **before** a D-Channel is added.

Table 68
Overlay 17 header prior to service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
DCH AVAIL: 7	USED: 8	TOT: 15
AML AVAIL: 5	USED: 4	TOT: 9

Table 69 is the Overlay 17 implementation table for adding a D-Channel.

Table 69
LD 17 – Add a D-Channel

Prompt	Response	Description
REQ	CHG	Add a D-Channel.
TYPE	CFN	Configuration Record.
ADAN	NEW DCH x	Add a primary DCH on port x, where x = 0-63.

Table 70 shows the Overlay 17 header **after** a D-Channel is added.

Table 70
Overlay 17 header after service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
DCH AVAIL: 6	USED: 9	TOT: 15
AML AVAIL: 5	USED: 4	TOT: 9

Example 10 – Adding an Application Module Link

Table 71 shows the Overlay 17 header **before** an Application Module Link is added.

Table 71
Overlay 17 header prior to service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
DCH AVAIL: 6	USED: 9	TOT: 15
AML AVAIL: 5	USED: 4	TOT: 9

Table 72 is the Overlay 17 implementation table for adding an Application Module Link.

Table 72
LD 17 – Add an Application Module Link

Prompt	Response	Description
REQ	CHG	Add an Application Module Link.
TYPE	CFN	Configuration record.
ADAN	NEW AML x	Add an AML on port x, where x = 0-15.

Table 73 shows the Overlay 17 header **after** an Application Module Link is added.

Table 73
Overlay 17 header after service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
DCH AVAIL: 5	USED: 10	TOT: 15
AML AVAIL: 4	USED: 5	TOT: 9

Example 11 – Adding an Automatic Call Distribution Directory Number (ACD-DN)

Table 74 shows the Overlay 23 header **before** an ACD-DN is added.

Table 74
Overlay 23 header prior to service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
ACD DNS AVAIL: 5	USED: 10	TOT: 15

Table 75 is the Overlay 23 implementation table for adding an ACD-DN.

Table 75
LD 23 – Add an ACD-DN

Prompt	Response	Description
REQ	NEW	Add a new ACD-DN.
TYPE	ACD	Automatic Call Distribution data block.
CUST	xx	Customer number.
ACDN	x...x	ACD-DN. The ACD-DN can be up to four digits, or seven digits with DNXP package 150.

Table 76 shows the Overlay 23 header **after** an ACD-DN is added.

Table 76
Overlay 23 header after service change

MEM AVAIL: (U/P): 188513	USED: 155243	TOT: 343756
DISK RECS AVAIL: 94		
ACD DNS AVAIL: 4	USED: 11	TOT: 15

Example 12 – Adding a Digital Subscriber Loop (DSL)

Table 77 shows the Overlay 27 header **before** a Digital Subscriber Loop is added.

Table 77
Overlay 27 header prior to service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
BRI DSL AVAIL: 100	USED: 0	TOT: 100
LTIDS AVAIL: xxx	USED: xxx	TOT: xxx
TNS AVAIL: 7	USED: 393	TOT: 400
MPH DSL AVAIL: 100	USED: 0	TOT: 100

Table 78 is the Overlay 27 implementation table for adding a Digital Subscriber Loop.

Table 78
LD 27 – Add a Digital Subscriber Loop

Prompt	Response	Description
REQ	NEW	Add a Digital Subscriber Loop.
TYPE	DSL	Digital Subscriber Loop data block.
DSL	I s c dsl	Digital Subscriber Loop address.

Table 79 shows the Overlay 27 header **after** a Digital Subscriber Loop is added.

Table 79
Overlay 27 header after service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
BRI DSL AVAIL: 99	USED: 1	TOT: 100
LTIDS AVAIL: xxx	USED: xxx	TOT: xxx
TNS AVAIL: 5	USED: 395	TOT: 400
MPH DSL AVAIL: 100	USED: 0	TOT: 100

Example 13– Adding a Meridian Packet Handler (MPH)

Note: In this example, a DSL is configured to support D-Channel and B-Channel packet data terminals, using a Multi-purpose ISDN Signaling Processor (MISP) as an MPH.

Table 80 shows the Overlay 27 header **before** an MPH application is added.

Table 80
Overlay 27 header prior to service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
BRI DSL AVAIL: 99	USED: 1	TOT: 100
LTIDS AVAIL: xxx	USED: xxx	TOT: xxx
TNS AVAIL: 5	USED: 395	TOT: 400
MPH DSL AVAIL: 100	USED: 0	TOT: 100

Table 81 is the Overlay 27 implementation table for adding an MPH application.

Table 81
LD 27 – Add an MPH

Prompt	Response	Description
REQ	NEW	Add a Digital Subscriber Loop.
TYPE	DSL	Digital Subscriber Loop data block.
DSL	l s c dsl	Digital Subscriber Loop address.
...		
MPH	loop	Meridian Packet Handler loop.

Table 82 shows the Overlay 27 header **after** an MPH application is added.

Table 82
Overlay 27 header after service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
BRI DSL AVAIL: 98	USED: 2	TOT: 100
LTIDS AVAIL: xxx	USED: xxx	TOT: xxx
TNS AVAIL: 3	USED: 397	TOT: 400
MPH DSL AVAIL: 99	USED: 1	TOT: 100

Printing ISM System Limits

When REQ is set to SLT in Overlay 22, ISM system limits are printed. The limits established for the system, the used parameters, the remaining parameters, and other system information is printed when REQ = SLT.

Table 83 shows the Overlay 22 implementation table for printing system limits.

Table 83
LD 22 – Print system limits

Prompt	Response	Description
REQ	SLT	Print System Limits: Incremental Software Management.

Table 84 is an example of an Overlay 22 printout when REQ is set to SLT.

Table 84
Example of an Overlay 22 print out when REQ = SLT

REQ slt					
TNs	400	LEFT	3	USED	397
AGNT	15	LEFT	3	USED	12
ACDN	15	LEFT	4	USED	11
AST	13	LEFT	3	USED	10
BRI DSL	100	LEFT	98	USED	2
LTID	100	LEFT	100	USED	0
DCH	15	LEFT	5	USED	10
AML	9	LEFT	4	USED	5
MPH DSL	100	LEFT	99	USED	1
RAN CON	32767	LEFT	32767	USED	0
RAN RTE	511	LEFT	509	USED	2
MUS CON	10000	LEFT	10000	USED	0
IDLE_SET_DISPLAY		XXXXX			

System administration

When the predefined ISM limits are reached, an error message indicates that further database additions are blocked. New software must be ordered to increase system limits. In order to minimize delays in system administration, it is critical that the configuration limits be monitored and that new disks be ordered before the current parameters are exceeded.

Software Upgrade

When performing a system upgrade, if the new TN, ACD-DN, ACD agent, AST DN/TN, RAN Broadcast route, and RAN Broadcast connection limits do not equal or exceed present limits, then do not attempt to sysload. Excess information will be lost. Obtain new disks with expanded limits.

For example, if a system has 150 TNs configured and the new software only has an ISM limit of 100 TNs, then the system will eliminate the additional 50 TNs. A SYS message appears if this situation occurs.

CAUTION

System information will be lost.

With X11 Release 15.55 and later, upon software upgrade, if SYS message 4327, 4328, 4329, or 4330 appears at SYSLOAD, then SYSLOAD previous system disks. Order ISM disks with sufficient system parameters configured. DO NOT DATADUMP; system information will be lost. Call your technical support department for assistance.

With X11 Release 23 and later, upon software upgrade, if SYS message 4327, 4328, 4329, 4330, 9038, or 9039 appears at SYSLOAD, then the above situation also applies.

Keycodes

Option 11C customers can modify ISM limits via keycode. With X11 Release 23, Input-Output Disk Unit with CD-ROM (IODU/C) customers can also modify ISM limits via keycode.

A Keycode is a machine generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects ISM parameters.

In order for Option 11C and IODU/C customers to expand ISM limits, they must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in Overlay 143. To make the expansion effective, the customer must sysload. For further information on keycode installation, please refer to *Software conversion procedures*.

Operating parameters

When the total number of Terminal Numbers (TNs) configured in the system is calculated, all TNs associated with analog (500/2500 type) telephones, Meridian 1 proprietary telephones, AST DNs, Attendant Consoles (two TNs per console), Digitone receivers, tone detectors, and trunks are included in the total count.

The total number of TNs refers to Terminal Numbers (TNs) configured in Overlays 10, 11, 12, 13, and 14. There is no differentiation among signaling, data, or voice channels.

When the total number of ACD Agents configured in the system is calculated, any telephone configured as Key 0 ACD is included in the total count. This includes ACD agents and ACD supervisors.

AST DNs are not included in the total count of ACD Agents.

With X11 Release 17 and later software, AST DNs must be defined individually in Overlays 10 or 11. With X11 Release 16 and earlier software, AST DNs are defined in Overlay 23 on a per-queue basis.

AST DN designation is not maintained following a software conversion; therefore, all AST DNs must be reconfigured after the conversion is complete.

The total ACD Agents refers to virtual and active (live) ACD agents and ACD supervisors.

Each configured Attendant Console increments the TN count twice. The first TN is designated as the primary TN, and the second TN is designated as the secondary TN. Power units are not included in the TN count.

X11 Release 18 and later software tracks Application Module Links (AMLs), D-channels (DCHs), Logical Terminal Identifiers (LTIDs), and Digital Subscriber Loops (DSLs).

LTIDs and DSLs apply to Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) only. Refer to *ISDN Basic Rate Interface description* for more information regarding BRI.

ACD parameters are allowed only if ACD is equipped.

Prior to X11 Release 17, ACD groups are defined as ASTs at the group level in Overlay 23. As of X11 Release 17, each agent can be defined individually using Overlays 10 and 11. As a consequence, customers must reconfigure ACD ASTs manually through Overlays 10 and 11 when upgrading to X11 Release 17.

In Overlay 10, Service Change (SCH) messages appear only after the Feature (FTR) prompt has been answered.

In Overlay 11, SCH messages appear only after the KEY prompt has been answered.

Feature interactions

Incremental Software Management has no specific interactions with other features.

Feature packaging

Incremental Software Management requires the following package for ACD-DNs and ACD Agent and Supervisor parameters to be printed:

- Basic ACD (BACD) package 40

For AST DN parameters to be printed, the following packages are required:

- Command Status Link package 77
- Application Module Link (AML) package 209

Feature implementation

There are no specific implementation procedures for the Incremental Software Management feature.

Feature operation

No specific operating procedures are required to use this feature.

Instant ISM

The Incremental Software Management limits determine the maximum number of TNs, ACD positions, and other parameters on the Meridian 1. Previously, to increase ISM limits a user had to receive a keycode, deliver it to the Meridian 1, and perform a Sysload. This caused an undesirable service interruption.

The Instant Incremental Software Management (IISM) feature allows ISM limits to be upgraded on the Meridian 1 by delivering the keycode to the Meridian 1, *without* the need for a Sysload.

During keycode activation via the existing prompts in overlay 143, if the keycode is eligible for instant activation (i.e., ISM parameters are the only parameters that have changed relative to the current system keycode, and no ISM limits are decreasing), the ISM limits will be upgraded “instantly.” Following successful activation, a system message introduced by the Instant ISM feature will be displayed. This message indicates that the keycode was accepted, ISM limits were increased, and that a Sysload is *not* required.

A keycode that is eligible for instant activation has ISM limits that are either unchanged or increased, has no addition or removal of feature packages, and has no changes to software release and issue, software generic, or AUX-ID.

If a keycode is not eligible for instant activation (i.e., ISM parameters are lowered, or software packages are changed), system message CCBR009 (“New keycode accepted. It will be activated during the next restart.”) is displayed and a Sysload *will* be required.

Operating parameters

The Instant ISM feature applies to option 11C, 51C, 61C, 81, and 81C systems running X11 release 24 or later software.

Option 51C, 61C, 81, and 81C systems must be equipped with the NT5D61 IODU/C card to support this feature. The reason for this requirement is that keycode enabling of software (which implements the activation of ISM limits and packages) on these systems requires IODU/C.

ISM limits can only be unchanged or increased - if they are decreased, a Sysload is still required to enable them. This feature does not support adding or removing packages, or changing software release and issue, software generic, or AUX-ID, without the need for a Sysload.

The Meridian 1 does not treat the option 11C MOPT parameter as an ISM limit, but rather as a package. The Instant ISM feature does not support instant MOPT changes. If the MOPT parameter is changed, a Sysload will be required.

System initialization

If system initialization occurs while a new keycode is being instantly activated, the Meridian 1 software will attempt to complete the keycode activation if at all possible. However, depending on when the initialization occurred, the software may not be able to complete keycode activation.

Therefore, after the system has completed initialization, the craftsperson should print the active ISM parameters via overlay 22. If the printed ISM parameters match the new keycode parameters, then the Meridian 1 software completed the keycode activation successfully. If the ISM parameters printed are the pre-upgrade parameters:

- For options 51C, 61C, 81, and 81C systems, the craftsperson should load overlay 143 to verify whether the new keycode is still on the harddrive by using the “KSHO HD” command. If the new keycode is still on the hard drive, then the craftsperson needs to remove the keycode from the harddrive using the “KOUT” command, and then perform the new keycode installation process again. If the new keycode is not on the harddrive, the craftsperson should perform the new keycode installation process in overlay 143.
- For option 11C systems, the craftsperson should load overlay 143 and reprogram the system upgrade process.

Feature interactions

Incremental Software Management

Instant ISM does not change the operation of the various ISM limits. Instant ISM simply allows the user to upgrade ISM limits without having to Sysload.

IS-41 Networking

Instant ISM supports the MOB ISM parameter introduced by the IS-41 Networking feature in X11 release 24.

RAN and Music Broadcast

Certain traffic reports peg the number of times the RAN and Music ISM limits had been reached. Due to the fact that ISM limits may change instantly (without a Sysload), a traffic report that is counting the ISM hits over a period may be checking against two different values consecutively. Therefore, for one single calculation period the report will have an aberration.

Electronic Brand Line (EBLN/BRAND)

Unlike other ISM parameters which define the maximum configuration limits for various resources, the BRAND ISM parameter defines which Electronic Brand Line feature option the system is allowed to use.

The same limitation applies to the BRAND parameter as applies to other ISM limits, that is, the BRAND parameter must be unchanged or increased if the ISM limits are to be updated instantly without the need for a Sysload.

Once the BRAND ISM parameter has been increased, the user still has to load overlay 17, in order to configure the actual string that is to be displayed, as per existing operation.

Telephone displays that display brandline information (when in an idle state) will not have the brandline updated immediately. The update will occur on a set the next time LAMPAUDIT audits the set.

Feature packaging

No new packages are introduced by this feature.

Feature implementation

There is no system programming required to enable this feature.

Feature operation

Feature operation is further broken down into three options:

- Instant ISM parameter upgrade using a keycode diskette
- Instant ISM parameter upgrade using HyperTerminal
- Instant ISM parameter upgrade for Option 11C

Instant ISM parameter upgrade using a keycode diskette

For options 51C, 61C, 81, and 81C systems, perform the following to instantly activate a keycode without a Sysload:

Note: For a dual-CPU (redundant) system, leave the system in full redundant mode (hard-disk and CPU redundancy).

- 1 Log in on a system terminal and load overlay 143.
 >LD 143
 CCBR000
 .

2 Insert the new keycode diskette into the floppy drive on the active IODU/C.

3 Enter the KDIF command and select keycode comparison options.

Note: Ensure that the new keycode does not lower ISM limits or reduce features compared with the existing keycode. If you have determined that the keycode lowers ISM limits or reduces features, do not continue with the KNEW command, but contact your Nortel order management representative

. KDIF

Please use: KDIF <param1> <param2>

with the following parameters:

NEW - accepted new keycode

REC - currently used keycode

OLD - previously used keycode

F0 - candidate keycode on diskette in /f0 floppy drive

F1 - candidate keycode on diskette in /f1 floppy drive

HD - candidate keycode which was uploaded to hard disk

- 4 Enter the keycode comparison option. The new keycode option is shown in **bold**.

Note: In the following example, the (REC) currently used keycode will be compared with the new keycode disk in floppy drive F0. The limits shown are for example purposes only.

.KDIF REC F0

Validating Keycode File /p/install/keycode.rec ... OK

Validating Keycode File /f0/keycode.kcd ... OK

System parameters	1st keycode:	2nd keycode:
System Serial Number	: 46XX	46XX
Software Version	: 2311	2311
System Type	: Option 61C	Option 61C
Call Processor	: CP68040	CP68040
Release	: 24	24
Issue	: XX	XX
NTI Order Number	:	
NT SDID - 1	:	
NT SDID - 2	:	
Date and Time of Manufacture	:	

Note: () indicates that information is not available

ISM Limits in the 1st keycode: 2nd keycode:

Loop Limit	: 32	32
Sys TNs Limit	: 10	11
ACD Agt Limit	: 10	10
ACD DNs Limit	: 10	10
AST Limit	: 10	10

.....

Common packages for both keycodes:

0-2 4-5 7-25 28-29 32-55 58-65

.....

Additional packages in the 2nd keycode:

< **30-31**

.

- 5 Select the new keycode for activation using the KNEW command.

. KNEW F0

If the new keycode is eligible for instant activation, it will be activated without further user action, and the following system message is given:

**CCBR020 New Keycode accepted and activated successfully.
Sysload is NOT needed!**

Otherwise, if the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following system message is given:

CCBR009 New Keycode accepted. It will be activated during the next restart.

- 6 Load Overlay 22 and confirm that the new ISM parameters have been updated.

>LD 22
REQ SLT
....

- 7 See “Reverting to the previous keycode with the KRVR command” on page 1044 if ISM limits are not increased or problems exist.

Instant ISM parameter upgrade using HyperTerminal®

For options 51C, 61C, 81, and 81C systems, perform the following to instantly activate a keycode without a Sysload:

For a dual-CPU (redundant) system, leave the system in full redundant mode (hard-disk and CPU redundancy).

- 1 On a PC, access the Meridian 1 system (via a modem) with HyperTerminal® (provided with Windows 95):
 - Click the **Start button | Programs | Accessories | HyperTerminal**.
- 2 Double-click the HyperTerminal client to the Meridian 1 system.
- 3 Log into the Meridian 1 system.
- 4 Load the Keycode Management Program (LD 143).
LD 143 to load program
KUPL to upload keycodes to the hard disk on the target system
- 5 Click the **Transfer** menu in HyperTerminal and select **Send Text File**.
- 6 From the **Files of type** pull-down menu, select **All Files (*.*)**.
- 7 Locate and select the keycode file on the PC. Use the **Look in** pull-down menu to select the drive on which the keycode is located.
- 8 Click **Open**.

The keycode will be displayed after the KUPL prompt.

Example:

```
KUPL 0001PBX 0101
9FPAMSRHNN17KRUQAFFSPREQEVMTHIDHRKDJHRKEJR56
```

- 9 Press the Enter key.

The Keycode is checked for CRC errors and is uploaded to the hard disk.

Enter the following command:

KDIF REC HD to compare the existing keycode with the new
keycode on the hard disk

Ensure that the new keycode does not lower ISM limits or reduce features compared with the existing keycode. If you have determined that the keycode lowers ISM limits or reduces features, do not continue with the KNEW command, but contact your Nortel order management representative.

- 10 Select the new keycode for activation using the KNEW command.

KNEW XX to select the new keycode for activation, where
XX = HD for a keycode on the hard drive, or
XX = F1 or F0 for a keycode on the floppy drive on
Core 1 or Core 0.

If the new keycode is eligible for instant activation, it will be activated without further user action, and the following system message is given:

**CCBR020 New Keycode accepted and activated successfully.
Sysload is NOT needed!**

Otherwise, if the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following system message is given:

**CCBR009 New Keycode accepted. It will be activated during the next
restart.**

If KUPL fails, the file is saved to the file “\u\keycode.err.”

- 11 See “Reverting to the previous keycode with the KRVR command” on page 1044 if ISM limits are not increased or problems exist.

Instant ISM parameter upgrade for Option 11C

Option 11C systems

For option 11C systems, perform the following to instantly activate a keycode without a Sysload:

- 1 Log in and load overlay 143

```
>LD 143
CCBR000
.
```

- 2 Enter the **UPGRADE** command.

```
. UPGRADE
```

The “Software Installation Main Menu” is displayed:

```
SOFTWARE INSTALLATION PROGRAM
*****
Verify Security ID: XXXXXXXXX
*****
```

Software Installation Main Menu:

```
1. New Install or Option 11/11E Upgrade - from Software
Daughterboard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card
[q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> - redisplay
```

Enter Selection:

- 3 Enter **2** for the “System Upgrade” option.

The “Select type of upgrade to be performed” menu is displayed.

Select type of upgrade to be performed:

```
1. Option 11/11E to Option 11C
2. Option 11C New Software Upgrade
3. Option 11C Feature/Parameter Upgrade
[q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> - redisplay
```

- 4 Enter **3** for the “Option 11C Feature/Parameter Upgrade” option.

Note: The following questions require information from the Keycode data sheet. Please have it available.

- 5** Indicate that the current Feature Sets and/or Packages will remain the same by selecting “n” to the following requests.

- Do you wish to change feature sets? (y/n/[a]bort) : N
Keeping Current Feature Set.
- Do you wish to add packages? (y/n/[a]bort) : N

The current ISM Parameters are printed to the TTY.

- 6** The ISM parameters shown below are a sample configuration only.

Current ISM Parameters :

TNS (10)
AGNT (10)
ACDN (10)
AST (10)
DSL (10)
...

- 7** Do you wish to change any ISM parameters? (y/n/[a]bort) :

- 8** In response to the prompt “Do you wish to change any ISM parameters? (y/n/[a]bort) :” enter **y**.

- 9** The ISM parameters are prompted in sequence. Change the ISM parameters appropriately, according to the new keycode:

The ISM parameters shown below are a sample configuration only.

Enter new ISM parameters, <cr> to leave unchanged:

TNS (10) -
AGNT (10) - 11
ACDN (10) -
AST (10) -
DSL (10) -
...

- 10** After all ISM parameters have been prompted, the new ISM parameters are displayed and the prompt “Is this correct?” appears. Enter **y** to continue.

- 11 New ISM Parameters :
TNS (10) -
AGNT (11)
ACDN (10) -
AST (10) -
DSL (10) -
...
- 12 Is this correct? (y/n/[a]bort) :
- 13 Enter **y** if the new ISM parameters are correct. If the ISM parameters are not correct select **n** and reconfigure the ISM parameters.

The system will display the Security ID and Current AUX ID.
- 14 Security ID: XXXXXXXX
Current AUX ID : XXXXXXXX
Do you wish to change the AUX ID? (y/n/[a]bort) :
- 15 In response to the prompt "Do you wish to change the AUX ID?," enter **n**.
- 16 An upgrade summary is displayed. In response to the prompt "Is this correct?," enter **y** to continue.
- 17 Ensure that the new ISM limit is shown. In this example the AGNT ISM limit was changed from 10 -11. The system will display:
AGNT : 10 11
...
Is this correct? (y/n/[a]bort) :
- 18 Select **y** and the system will prompt to enter the keycode.
- 19 Enter new keycodes:
Key 1 :
Key 2 :
Key 3 :
- 20 Enter the new keycode. The keycode consists of three keycode strings: Key 1, Key 2, and Key 3. Enter each string and press return. If the keycodes are entered properly, the system will display:
- 21 Keycode validation successful.
Are you sure you wish to perform the upgrade? (y/n/[a]bort) :

22 In response to the prompt “Are you sure you wish to perform the upgrade?,” enter **y**.

If the new keycodes correct for instant activation, it will be activated without further user action, and the following message is given:

**Upgrade was completed and activated successfully.
Sysload is NOT needed!**

If the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following message is given:

**Upgrade was completed successfully.
Initiate a Sysload to activate the upgrade.**

Reverting to the previous keycode with the KRVR command

On options 51C, 61C, 81, and 81C systems, the KRVR command can be used to revert to the old keycode “instantly.”

Note: The terms “old” and “new” keycode as discussed here refer to the most recent previous KNEW command. The “old” keycode is the former keycode, prior to the KNEW command. The “new” keycode is the keycode that was activated by the KNEW command.

The old keycode is eligible for instant activation with the KRVR command if the only difference between the old keycode and the new keycode is that some or all of the ISM parameters in the old keycode are *higher*.

To revert to the old keycode:

1 In overlay 143, enter the **KRVR** command.

If the keycode is eligible for instant activation, it will be activated without further user action, and the following system message is given:

CCBR020 New Keycode accepted and activated successfully. Sysload is NOT needed!

Otherwise, if the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following system message is given:

CCBR009 New Keycode accepted. It will be activated during the next restart.

Integrated Messaging System Link

The primary objectives of Integrated Messaging System (IMS) Link are to replace written telephone messages, to minimize the need for attendant intervention in the leaving and the retrieving of messages, and to support user-to-user automatic voice messaging. These functions are integrated in Integrated Messaging System (IMS) Link capability.

Integrated Messaging System (IMS) Link provides the support required for third-party messaging systems to interface with the Meridian 1. The calling party can leave voice messages to be retrieved by the called party at any time. Users calling from inside or outside the Meridian 1 system can leave and retrieve messages. The messaging system answers the call, delivers a personal greeting (recorded in the user's voice), digitizes the message, stores the message, and notifies the called party of a waiting message. The called party can retrieve and manipulate these messages from any Digitone telephone in the world. The user can issue a variety of commands to save or transfer messages, reply to messages, or broadcast group messages to multiple users.

To retrieve messages, each user must enter an ID code and a password. If the user calls the messaging system from his or her own Directory Number (DN), the ID code need not be entered. Any telephone with Dual Tone Multifrequency (DTMF) or Meridian 1 proprietary telephone signaling can connect to the attendant or to some other predefined DN (one DN for the entire Meridian SL-1) by pressing 0. Callers with analog (500/2500 type) telephones must wait for a timeout before connecting automatically to the attendant.

The maximum length of a message will vary, depending on the messaging system equipped. User profiles are established to limit the number of messages each user is entitled to store.

Operating parameters

Users within the Meridian 1 system must have either Dual Tone Multifrequency (DTMF), or Meridian 1 proprietary telephone signaling capabilities. Users outside the Meridian 1 must have DTMF signaling.

Feature interactions

There are no interactions with other features.

Feature packaging

Integrated Messaging System (IMS) package 35, requires the following features:

- Basic ACD (BACD) package 40
- ACD Package A (ACDA) package 45, and
- Message Center (MWC) package 46.

Systems with X11 Release 10 and later software also require the Auxiliary Processor Link (APL) package 109.

Feature implementation

LD 17 – Add or change the link to a messaging system (X11 Release 17 and later software). Before adding, changing, or removing a link, the device must be disabled.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ADAN	Configuration Record. Release 19 gate opener.
IOTB	(NO), YES	(Do not) allow changes to input/output devices.
ADAN	NEW, CHG TTY 0-15	Add or change a messaging system link to the Meridian 1.
- USER	APL	This link is an Auxiliary Processor Link (APL).
TYPE	PARM	Release 19 gate opener.
- AXQI	(20)-255	Number of call registers to be used for receipt of messages from the messaging system.)
- AXQO	(20)-255	Number of call registers to be used for output of messages to the messaging system. Note: If the number of call registers defined for the Meridian 1 system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25 percent of the system call registers.

LD 17 – Add or change the link to a messaging system for X11 Release 18 or later. Before adding, changing, or removing a link, the device must be disabled.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ADAN	Configuration Record. Release 19 gate opener.
IOTB	(NO), YES	(Do not) allow changes to input/output devices.
ADAN	NEW, CHG TTY 0-15	Add or change a messaging system link to the Meridian 1.
- CTYP	aaaa	Card type, where: aaaa = DCHI, MSDL, MSPS, SDI, SDI2, SDI4, or XSDI.
- DNUM	0-15	Device number to be printed automatically (same as ADAN number).
USER	APL	This link is an Auxiliary Processor Link (APL).
- AXQI	(20)-255	Number of call registers to be used for receipt of messages from the messaging system.
- AXQO	(20)-255	Number of call registers to be used for output of messages to the messaging system. Note: If the number of call registers defined for the Meridian 1 system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25 percent of the system call registers.

LD 15 – Add or change the IMS feature for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
OPT	(MCX), MCI	Message Center (excluded) included.
...		
TYPE	IMS	Release 21 gate opener.
- IMS	(NO), YES	(Do not) allow changes to the IMS feature.
- IMA	(NO), YES	IMS feature (is not) or is enabled.
- - APL	0-15	Port number of the link to the messaging system.
- UST	(NO), YES	User Status Update (UST) feature (is not) or is enabled.
- - APL	0-15	Port number of the link from UST to the messaging system.
- UMG	(NO), YES	User-to-User Messaging (UMG) feature (is not) enabled.
- - APL	0-15	Port number of the link from UMG to the messaging system.

LD 23 – Add or change ACD data for Integrated Messaging System Link feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ACD	ACD Data Block.
CUST	0-99	Customer number.
ACDN	xxxx	ACD DN (can have up to seven digits if DN Expansion package is equipped).
MWC	(NO), YES	ACD (is not) is an IMS.
- IMS	(NO), YES	(Do not) allow changes to the IMS feature.
- - IMA	(NO), YES	ACD DN (is not) is used as an IMS DN.
- - APL	0-15	Port number of the link to the messaging system.
- - UST	(NO), YES	User Status Update (UST) feature (is not) is enabled.
- - APL	0-15	Port number of the link from UST to the messaging system.
- - UMG	(NO), YES	User-to-User Messaging (UMG) feature (is not) is enabled.
- - APL	0-15	Port number of the link from UMG to the messaging system.
- - RAN	0-30, 32-xxx	Route number to the Recorded Announcement (RAN) for UMG (default is no RAN).
- - UMT	0-(6)-15	Time, in seconds, of silent interval after alert tone on RAN.

LD 11 – Add or change IMS attendant capability for each Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000.
TN	l s c u	Terminal Number.
CLS	(IMD), IMA	This telephone (is not) is an IMS attendant.
LTN	1-253, 0-15	Logical Terminal Number assigned to this attendant, port number of the link to messaging system used by this attendant.
KEY	0 ACD xxxx yyyy	Add an INCALLS key, where: xxxx = IMS Directory Number (DN), and yyyy = Agent ID. Note: IMS DN and Agent ID can have up to seven digits if DN Expansion package is equipped
	xx MIK	Add a Message Indication (MI) key.
	xx MCK	Add a Message Cancellation (MC) key.
	xx NRD	Add a Not Ready (NR) key.
	xx MSB	Add a Make Set Busy (MSB) key.

Feature operation

No specific operating procedures are required to use this feature.

Integrated Services Digital Network

Integrated Services Digital Network (ISDN) provides standard digital interfaces between telephones, terminals, and telecommunication networks.

ISDN uses a common signaling protocol transmitted over a dedicated data channel called the D-Channel. The D-Channel carries call setup and feature activation information to the call destination. This allows users network-wide access to features.

ISDN services are categorized into two types of interfaces: Primary Rate Interface (PRI) and Basic Rate Interface (BRI).

Primary Rate Interface (PRI)

ISDN PRI provides 23B+D channels, offering digital connectivity between the Meridian 1 and supported interfaces.

For more information on ISDN PRI, please refer to the Meridian 1 Primary Rate Interface NTPs.

Basic Rate Interface (BRI)

ISDN BRI is a digital connection that provides three digital channels. These channels consist of 2 64 kbps bearer channels (B-Channels) and one 16 kbps signaling channel (D-Channel). This 2B+D connection is known as a Digital Subscriber Link (DSL). The DSL can be configured to provide line access or packet data transmission.

For more information on ISDN BRI, please refer to the Meridian 1 Basic Rate Interface NTPs.

Integrated Voice and Data

The Integrated Voice and Data feature provides integrated voice and data switching through a host Meridian 1.

Hardware consists of the Add-on Data Module (ADM), Data Line Card (DLC), and Modem Pool Line Card (MPLC), if modem pooling is used.

The Meridian 1 software recognizes the ADM as an SL-1 telephone, the DLC as an SL-1 Line Card, and the MPLC as a 500 telephone Line Card. Overlay LD 10 and LD 11 are used to enter the hardware into the office data.

Refer to the Northern Telecom Publication *Meridian Data Services* series for further details.

Operating parameters

Hunting is not allowed with the Modem Pool Line Card (MPLC) pack.

No analog (500/2500 type) telephones can be assigned to the MPLC pack.

Collocated SL-1 telephones can only have three key/lamp strips, due to physical constraints.

Feature interactions

Refer to Northern Telecom Publication *Meridian Data Services* series.

Feature packaging

Integrated Voice and Data is included in base X11 system software.

Feature implementation

LD 11 – Add or change SL-1 telephone (of an SL-1 telephone/Add-on Data Module pair) associated with a Data Line Card (DLC) data port pair.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SL1	Telephone type.
TN	l s c u	Terminal Number; SL-1 telephones are restricted to unit 0 or 2 when collocated with an ADM.
CDEN	SD, DD	Density of this card is single or double.
KLS	1-7	Number of key/lamp strips.
KEY	0 DN xxx...x 2 TRN 9 RLS	Key 0; Voice Frequency Directory Number. Key 2; Call Transfer key. Key 9; Release key. Note: Other feature keys may be associated as required, subject to the limitations imposed by the companion ADM.

LD 11 – Add or change ADM (of an SL-1 telephone/ADM pair) associated with a Data Line Card (DLC) data port pair.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SL1	Telephone type.
TN	l s c u	Terminal Number – loop (0–159), shelf (0–1), card (1–10), unit (1, 3, 5, 7); the loop, shelf, and card must be the same as those specified for the companion SL-1 telephone; the unit must be the next subsequent unit to the companion SL-1 telephone (e.g., if the unit for SL-1 telephone is 2, the unit for ADM must be 3).
CDEN	SD, DD	Single or double density card.

CLS	WTD	Warning Tone Denied.
KEY	0 DN xxxx	Key 0, data Directory Number; can have up to seven digits if DN Expansion (DNXP) package is equipped.
	1 DN xxx...x	Key 1, optional secondary data DN.
	2 TRN	Key 2, Call Transfer key (optional).
	3 ADL x...x	Key 3, Autodial DN (optional).
	4 RGA	Key 4, Ring Again key (optional).
	6 SCC 0-8190	Speed Call Controller, Speed Call List number (optional; must be on key 6 if equipped).
	or	
	6 SCU 0-8190	Speed Call User, Speed Call List number (optional; must be on key 6 if equipped).
		Note: With X11 Release 12 and earlier software, the number of Speed Call Lists is limited to 253.
	9 RLS	Release key: must be key 9.
		Note: Only the feature keys listed above can be assigned to the Add-on Data Module (ADM). If they are assigned to the ADM, they must also be assigned to the companion SL-1 telephone on the same keys (i.e, if the ADM has ADL on key 3, the companion SL-1 telephone must also have ADL on key 3, with the same Autodial DN).

LD 11 – Add or change DLC data port associated with a standalone ADM.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SL1	Telephone type.
TN	I s c u	Terminal Number.
CDEN	SD	Single density card.
CLS	WTD	Warning Tone Denied.
KEY	0 DN xxx...x	Key 0, data Directory Number.
	9 RLS	Key 9, Release key.
		Note: Other features/functions must not be assigned to keys 1-8.

LD 11 – Add or change Integrated Data Interface Card (IDLC) port
associated with an Asynchronous Interface Module (AIM).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SL1	Telephone type.
TN	I s c u	Terminal Number; for AIM, unit 1 or 3 should be used.
CDEN	SD	Single density card.
CLS	WTD	Warning Tone Denied.
KEY	0 DN xxx...x	Key 0, data Directory Number.
	1 DN xxx...x	Key 1, optional secondary data DN.
	2 TRN	Key 2, Call Transfer key (optional).
	3 ADL x...x	Key 3, Autodial DN (optional).
	4 RGA	Key 4, Ring Again key (optional).
	6 SCC 0-8190	Speed Call Controller, Speed Call List number (optional; must be on key 6 if equipped).
	<i>or</i>	
	6 SCU 0-8190	Speed Call User, Speed Call List number (optional; must be on key 6 if equipped).
		Note: Before X11 Release 13, the number of Speed Call Lists is limited to 253.
	9 RLS	Release key, must be key 9.

LD 16 – Define trunk route for each data port group (modem pool).

Prompt	Response	Description
REQ	NEW, CHG	Create a new route, or modify an existing one.
TYPE	RDB	Route Data Block.
CUST	0–99	Customer number.
ROUT	0–511	Route number.
TKTP	ADM	ADM route.
ACOD	xxx...x	Access code for this route.
CDPC	(NO), YES	SL-1 (is not) is the only controlling party on incoming calls.

LD 14 – Define a DLC as a trunk for each data port within the data port group.

Prompt	Response	Description
REQ	NEW, CHG	Create a new trunk or modify an existing one.
TYPE	ADM	ADM trunk.
TN	l s c u	Terminal Number.

LD 10 – Define a Modem Pool Line Card (MPLC) for each modem in the data port group.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CDEN	SD, DD, 4D	Single, double, or quad density card.
DN	xxx...x	Voice Frequency Directory Number; must be the same as that telephone by switches in the ADM. Note: The trunk route defined for the data port group in LD 16 cannot be used.

LD 16 – Define a route data block for each Central Office (CO), FEX, TIE, or WATS trunk route to a remote system.

Prompt	Response	Description
REQ	NEW, CHG	Create a new route, or modify an existing one.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	COT, FEX, TIE WAT	Route type.
ACOD	xxx...x	Access code for the route.

LD 14 – Define each trunk within the route.

Prompt	Response	Description
REQ	NEW, CHG	Create a new trunk or modify an existing one.
TYPE	COT, FEX, TIE WAT	Trunk type.
TN	I s c u	Terminal Number.
CDEN	SD, DD	Single or double density card.

Feature operation

No specific operating procedures are required to use this feature.

Intercept Treatment

Calls that cannot be completed because of call restrictions or dialing irregularities can be routed to a Recorded Announcement (RAN), to the attendant, or to hear overflow, or busy tone. Separate treatments can be specified for calls from the following categories of originating party:

- Telephones
- Attendants
 - attendant originated
 - attendant extended
- TIE trunk, or remote attendant or telephone, and
- Controlled Class of Service Allowed (CCSA) or Direct Inward Dialing (DID) trunk.

Operating parameters

When Intercept to RAN is desired, a recording device is required. A Recorded Announcement (RAN) route and at least one trunk must be defined (see the RAN feature module).

Intercept Treatment (INTR) for these types of calls can be specified in the Customer Data Block (LD 15) for the situations listed in Table 85.

Table 85
Intercept Treatment

Intercept situation	Telephone	Attendant extended calls	Calling Party TIE trunk (including attendant)	CCSA/DID trunk
Access denied (ACCD)	C(O)	C(O)	C(O)	C(A)
Call to vacant number (CTVN)	C(O)	C(O)	C(O)	C(A)
Maintenance busy number, RPE failure (MBNR)	C(O)	C(O)	C(O)	C(A)
Code or toll restricted call by Toll Denied (TLD) station or TIE trunk (CTRC)	C(O)	NA	C(O)	NA
Calls to LDNs (CLDN)	C(O)	C(O)	C(O)	NA
O = overflow tone A = intercept to the attendant C = choice of overflow tone, attendant, or Recorded Announcement (RAN) NA = not applicable Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with "C", a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.				

Feature interactions

Basic/Network Alternate Route Selection (BARS/NARS)

Table 86 specifies the type of Intercept Treatments (INTR) available for BARS/NARS calls, and lists the intercept situations that are possible.

Table 86
Intercept Treatment for BARS/NARS calls

Intercept situation	Station or DISA	Originating party		
		Attendant extended calls	TIE trunk (including attendant)	CCSA/DID trunk
BARS/NARS invalid (NINV)	C(O)	C(O)	C(O)	C(A)
BARS/NARS invalid translation (NITR)	C(O)	C(O)	C(O)	C(A)
BARS/NARS restricted (NRES)	C(O)	C(O)	C(O)	C(A)
BARS/NARS blocked (NBLK)	C(O)	C(O)	C(O)	C(A)
O = overflow tone A = intercept to the attendant C = choice of overflow tone, attendant, or Recorded Announcement (RAN) Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with "C", a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.				

Flexible Feature Codes (FFCs)

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 FFCs. If no FFC has been defined, the dialed digits are displayed up to and including the first digit that fails to match any Directory Number (DN). If one or more FFCs have been defined, the dialed digits are displayed, up to and including the first digit that fails to match any FFC.

Ring Again on No Answer (RANA)

A telephone that is intercepted to the attendant cannot apply RANA.

Trunk Barring

When an Originating Trunk Connection (OTC) attempts a trunk connection to a route that is restricted by its Access Restricted Table, the connection is not allowed. The intercept treatment specified in the Customer Data Block is applied.

Feature packaging

Intercept Treatment (INTR) package 11 has no feature package dependencies.

Feature implementation

LD 15 – Change customer's Intercept Treatment for various call types.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB INT	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
INTR	(NO), YES	Allow changes to intercept treatments.
- ACCD	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to access-denied numbers.
- CTVN	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to vacant numbers.
- MBNR	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to maintenance busy numbers.
- CTRC	(OVF NAP OVF NAP)	Default Intercept Treatment for a code or toll restricted call by a toll restricted station or TIE trunk.
- CLDN	(NAP OVF NAP NAP)	Default Intercept Treatment for calls to a Listed DN.
- NINV	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS invalid calls.
- NITR	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS invalid translation calls.

- NRES	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS restricted calls.
- NBLK	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS blocked calls.
- - RANR	0-511	RAN route number for intercepted calls.

Feature operation

No specific operating procedures are required to use this feature.

Last Number Redial

Last Number Redial (LNR), which is defined on a customer and a telephone basis, allows the last number dialed by a user to be automatically stored. The stored number can be redialed by pressing a key on Meridian 1 proprietary telephones, or by dialing SPRE + 89 on analog (500/2500 type) telephones. The number is stored whether the call rings, is busy or answered, or a valid access code is dialed with the number. Only one number, composed of up to 32 digits (including access codes), can be stored at any one time. The new number overwrites the previously stored number.

If the telephone has a Digit Display (DDS), the called number is displayed.

Operating parameters

When making a call using Last Number Redial (LNR), no digits can be dialed before the stored number except Authorization, Charge Account, or Forced Charge Account codes. However, additional digits can follow the outputted LNR number.

The M3000 and the M2317 telephones have LNR as a local telephone (firmware) feature instead of as a system feature.

Feature interactions

AC15 Recall: Transfer from Meridian 1

Last Number Redial is supported with the AC15 Recall: Transfer from Meridian 1 on the first transfer, provided that the digits are outputted on the trunk after the End-to-End Signaling Delay timer expires. If the far end is not ready, the call will fail because no dial tone detection is performed by the Meridian 1.

Additional transfers are supported if the stored digits are outpulsed without any treatment. For example, a route is seized and the route access code is outpulsed to the far end and interpreted as a Directory Number. No dial tone detector or timer is started, so the digits are outpulsed immediately without checking the state at the far end.

Authorization, Charge Account, Forced Charge Account codes

These codes are not stored in LNR. To use these features when calling the number stored in LNR, the code must first be dialed manually. When dial tone is returned, LNR can be used to complete the dialing.

Autodial

A number dialed using Autodial will become the LNR number on all telephones, except the M2317 and M3000.

Autodial Tandem Transfer

When you use the ADL key during an established call, the ADL number does not overwrite the Last Number Redial value.

Automatic Redial (ARDL)

An ARDL call can be activated on a number dialed using the Last Number Redial (LNK) key or by pressing the DN key twice. The ARDL number is saved as the last number redialed.

Call Modification

When a Call Modification takes place at the called Directory Number, the originally dialed number and not the number reached through Call Modification is stored as the LNR. This applies to the following features:

- All Call Forward features
- Call Pickup
- Conference
- Hunting
- Integrated Messaging System (IMS) when using Operator Revert, and
- Transfer.

The stored LNR number will not be affected when making calls using the following features:

- Numbers dialed on Call Transfer or Conference
- Attendant Recall from Meridian 1 proprietary telephones (using key)
- Call Park
- Dial Intercom
- Group Call, and
- Special Services Access Codes.

Calling Party Privacy

The Last Number Redial (LNR) feature will store the CPP code in the LNR data space if the CPP code was included in the last number dialed by the user. Any subsequent outgoing redialed call will send the Privacy Indicator to the far end.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Barred DNs will be stored by Last Number Redial (LNR). DNs redialed using LNR are checked against the active OCB level.

Outgoing Call Barring (OCB) Flexible Feature Codes are not stored as the last number dialed.

Multiple Appearance Directory Number (MADN)

A last number dialed on a Directory Number (DN) with multiple appearances is stored only against the telephone from which the number was originally dialed.

Multi-Party Operations

For analog (500/2500 type) telephones, the Last Number Redial/Stored Number Redial feature can be used when normal or special dial tone is received. The last number redialed that can be stored is the first call of a consultation connection, and can be stored only after the connection is completely released.

Speed Call

A number dialed using Speed Call will become the LNR number on all telephones, except the M2317 and M3000.

Feature packaging

Last Number Redial (LNR) package 90 has no feature package dependencies.

Feature implementation

LD 15 – Enable or disable LNR for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- OPT	(LRD), LRA	LNR (denied) allowed.

LD 10 – Add or change LNR for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(LND), LNA	LNR (denied) allowed.
LNRS	4-(16)-31	LNR size.

LD 11 – Add or change LNR for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, or 2616.
TN	l s c u	Terminal Number.
CLS	(LND), LNA	LNR (denied) allowed.
LNRS	4-(16)-31	LNR size.
KEY	xx LNK	LNR key, where: xx = key number.

Feature operation

To automatically redial the last number dialed:

- 1 Lift the handset or select a free Directory Number (DN).
- 2 Press the **Last No.** or the **DN** key again.

To automatically redial the last number dialed (analog [500/2500 type] telephones):

- 1 Lift the handset.
- 2 Dial SPRE+89.

Limited Access to Overlays

Limited Access to Overlays allows the administrator to limit access to a configured database. It allows an administrator to define up to 100 login passwords in the configuration record (LD 17), each with its own set of access restrictions. For each Limited Access Password (LAPW), define the level of access the password provides:

- Only the LD numbers defined for each password can be accessed.
- Only the customer data specified can be modified by users of each password.
- Only the tenant numbers allowed can be accessed.
- Access to Print Routine LD 20 may or may not include access to the Speed Call lists.
- Access to the Configuration Record (CFN) LD 17 can be restricted to:
 - no access at all to LD 17
 - changing a user's own password only
 - full access to modify the system configuration
- With the Print Only option defined, certain users are limited to the following:
 - Access only to administration LDs that contain print commands, and can only use the print commands in those LDs.
 - Full access to all print routines: LD 20-22 and LD 81-83.
 - System commands in Traffic LD 02 are accessible only to users with access to all customers. Customer-defined commands are accessible according to the customer numbers defined for each password.

Only the highest level password users – Level 2 or PWD2 – can configure or change access for other passwords. These users are the administrators.

Implementing and using the LAPW feature does not interfere with the use of any existing passwords in the system. For a complete listing of the passwords currently used, refer to LD 17, prompts PWD2, NPW1, NPW2, and LD 15, prompts ATAC and SPWD in *X11 input/output guide*.

Each password can access up to 32 customer-tenant combinations. Each combination is defined by a number designator that includes the customer number (0-99) and the tenant number (0-511).

Each new Limited Access Password (LAPW) must be:

- any combination of numbers and letters (uppercase letters only)
- four to sixteen characters in length with no spaces
- leftwise unique, and
- different from existing passwords.

For example, acceptable passwords can include:

- JSMITH
- 0001
- 2GUEST, and
- TECHNICIAN.

System administrators using PWD1 and PWD2 in LD 17 define access to LDs with this feature. They may also define certain command use levels within a given LD. For instance, the administrator can specify print only access in the Configuration record (LD 17). Any other requests generate the following system message:

SCH8836 PASSWORD HAS PRINT ONLY CLASS OF SERVICE.

After calling up an LD, certain commands can be restricted from use by the same password, if that password is properly defined. Trying to use those commands without the correct password is not successful – access is denied.

Logon attempts are monitored for security. Failed attempts with invalid passwords are counted and the tally is compared with a predefined threshold. If the threshold is met or passed, the entry point (TTY or terminal) is locked out for a predetermined time set in Service Change (and password protected). Access from that point is ignored by the system for the lock-out timer defined. Lock-out conditions are reported to all maintenance terminals when they occur, with a special report to the next system administrator who logs on.

The system can keep an Audit Trail to record login information. The four columns in the Audit Trail printout contain:

- column 1 – DAT (date, appears at beginning of each day), or
LOG (a login record)
- column 2 – aa/bb (month/day), or
cc:dd (hours: minutes)
- column 3 – #ee (number associated with password)
- column 4 – ff ff . . . (LD numbers accessed)

Figure 34
Example of Audit Trail printout (LD 22)

DAT	01/02									
LOG	08:01	#03	10	11						
LOG	09:32	#04	15	10	21	57	22	11	15	21
			14	15						
LOG	11:21	#99	12							
LOG	16:35	PWD2	15	17						

Only system administrators, logged in using PWD1 or PWD2, can access the Audit Trail from LD 22.

Administrators can change the size of the Audit Trail buffer, which can be from 50 to 1000 words (divisible by 50). When the buffer is full, new records overwrite the oldest information in the buffer (message OVL401 is sent to the active TTY and all maintenance TTYs). Printing the Audit Trail in LD 22 clears the buffer.

Operating parameters

The LAPW feature should only be enabled on a system with a completed Configuration record in LD 17 (a Meridian 1 or SL-1 machine that is already up and running). All passwords defined within the feature must be unique. Users and administrators cannot have more than one password defined for any one access configuration.

Feature interactions

There are no interactions with other features.

Feature packaging

Limited Access to Overlays (LAPW) package 164 must be enabled for this feature to operate.

Feature implementation

Implementing the LAPW feature requires that you change the Configuration record (CFN) in LD 17.

LD 17 – Define LAPW options and passwords.

Prompt	Response	Description
REQ	CHG, END	Change data, or terminate overlay.
TYPE	CFN PWD	Configuration data block. Release 19 gate opener.
- PWD2	xxxx	Current level 2 master password.
- NPW1	xxxx	New level 1 login password.
- NPW2	xxxx	New level 2 master password.
- LAPW	0-99	LAPW password number.
- - PWnn	dd...d <CR>	New password for “nn” above. No more changes to LAPW.
- - OVLA	xx xx xx . . .xx, ALL, (XALL)	Add these overlays to the list access by password PWnn. Xnn removes the overlay.
- - CUST	0-99, ALL, (XALL)	Customer number, all customers (no customers).

- - TEN	xxx xxx . . . xxx, ALL, (XALL)	Tenant list for the above customer for password access. XALL removes tenant access for this password.
- - HOST	(NO), YES	Host mode.
- - OPT	aaaa (CFPA), CFPD (LLCD), LLCA (PROD), PROA (PSCA), PSCD	Password Options allowed. Changes to all LD 17 prompts (allowed) denied. Line Load Control commands (denied) allowed. Print Only Class of Service (denied) allowed. Printing Speed Call lists (allowed) denied.
- LAPW	<cr>	Stop defining passwords.
- FLTH	0-(3)-7	Failed logon attempt threshold.
- LOCK	0-(60)-270	Lock-out time in minutes.
- AUDT	(NO), YES	Audit Trail (denied) allowed.
- SIZE	(50)-1000 (0)-65534	Word size stored in the Audit Trail buffer. For Release 18 and later.
- INIT	(NO), YES	Reset ports locked out during manual INIT.

LD 17 – Change user's LAPW password (user must log in using current LAPW).

Prompt	Response	Description
REQ	CHG	Change password options.
TYPE	CFN PWD	Configuration Record. Release 19 gate opener.
- PWD2	<CR>	Level 2 master password.
- LPWD	aaaa	Logon Password for LAPW user.
- - NLPW	xx . . . x	New logon password for LAPW user.

LD 22 – Check options available for LAPW passwords (administrator).

Prompt	Response	Description
REQ	PWD	Lookup password options.
PWD2	xxxx	Level 2 master password.
Note: LAPW password options are output to the active TTY only. Options format is shown below: FLTH x Failed logon attempt Threshold. LOCK xx Lock-out time in minutes. AUDT aaa Audit Trail allowed (denied). SIZE xxxx Word size stored in the Audit Trail buffer. INIT aaa Reset ports locked out during manual INIT. PWD1 xxxx Level 1 master password. PWD2 xxxx Level 2 master password. PWxx aaaa . . . LAPW password number and password. OVLA xx xx xx . . . Overlays accessible by this password. CUST xx TEN xxx Customer number and tenant numbers accessible. HOST No Host mode. OPT aaaa . . . Password options allowed.		

LD 22 – Print options for LAPW password (user).

Prompt	Response	Description
REQ	PWD	Print passwords.
PWD2	<CR>	Administrator's password.
Note: Options available to the logged on password are printed. The format is shown below: PWxx aaaaaa . . . LAPW password number and password. OVLA xx xx xx . . . Overlays accessible by this password. CUST xx TEN xxx Customer number and tenant numbers accessible. Host No Host mode. OPT aaaa . . . Password options allowed.		

LD 22 – Print contents of Audit Trail buffer (allowed if using PWD1 or PWD2).

Prompt	Response	Description
REQ	PRT	Print.
TYPE	AUDT	Audit Trail.

Feature operation

To bypass a specific restriction imposed by the Limited Access to Overlays feature, enter the appropriate password as defined in LD 17.

Line and Trunk Cards

In addition to providing a definition for card types, this section lists cards for Meridian 1 and SL-1 systems.

Line Cards

Line Cards provide the interface between the Meridian 1 and telephones, their associated data options, and Attendant Consoles.

- Line Cards
 - NT8D02AA Digital (16 digital telephones plus 16 associated data options)
 - NT8D03AA Analog (16 analog in-line telephones)
- 500/2500 Telephone Line Card
 - QPC594 (4d) (16 ports per card)
 - QPC452 (dd) (eight ports per card)
 - QPC60 (sd) (four ports per card)
- Message Waiting Line Card
 - NT8D09AA Analog Message Waiting (16 analog single-line telephones with Message Waiting lamps)
 - QPC789 (4d) (16 ports per card)
 - QPC494 (dd) (eight ports per card)
 - QPC267 (sd) (four ports per card)

- SL-1 Telephone Line Card
 - QPC451 (dd) (eight ports per card)
 - QPC61 (sd) (four ports per card)
- Attendant Console Line Card
 - QPC451 (dd) (eight ports per card; four ports per console)
 - QPC61 (sd) (four ports per card; four ports per console; card must be vintage C or later)
- Integrated Services Digital Line Card (ISDLIC)
 - QPC578 (4d) (16 logical ports per card; eight physical ports; eight for voice/eight for data)

In addition, Data Line Cards are available to interface data communications products.

Trunk Cards

Trunk Cards provide the interface between the Meridian 1 and all trunk facilities, including not only public and private network trunks (CO, TIE), but those that connect the Meridian 1 to special features (Recorded Announcement, Paging, and so forth).

- NT8D14AA Universal (any combination of eight: CO, DID, FX, RAN, Paging [low resistance], WATS, TIE, Music)
- NT8D15AA E&M (any combination of four: two-wire E&M, four-wire E&M, four-wire duplex, Paging [high resistance], Emergency Recorder)

Digitone Receivers (DTR)

Digitone Receivers convert Dual-tone Multifrequency (DTMF) signals to a digital format acceptable by the Central Processing Unit (CPU). They are required for all 2500 telephones, some incoming TIE trunks, and Digitone DID trunks. Because DTRs perform a service rather than support an item, the quantity depends on the volume of Digitone traffic generated in a system.

- NT8D16AA Digitone Receiver (eight Digitone Receivers)

Controller Cards

Controller Cards provide the interface and control between the network cards and telephones, consoles, and trunks. These cards are always installed in a dedicated slot in the Intelligent Peripheral Equipment (IPE) module. One Controller Card is required per IPE module.

- NT8D01AD Controller-2 (connects up to two Superloops to one IPE module)
- NT8D01AC Controller-4 (connects up to four Superloops to one IPE module)

Line Load Control

Line Load Control (LLC) is a manually activated feature that denies a percentage of call originations from defined groups of stations. Four distinct levels of control are provided:

- LLC OFF Control is set to OFF (default value)
- LLC F Control of First level only
- LLC S Control of Second level only
- LLC T Control of Third level only

When the active Line Load Control (LLC) level is set to OFF, there is no LLC in effect for the system. When the active level is F, S, or T, every line or trunk of the controlled stations has an equal probability of being denied origination. Each LLC level has its own blocking probability percentage (0-100), which is assigned in system software.

The selection of controlled stations is based on the Class of Service of the station or trunk. There are four Class of Service options for LLC:

- LLC N No LLC
- LLC 1 First LLC Class of Service
- LLC 2 Second LLC Class of Service
- LLC 3 Third LLC Class of Service

The control levels are enabled manually through LD entry and operate in a hierarchical manner. Only one control level can be active at a time. Progressive in sequence, each operating level restricts another class of stations and the classes below it.

Figure 35 describes the hierarchical nature of LLC. Restrictions are based on the number of originating calls blocked by the probability level set in the LD program.

For example, when LLC S level is enabled, all stations with LLC 1 and LLC 2 Class of Service are limited by the feature, while LLC 3 calls function normally. When LLC T is enabled, only those stations with LLC N Class of Service are allowed to originate calls without restrictions.

Probability levels set by the LD program are whole numbers between 0 and 100. A probability set at 0 (the default value) means no call origins are restricted for that Class of Service. A probability setting of 100 means all calls are restricted when that Class of Service is enabled. Numbers between 0 and 100 are treated as a percentile of calls blocked.

During call processing, LLC screens calls to find the Class of Service for that Directory Number (DN) and the active LLC level, and then decides if the originating set is to receive a dial tone. Sets that are blocked during an LLC level upgrade do not receive a dial tone.

Figure 35
LLC, system control levels (hierarchy and overlap of operative levels)

		Station Class of Service			
		LLCN	LLC1	LLC2	LLC3
T	Stations immune to LCC	LLC1, LLC2, and LLC3			
S		LLC1 and LLC2			No control
F		LLC1	No control	No control	
OFF		No control (LLC off)			

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Operating parameters

The following services are not subject to LLC:

- Attendant stations
- Direct Inward System Access (DISA), and
- Hot Line services.

Established calls are not affected by LLC upgrades, only new calls attempted.

The system counts the calls denied for each Class of Service, and prints the traffic data periodically as part of the Processor Load Format TFS004.

Feature interactions

Automatic Redial

Automatic Redial attempts are controlled and restricted by Line Load Control.

Feature packaging

Line Load Control (LLC) package 105 must be enabled for this feature to operate.

Feature implementation

LD 10 – Add or change Line Load Control for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	(LLCN) LLC1 LLC2 LLC3	LLC not enabled (the default). LLC class 1. LLC class 2. LLC class 3.

LD 11 – Add or change Line Load Control for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(LLCN) LLC1 LLC2 LLC3	LLC not enabled (the default). LLC class 1. LLC class 2. LLC class 3.

LD 2 – Set Line Load Control levels.

Prompt	Response	Description
SCTL	x aaa	Set blocking probability. x = F (LLC, level F). S (LLC, level S). T (LLC, level T). aaa = 0-100.
SLLC	x	Activate LLC at level x. x = F (LLC, level F). S (LLC, level S). T (LLC, level T). OFF (deactivate LLC)
TLLC		Print blocking probability and current active LLC level.

Feature operation

No specific operating procedures are required to use this feature.

Line Lockout

When a user remains off hook without dialing any digits, a timeout occurs. The transmission path is released for other uses. Dial tone timeout and interdigit timeout for telephone and Direct Inward System Access (DISA) trunks are considered Line Lockout situations.

The 2500 telephones lock out after 15 seconds. Meridian 1 proprietary telephones, and 500 telephones lock out after 30 seconds. When Line Lockout occurs, the system gives overflow tone for 14 seconds and then puts the telephone in a lockout state. Meridian 1 proprietary telephones are idled, and analog (500/2500 type) telephones appear busy to any incoming calls. DISA calls receive overflow tone.

Flexible Line Lockout, X11 Release 4 and later software – This enhancement provides three options for lockout treatment for stations and DISA calls. Flexible Line Lockout can perform any of the following functions:

- provide the existing overflow tone and then lockout treatment
- immediately intercept calls to the attendant, or
- receive overflow tone and then intercept to the attendant.

When a call is intercepted to the attendant, ringback is returned and the call appears at the Attendant Console on a designated Line Lockout (LCT) Incoming Call Indicator (ICI) key. If an LCT ICI key is not defined, the call is treated as a normal incoming call.

When the attendant answers the call, the Directory Number (DN) of the originating telephone, followed by the name (if Call Party Name Display is enabled), is displayed on the console. The attendant may then terminate the call or offer assistance to the call originator.

Flexible Line Lockout Timers, X11 Release 10 and later software – This enhancement to Flexible Line Lockout provides three variable Line Lockout timers. The timers are defined in LD 15, and range from 0 to 60 seconds.

Operating parameters

TIE trunk calls do not receive overflow tone during Line Lockout, and do not receive Flexible Line Lockout treatment.

Feature interactions

Attendant Blocking of Directory Number

If an Attendant Blocking of DN attempt is made on a set in Line Lockout state, busy tone will be returned.

Attendant Overflow Position (AOP)

A call intercepted to the attendant due to Flexible Line Lockout receives AOP treatment if the feature package is equipped and the AOP Directory Number (DN) is defined.

Call Detail Recording (CDR)

If a Direct Inward System Access (DISA) call routes to the attendant due to Flexible Line Lockout, and CDR is selected for incoming trunk calls, a call record generates when the attendant terminates the call after answer. The CDR record shows the attendant number and the route and member numbers.

If the attendant extends the call, the CDR record generates when the call is terminated. The CDR record does not show the attendant Directory Number (DN).

Display

If a call from a telephone equipped with a display is intercepted to the attendant due to Flexible Line Lockout, the telephone displays the digits dialed, if any, before the intercept. If no digits are dialed, the attendant DN and name (if configured) will be displayed. When the attendant answers the call, the console displays the DN and the number zero (0), or any digits dialed and the name (if configured) of the telephone intercepted.

Recorded Overflow Announcement (ROA)

Calls intercepted to the attendant due to Flexible Line Lockout receive ROA treatment if the Line Lockout (LCT) Incoming Call Indicator (ICI) key is configured for ROA.

System Overflow Tone

If the option for Flexible Line Lockout to the attendant is enabled, any call that is given overflow tone (e.g., if the wrong access code is dialed, or if the telephone is not allowed to dial the Trunk Access code) is intercepted to the attendant on overflow timeout.

Feature packaging

Line Lockout is included in basic X11 system software.

Feature implementation

LD 15 – Implement Flexible Line Lockout for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB INT	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
ICI	0-19 LCT	Assign a Flexible Line Lockout Incoming Call Indicator (ICI) key to Attendant Consoles.
- LLT		Line Lockout treatment.
	(OVF) OFA ATN	Overflow tone, then lockout. Overflow tone, then attendant intercept. Attendant intercept.
- DLT		Line lockout treatment for Direct Inward System Access (DISA) calls.
	(OVF) OFA ATN	Overflow tone, then lockout. Overflow tone, then attendant intercept. Attendant intercept.
TYPE	TIM	Release 21 gate opener.

- DIND	2-(30)-60	Dial tone and interdigit timeout for Meridian 1 proprietary telephones, and 500 telephones.
- DIDT	2-(14)-60	Dial tone and interdigit timeout for 2500 telephones.
- BOTO	2-(14)-60	Busy tone and overflow tone timeout for all telephones.

Feature operation

No specific operating procedures are required to use this feature.

Maid Identification

The Maid Identification, or Maid ID, feature makes it easier to keep track of which maids clean which rooms. Maid ID introduces a new keyword, MI, and a one- to four-digit Maid ID.

The MI keyword is used with the Background Terminal Set Status command when a room's cleaning status is changed. The Maid ID number, which accompanies the MI keyword, uniquely identifies a maid.

The following features allow the Maid ID to be entered as part of the room cleaning status:

- Background Terminal (BGD) Set Status command
- Room Key (RMK) operation
- Dial Access method
- Off-hook Detection, and
- Controlled Class of Service (CCOS) key operation.

For Off-hook Detection and CCOS key operation, the Maid ID always defaults to zero (0).

Feature interactions

Maid ID alters dial access for Room Status (RMS). After entering a valid cleaning status, instead of hearing dial tone or Flexible Feature Code (FFC) confirmation tone, the maid hears a special interrupted dial tone, prompting for the Maid ID. The maid can then enter the Maid ID followed by the octothorpe (#), or can hang up.

Operating parameters

Meridian Modular Terminal firmware, version 11, and the Hospitality Screen Enhancement (HSE) package (208) are needed to support the special Maid ID screens. They are not required to support the feature itself.

For Off-hook Detection, Line Lockout (LLT) must be defined as overflow tone in LD 15. Any other lockout definition prohibits Maid ID use with Off-hook Detection.

Feature packaging

Maid Identification (MAID) package 210 requires:

- Background Terminal Facility (BGD) package 99
- Room Status (RMS) package 100, and
- Controlled Class of Service (CCOS) package 81.

Optional packages include:

- Property Management System Interface (PMSI) package 103
- Flexible Feature Codes (FFC) package 139, and
- Hospitality Screen Enhancements (HSE) package 208.

Feature implementation

Maid ID does not require any additional Service Change implementation. If the feature package is equipped, implement Maid ID using a Background Terminal (BGD) or Property Management System Interface (PMSI). See *Background Terminal Facility description* (553-2311-316) and *Property Management System Interface description* (553-2801-101). See also “Room Status,” in this document, for information regarding its implementation.

Feature operation

Maid ID can be entered along with room cleaning status in the Background Terminal (BGD) or Property Management System (PMS). For a complete discussion of this feature’s programming, see *Background Terminal Facility description* (553-2311-316) and *Property Management System Interface description* (553-2801-101).

Room Key operation

The steps for the Room Key (RMK) operation are:

- 1 Press **RMK** once. The indicator flashes.
- 2 Dial the Directory Number (DN) of the room for which the cleaning status is being changed. The indicator lights steadily.
- 3 Enter a cleaning status code, 1 through 7 as follows:
 - 1 = cleaning requested
 - 2 = cleaning in progress
 - 3 = room cleaned
 - 4 = room passed inspection
 - 5 = room failed inspection
 - 6 = cleaning skipped
 - 7 = not for sale
- 4 Press the asterisk (*). This sets the display to accept the Maid ID. The asterisk does not show on the display. Each time the asterisk (*) is entered, the display clears.

When Hospitality Screen Enhancements (HSE) is equipped, and Meridian Modular telephones are used with firmware version 11 or higher, the display looks like this:

xxx...x Enter Maid ID

xxx...x = Room DN

- 5 Enter the Maid ID.

With HSE, a cursor marks the beginning position for the Maid ID. The Maid ID shows on the display. Correct the Maid ID by pressing the asterisk (*) to clear the incorrect Maid ID and to reset the display. Enter the correct Maid ID.
- 6 Press **RMK** again to complete the operation. The RMK indicator goes off.

Dial Access method

This method uses either Special Prefix (SPRE) codes or Flexible Feature Codes (FFCs).

Special Prefix (SPRE)

To enter Room Status (RMS) using SPRE codes:

- 1 Lift the handset.
- 2 Dial SPRE+86.
- 3 Enter a cleaning status code, 1 through 7, as follows:
 - 1 = cleaning requested
 - 2 = cleaning in progress
 - 3 = room cleaned
 - 4 = room passed inspection
 - 5 = room failed inspection
 - 6 = cleaning skipped
 - 7 = not for sale

Special interrupted dial tone is heard, prompting for the Maid ID.

Operation prior to X11 Release 17 used steps 1 through 3, and step 7. Steps 4, 5, and 6 have been added with Maid ID. If these new steps are skipped, the system sets the Maid ID to zero (0).

- 4 Press the asterisk (*). This sets the display to accept the Maid ID. The asterisk (*) does not show on the display.
- 5 Enter the Maid ID. The digits are shown on the display, if equipped. If you enter an incorrect Maid ID, press the asterisk (*), and reenter the Maid ID.
- 6 Press the octothorpe (#) to end Maid ID entry. The octothorpe (#) does not appear on the display.
- 7 Hang up the handset.

Flexible Feature Codes (FFCs)

To enter Room Status using Flexible Feature Codes:

- 1** Lift the handset.
- 2** Enter the RMST FCC.
- 3** Enter a cleaning status code, 1 through 7, as follows:

- 1 = cleaning requested
- 2 = cleaning in progress
- 3 = room cleaned
- 4 = room passed inspection
- 5 = room failed inspection
- 6 = cleaning skipped
- 7 = not for sale

Operation prior to X11 Release 17 used steps 1 through 3 and steps 7a and b. Steps 4, 5, and 6 have been added with Maid ID. A special interrupted dial tone prompts for the Maid ID number. If these new steps are skipped, the system sets the Maid ID to zero (0).

- 4** Press the asterisk (*). This sets the display to accept the Maid ID; it does not show on the display.
- 5** Enter the Maid ID. The digits appear on the display. If you enter an incorrect Maid ID, press the asterisk (*), and reenter the Maid ID.
- 6** Press the octothorpe (#) to end Maid ID entry. The octothorpe (#) does not appear on the display.
- 7a** If the FCC confirmation tone was configured, you hear the FCC confirmation tone. Hang up or press **RLs**.
- 7b** If the FCC confirmation tone was not configured, you will hear a dial tone. Make a call, hang up, or press **RLs**.

Make Set Busy

The Make Set Busy (MSB) feature allows Meridian 1 proprietary telephones to appear busy to all incoming calls. Outgoing calls can still be made from the telephone. To activate this feature, a separate MSB key/lamp pair must be assigned. Incoming calls to Multiple Appearance Directory Numbers (MADNs) in the MSB mode are still signified by the indicator next to the Directory Number (DN) key, and can be answered even while MSB is active. Calls to any Single Appearance Directory Number on the telephone receive a busy indication.

Make Set Busy Flexible Feature Codes

With X11 Release 20 or later, a user may activate Make Set Busy from an analog (500/2500 type) telephone by dialing the Make Set Busy Activate (MSBA) FFC (defined in LD 57). To deactivate Make Set Busy, the user dials the Make Set Busy Deactivate (MSBD) FFC (defined in LD 57) or the general Deactivate (DEAF) FFC (also defined in LD 57).

Operating parameters

Make Set Busy does not affect incoming Private Line calls.

Feature interactions

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Make Set Busy feature. If the dialed DN of the set that has the Make Set Busy feature is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Attendant Break-In

For a telephone with Make Set Busy in effect, Break-In is temporarily denied to the attendant. The Break-In lamp uses as 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.

Automatic Call Distribution

See *Automatic Call Distribution feature description* (553-2671-110) for information on MSB operations.

Busy Lamp Field

When a Make Set Busy key is activated, the Busy Lamp Field array will indicate that the first DN only on that set is busy.

Call Forward All Calls

Call Forward All Calls and then Hunting take precedence over MSB.

Enhanced Override

Telephones with MSB active cannot be affected by Forced Camp-On or Priority Override. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Enhanced Flexible Feature Codes - Customer Call Forward

Customer Call Forward takes precedence over Make Set Busy if both features are active.

Flexible Feature Code enhancement

The Deactivate FFC can be used to deactivate Make Set Busy.

Forced Camp-On

Voice Call is blocked by Make Set Busy.

ISDN QSIG Call Completion

Sets that have Make Set Busy (MSB) activated can request Call Completion to another DN, as the free notification overrides the MSB feature. Incoming Call Completion to Busy Subscriber (CCBS) requests do not override the MSB feature. A set is considered busy while MSB is active. A CCBS request is registered against a busy set, but only advances when the MSB feature is deactivated and the set remains free.

Make Set Busy and Voice Call Override

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary telephone, and to terminate on the telephone. The telephone is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Priority Override

Telephones with MSB active cannot be overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override. Voice Call is blocked by MSB.

Feature packaging

Make Set Busy (MSB) package 17 has no feature package dependencies.

The following packages are required for Make Set Busy FFCs:

- Flexible Feature Codes (FFC) package number 139, and
- Background Terminal Facility (BGD) package 99.

Feature implementation

LD 11 – Add or change MSB for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx MSB	Add an MSB key (must be key 30 for M3000 telephones). xx = key number.

Feature operation

To make a telephone appear busy to callers:

- Without lifting the handset, press the MSB key. The indicator lights steadily and the telephone will not receive calls.

To cancel MSB:

- Without lifting the handset, press the MSB key. The indicator light is extinguished.

The following instructions are for using Make Set Busy FFCs:

- Activate
The user must dial the Make Set Busy Activate (MSBA) FFC.
- Deactivate
The user must dial the Make Set Busy Deactivate (MSBD) FFC or the Deactivate (DEAF) FFC.

Make Set Busy Improvement

This feature is designed for a boss/secretary environment. The same Directory Number (DN) appears on more than one set, and is defined as ringing on the secretary set and non-ringing on the boss set.

The Make Set Busy Improvement (MSBI) feature provides an audible notification to the executive non-ringing DN, when all of the secretaries have activated the Make Set Busy (MSB) key on the same appearance of the DN.

Example: The incoming call is directed to the executive DN, the key lamp flashes on the executive set, the secretary receives an audible notification of the same call. If the secretary is not available to answer the call, the secretary presses the MSB key and the call goes back to the executive with audible notification (buzzing or ringing).

The MSBI feature is configured as a new Class Of Service, Make Set Busy Improvement Allowed (MSIA) or Make Set Busy Improvement Denied (MSID). The MSBI feature is configured on a specific Terminal Number (TN) and affects the Single Call Non-Ringing (SCN), Multiple Call Non-Ringing (MCN) and the Private Line Non-Ringing (PVN) keys on that specific TN.

Operating parameters

This feature can be used on Meridian 1 proprietary sets with DN key type SCN, MCN or PVN.

The MSBI feature does not support data terminals, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) sets or analog (500/2500) sets. However, the ringing appearances of the DN can be a (500/2500) set but not for a private line.

Feature interactions

Directory Number Delayed Ringing

The MSBI feature takes precedence over the Directory Number Delayed Ringing feature (DNDR). If the MSB key is active on all ringing SCR/MCR sets, the non-ringing SCN/MCN sets ring immediately even if the DNDR feature is active.

If the MSB key is not active on all of the SCR/MCR sets, then the DNDR feature is applied to the SCN/MCN keys.

Executive Distinctive Ringing/Distinctive Ringing by DN

With the distinctive ringing features, the MSBI feature can assign different audible notifications to specific DNs. The audible notification is defined even if the DN is non-ringing. If the MSBI feature turns a non-ringing key into a ringing key, the defined distinctive audible notification is heard.

Multiple Appearance Directory Number

The Make Set Busy Improvement (MSBI) feature affects Multiple Appearance DNs, since the MSB key can manipulate the ringing or non-ringing of multiple appearance DNs.

Ringing Change Key

If Single Call Ringing (SCR) or Multiple Call Ringing (MCR) is changed to non-ringing by Ringing Change Key (RCK) and all ringing sets have MSB active, the sets ring immediately. If MSB is not active on all ringing sets, the lamp flashes on the non-ringing SCR or MCR.

If the SCN or the MCN key is changed from non-ringing to ringing, SCN and MCN lines are rung immediately. If one set is defined as ringing then a lamp flashes at non-ringing sets.

Short buzz for Digital sets

If the MSB key is activated on a set, and there is an incoming call to another SCN/MCN DN key on the same set, a buzzing (or short-buzzing) is applied immediately.

Private Line Service

If the MSB key is active on all ringing appearances of a Private Line DN, the Private Line non-ringing appearances of the same DN rings.

Feature packaging

The MSBI feature requires:

- The Make Set Busy (MSB) package 17.

If analog sets are used, these additional packages are required:

- Flexible Features Codes (FFC), package 139
- Background Terminal (BGD), package 99

Feature implementation

To configure the Make Set Busy Improvement feature follow these procedures:

- To activate the MSBI feature and define Primary DN set (boss) with non-ringing DN key in LD 11.
- To define another set (secretary) with ringing DN key and MSB key in LD 11.

LD 11 - To activate the MSBI feature and define Primary DN set (boss) with non-ringing DN key.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaaa	Set type. Where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u = unit for Option 51C-81C. c = card, u = unit for Option 11C.

...	...	
CLS	MSIA	Allow Make Set Busy Improvement feature. (MSID) = Deny Make Set Busy Improvement feature.
...	...	
KEY	xx SCN yyyy xx MCN yyyy xx PVN yyyy	Set function key assignments. xx SCN yyyy = Key number, Single Call Non-Ringing, DN. xx MCN yyyy = Key number, Multiple Call Non-Ringing, DN. xx PVN yyyy = Key number, Private Line Non-Ringing, DN.
...	...	

LD 11 - To define another set (secretary) with ringing DN key and MSB key.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaaa	Set type. Where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u = unit for Option 51C-81C. c = card, u = unit for Option 11C.
...	...	
KEY	xx SCR yyyy xx MCR yyyy xx PVR yyyy xx MSB	Set function key assignments. xx SCR yyyy = Key number, Single Call Ringing, DN. xx MCR yyyy = Key number, Multiple Call Ringing, DN. xx PVR yyyy = Key number, Private Line Ringing, DN. xx MSB = Key number, Make Set Busy.
...	...	

Feature operation

No specific operation procedures are required to use this feature.

Make Set Busy and Voice Call Override

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary set, and to terminate on the set. The set is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Operating parameters

A Voice Call key on a Meridian 1 proprietary set can only be programmed to a single appearance DN.

The set being voice called must be equipped with a speaker.

Feature interactions

Do Not Disturb

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

Feature packaging

The Make Set Busy and Voice Call Override feature is part of base X11 system software.

Feature implementation

LD 15 – Enable Make Set Busy Voice Call Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
...		
- OPT	(VOBD), VOBA	Voice Override Busy (denied) allowed. The response to the OPT prompt has to be VOBA to allow a voice call to override a Make Set Busy condition.

Feature operation

The following example illustrates how a voice call can be made to a set with MSB active:

In this example, Set A is a BSC set with a **VCC** key programmed with the DN of a single appearance key on set B.

Set B is a Meridian 1 proprietary set with a single appearance DN key. Set B has a **Make Set Busy** key which has been activated.

- 1** A goes off-hook.
 A receives dial tone.
- 2** A presses the **VVC** (Voice Call) key.
 A's VCC key lamp is lit and A receives ringback tone. B receives a two-second burst of ring tone. B's terminating DN key lamp flashes.
- 3** After two seconds:
 Set A has a one-way voice path to set B. B's DN key lamp is lit. Ring tone to B stops. Ringback tone to A stops. B's Make Set Busy lamp remains lit.
- 4** If B goes off-hook, A and B are connected in a normal two-way conversation.

Malicious Call Trace

Malicious Call Trace (MCT) allows users of selected telephones to activate a call trace that results in a printed report of the calling and called parties. The report is generated on all system TTYs designated as maintenance (MTC) terminals.

Malicious Call Trace (MCT) is activated either by Dial Access from single-line (analog [500/2500 type] sets), SL-1 and Meridian digital telephones (Meridian 1 proprietary sets), or by key access from SL-1 telephones, Meridian digital telephones, and Attendant Consoles.

If the initiator hears overflow tone, the call trace has failed for one of the following reasons:

- The station does not have Malicious Call Trace Allowed (MCTA) Class of Service (CLS)
- The station is not established on an active call, or
- The system could not allocate a print register to store the trace information.

An attendant can activate Malicious Call Trace (MCT) only from an Attendant Console by using the Trace (TRC) feature key. When the Trace (TRC) key is pressed, the system prints a trace report on the source party, the destination party, or both, depending on whether the source key, the destination key, or both keys are active.

The MCT record identifies the source or destination (or both) by printing S or D (or both) prior to the time and date stamp of the record.

Enhanced Malicious Call Trace

With X11 Release 20.1x and later software, the above feature provides the following enhancements:

- Malicious Call Trace is now supported on Central Office (CO), Direct Inward Dial (DID) trunks.
- The alarm has a flexible ring timer, allowing a user-selectable range of from 0-15 minutes instead of being fixed at 15 minutes.
- The malicious call can now be recorded by using a recording trunk.
- The call trace record can now be printed on any Serial Data Interface (SDI) port when MCT is defined as a user. It is also written to the history file.

Note: If MCT is not defined, the record is still printed on the maintenance TTY(s) only.

- The format of the call trace record tells you whether the call type is internal or external. The record identifier is now either MCI for internal or MCE for external.

The user may configure an alarm to ring for a flexible period of time (0-15 minutes) for both internal and external calls. If the alarm DN goes off hook, it stops prior to the flexible alarm timer expiring.

Trace Number (TRC) Key Lamp Status

The TRC key lamp status indicates the progress and success of the Malicious Call Trace request signaling to the CO and availability of the recorder. The following are the lamp states:

Lamp Winking

Activation of the TRC key changes the lamp from dark to winking (fast flashing) if the trunk involved in the call requires the signaling to be done. The lamp remains winking, indicating a transient state, until the call trace request signaling to the CO has been completed.

In a Meridian Customer Defined Network (MCDN) tandem scenario, the set which originated the call trace remains winking until a Facility message is received from the node nearest to the Central Office. The user cannot invoke MCT again while the lamp is in the winking state.

Lamp Lit

If the call trace request to the CO is successful and the recorder is conferenced in the call, the lamp state is changed to lit.

In an MCDN tandem scenario, the lamp goes from winking to lit if a Facility message received from the node nearest to the CO indicates that the MCT request was successful. Activation of the TRC key during this state is ignored.

Lamp Flashing

The lamp flashing (slower frequency than winking) indicates that the call trace request to the CO was transmitted successfully, but a recorder could not be conferenced in. Activation of the TRC key during this state regenerates the MCT record, activates the alarm, and again attempts to conference in the recorder. The call trace request signaling to the Central Office is not transmitted again.

Lamp Dark

This lamp state indicates an idle TRC key or failure of the call trace request to the CO.

In an MCDN tandem scenario, the lamp goes from winking to dark if a Facility message received from the node nearest the CO indicates that the MCT request was unsuccessful.

Activation of the TRC during this state initiates all call trace elements again including: transmission of trunk hook flash; conferencing a recorder (if one is not already hooked in); generating an MCT record; and activating an alarm.

Operating parameters

The MCT feature is implemented on a system basis.

Assignment of the Trace (TRC) key cannot be done through the Attendant Administration feature.

The Enhanced MCT feature is available with all telephone types except BRI.

The TRC key cannot be assigned as a soft key on Meridian digital telephones.

Any country using flexible firmware flash timing (60-1536 msec.) requires the Generic XFCOT cards NTCK16AE or NTCK16BE, or the Extended Flexible Universal Trunk (EXUT) card NT8D14BA. For any country not using either the Generic Extended Flexible Central Office Trunk (XFCOT) card or the EXUT card, the same functionality is provided by software control.

MCT can be activated against only one established call at a time, regardless of the number of TRC keys defined.

The Meridian 1 is responsible for seizing the trunk to which recorders are connected. When a recorder is involved in the call, the call is treated as a conference call. The party on the source side is allowed to disconnect from the call; doing so also disconnects the recorder and resets the TRC key lamp to dark.

There is no special provision for warning tones while there is a conference with the recording device. The trunk is seized on the basis of the SRCH prompt in LD 16.

The following hardware is required to activate this feature on STE, RT, XT, NT and Options 21E, 51, 61, 61C, 71 and 81 machine types: Analog CO/FX/WATS QPC525A; DID trunk QPC449B LP TRK, QPC825; CO trunk QPC832; XFCOT card NTCK16AE, NTCK16BE; EXUT card NT8D14BA; 1.5 Mbps DTI interface QPC472E; 2.0 Mbps DTI interface QPC536B; PRI2 interface NT8D72AA; Digitone Receiver QPC574A, NT8D16AB; Tone and Digit Switch (TDS) QPC609D, NTAK03AA; Recorded telephone trunk QPC71; Conference card QPC444A, NT8D17CA; and MSDL card NT6D80AA. Note these are the minimum vintages required.

The following hardware is required for the Option 11: XUT NT8D14A; TDS/Digitone Receiver (DTR) NTAK03AA; CPU/CONF NAK01AA; 2.0 Mbps Primary Rate Interface (PRI) NTAK79AA; D-channel Handler (DCH) loadware NTBK50, NTBK51; 1.5 Mbps Digital Trunk Interface (DTI) NTAK09AA; 2.0 Mbps DTI NTAK10AA; Recorded telephone trunk NT8D14; and Generic XFCOT card NTCK16AE or NTCK16BE; and EXUT card NT8D14BA.

Feature interactions

Malicious Call Trace

Calling Party Privacy

Incoming calls to stations having the Malicious Call Trace feature enabled will continue to include the Terminal Number (TN) of the calling party in the Malicious Call Trace record, even if the caller has requested CPP.

Conference Call

When a station or console that is on the conference loop activates the MCT feature, the trace record shows only the conference loop number and conference number as the ORIGN, and the Terminal Number (TN) of the station or console that activated the feature as the TERTN. No information on the other parties in the conference is given.

History File

The MCT records are stored in the History File if it has been defined as a maintenance (MTC) user in LD 17.

Meridian 911

The Malicious Call Trace (MCT) feature is modified to be supported on Automatic Call Distribution (ACD) sets. ACD sets are allowed to have the MCTA Class of Service and a TRC key defined. The feature is activated via pressing the MCT key or dialing a MCT access code.

Enhanced Malicious Call Trace

Autodial Tandem Transfer

The Trunk Hook Flash functionality is used by Autodial Tandem Transfer and Enhanced Malicious Call Trace.

Automatic Call Distribution (ACD) Emergency Key (EMR)

The Malicious Call Trace feature operates in a similar manner to the ACD emergency key feature when conferencing a recording. In this enhancement, the ACD set can activate both the Malicious Call Trace and ACD EMR features.

Called Party Control (CDPC) Option

Prior to this feature, the CDPC option was not supported for conference calls. The CDPC option is now supported if the conference contains exactly one recording trunk, one MCT activating party and one other trunk. This is done to make the recorder transparent to the user. The CDPC option remains unsupported for all other conference calls.

Centrex Switchhook Flash

Interaction with the Centrex switchhook flash results because the flash range is changed for this feature. Communication to the CO (trunk hook flash) is performed by using the Centrex switchhook flash feature base code. The enhanced range is available for the Centrex switchhook flash.

Conference Call

If MCT is activated during a conference, the trace record shows the conference number and the conference loop number. Trace records are printed for each party involved in the conference. The originator of the call's trace record is printed first.

History File

If the SDI port is defined as an MCT user in LD 17 or the SDI port as a maintenance (MTC) user in LD 17, the MCT records can be stored in the History File. If MCT and MTC users are both defined on the TTY in LD 17, MCT records can also be stored in the History File.

Malicious Call Trace DN/TN Print

If the option MCDC (in LD 15) is set, a second line is added in the MCT reports to show the DN of both parties of the call. If Calling Line Identification (CLID) is available, it is printed in the second line.

Malicious Call Trace Idle Signal

The existing operation of the Malicious Call Trace Idle Signal feature is unchanged.

M911

The Trunk Hook Flash functionality is used by M911, Enhanced Malicious Call Trace, and Autodial Tandem Transfer.

Feature packaging

Malicious Call Trace (MCT) and Enhanced Malicious Call Trace (EMCT) require Malicious Call Trace (MCT) package 107.

For ISDN environments, ISDN packages are required based on the node and network interface applicable to the specific country.

Feature implementation

LD 10 – In order to activate Malicious Call Trace from an analog (500/2500 type) set, the user has to dial SPRE + two-digit access code (83) or the MCT Flexible Feature Code FFC.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	500	Analog (500/2500 type) set data block
TN	l s c u c u	Terminal Number. Terminal Number for Option 11
CLS	MCTA, MCTD	Malicious Call Trace is allowed if Class of Service is MCTA.

LD 11 – In order to activate Malicious Call Trace from a Meridian 1 proprietary set, it should have CLS MCTA, and the TRC key should be defined. However, the same function can be achieved using a transfer or conference key and the SPRE + 83 or the MCT FFC.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	xxxx	Meridian 1 proprietary set type.
TN	l s c u c u	Terminal Number. Terminal Number for Option 11
CLS	(MCTD), MCTA	Malicious Call Trace is allowed if Class of Service is MCTA.
...		
KEY	xx TRC	Key number; Malicious Call Trace. Allowed when CLS = MTA. Key lamp not required. MCT is applied on a TN basis. X11 Release 19 and later this key can be configured on ACD telephones.

LD 17 – In order to print the MCT record on a dedicated MCT TTY port, USER type MCT has to be defined.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ADAN	Configuration Data Block. Release 19 gate opener.
- ADAN	xxx TTY yy	xxx = NEW or CHG. yy = port number 0-63 or 0-15.
- USR	MCT	Dedicated TTY port for MCT record.

LD 16 – Set up the recorder route.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route Data Block.
ROUT	xxx	Route number.
TKTP	RCD	Recorder trunk data block.
ACOD	xxxx	Recorder route access code.

LD 14 – Set up the recorder trunk.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RCD	Recorder trunk.
TN	l s c u c u	Terminal Number. Terminal Number for Option 11
CUST	0-99	Customer number.
RTMB	xxx xxx	Trunk route and member number for RCD.

LD 15 – Set up the recorder and alarm options.

Prompt	Response	Description
REQ	CHG, PRT, END	Change, print, or end.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
...		
- ALDN	xxxxxxx	DN for the alarm (the DN must be on the local system).
- ALRM	(NO), YES	The ALRM prompt appears only if ALDN is defined. ALRM has to be set to YES if the alarm is to be rung for any call (external or internal) when MCT is activated.
- TIME	0-(15)	Time is prompted only if ALRM is set to YES. Time for the alarm is set in one-minute increments from 1 to 15.
- INT	(NO), YES	INT is prompted only if ALRM is set to YES. In addition, INT must be YES if the alarm is to be rung when MCT is activated against internal calls.
- RECD	(NO), YES	If the user wants the recorder, set RECD to YES. This prompt does not appear when a new customer is being defined.
- - MCRT	xxxx	The user has to use the recorder route number defined in LD 16. It will only be prompted if the RECD is set to YES.

LD 16 – Set up the alarm for external calls.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route data block.
TKTP	DID, COT	Direct Inward Dial or Central Office trunks.
ALRM	(NO), YES	Malicious Call Trace is allowed for external calls when the response is YES.

LD 57 – In order to activate Malicious Call Trace from an analog (500/2500 type) set without using the SPRE and 83, the MCT FFC has to be defined.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Code.
CUST	0-99	Customer number.
CODE	MTRC	Malicious Call Trace.
MTRC	xxxx	Flexible Feature Code for Malicious Call Trace.

LD 16 – For analog and 1.5 Mbps digital trunks, the flash range to be sent to the Central Office is configured using the FLH timer. In order to send the string to the Central Office, MCCD has to be defined.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route data block.
RCLS	(EXT), INT	Class marked route as (external) or internal.
...		
CNTL	YES	Changes control or timers.

- TIMR	FLH <space> 60-(510)-1536	Flash timer in msec. The range of the Centrex switchhook flash timer is 60-(510)-1536. The FLH value is rounded down to the nearest 10 msec. tick. If the value entered is 128 or 129, then it is set to 130 msec. <i>Software controlled flash</i> 60-127 msec. Digit 1 will be sent. 128-1536 msec. software controlled switchhook flash. <i>Firmware controlled flash</i> The user can enter any value from 60 to 1536 msec. 90 msec. is the hardcoded firmware flash for an XFCOT card; the technician should enter 90 msec. Note: the FWTM prompt must be set to YES for the trunk associated with this route in LD 14, if firmware timing is to be used.
...		
MCTS	(NO), YES	Enter YES to get the new prompts
MCCD	0-8 digits	The call trace request string can be 0-8 digits in length. Valid digits are 0-9, *, and #.
MCDT	(0)-4	Digit string delay is in seconds, in increments of one second.

LD 14 – The FWTM prompt is provided for EXUT and XCOT cards. This prompt should be set to YES if firmware timing is to be done for the flash and the card supports this functionality. If the prompt is set to YES for one unit, it is also set to YES for all other units.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	DID, COT	Trunk type.
TN	l s c u c u	Terminal Number. Terminal Number for Option 11
XTRK	EXUT, XCOT	Card type

FWTM	(NO), YES	Firmware timing for the trunk hook flash is available. This prompt is set to YES if firmware timing for trunk hook flash is supported by the card.
CUST	0-99	Customer number.
RTMB	xxx yyy	xxx – Trunk route. yyy – Member number for RCD.

LD 73 – Define the DTI2 flash time range.

Prompt	Response	Description
REQ	NEW, CHG, PRT	New, change, or print.
TYPE	DTI2	
FEAT	abcd	Digital signaling category.
SICA	2-16	SICA table number.
...		
FALT (R)	abcd N	Received bits. If FALT (receive) signal is not required.
P RRC(S)	abcd	Register recall signal activated by MCT.
TIME	10-(100)-630	Time of RRC(S) signal in milliseconds. This is the flash duration used for 2.0 Mbps DTI trunks. It is programmable in one-millisecond increments from 10 to 630.

Feature operation

To trace a malicious call from an analog (500/2500 type) telephone:

- 1** Flash the switchhook. A special dial tone signifies that the call is on hold.
- 2** Enter SPRE+83. You are reconnected to the call.

To trace a malicious call from a Meridian 1 proprietary telephone using Special Prefix (SPRE) code:

- 1 Press **Transfer** or **Conference**. A special dial tone signifies that the call is on hold.
- 2 Enter SPRE+83. You are reconnected to the call.

To trace a malicious call from a Meridian 1 proprietary telephone using the Trace (TRC) key:

- 1 Press **Call Trace**. You remain connected to the call.

Malicious Call Trace DN/TN Print

This enhancement adds a new (second) line to the Malicious Call Trace (MCT) record, printed on the maintenance TTY. This new line provides information about the DNs of the calling and called parties. For trunk calls, the Calling Line Identification (CLID) number (if available) is printed. This enhancement does not change the functionality of the Malicious Call Trace feature.

Operating parameters

The same as for Malicious Call Trace.

Feature interactions

The same as for Malicious Call Trace.

Feature packaging

Malicious Call Trace (MCT) is package 107.

Feature implementation

LD 15 – Respond to the MCDC prompt as follows:

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
...		
- MCDC	(NO), YES	(Deny) allow the printing of Malicious Call DN/CLID information for the originating and terminating parties.

Feature operation

The modified MCT record output format is as follows:

First Line

Field No. Field Type Contents

- 2 Record Type MCT++
- 3 Customer No. CUSTxx++
- 4 Originator<*>TNlscu++/<*>TNlc++/<*>CFlc++
- 5 Terminator<*>TNlscu++/<*>TNlc++/<*>CFlc++
- 6 Source/Dest.+/S/D++
- 7 Time stamp hh:mm:ss++MM/DD/YYYY
- 8 CNID CNl#xxxxxxxxxxxxxxxxxx

Second Line

Field No. Field Type Contents

- 1 Originator<*>DNxxxxxxxxxxxxxxxxxxxx++
- 2 Terminator<*>DNxxxxxxxxxxxxxxxxxxxx++

or it could be of the following combinations of a DN and CLID number:

- 1 Originator<*>CLID#xxxxxxxxxxxxxxxxxxxx++
- 2 Terminator<*>DNxxxxxxxxxxxxxxxxxxxx++

or

- 1 Originator<*>DNxxxxxxxxxxxxxxxxxxxx++
- 2 Terminator<*>CLID#xxxxxxxxxxxxxxxxxxxx++

Manual Line Service

Manual Line Service allows all calls made from an analog (500/2500 type) telephones defined as manual telephones to be handled automatically by an attendant. When the caller goes off-hook, the attendant is contacted immediately. Calls can be placed to telephones with Manual Line Service.

Operating parameters

Manual Line Service applies only to analog (500/2500 type) telephones.

Feature interactions

Attendant Alternative Answering (AAA)

When AAA is defined, Manual Line Service follows the AAA parameters.

Attendant Overflow Position (AOP)

When AOP is defined, Manual Line Service follows the AOP directions.

Night Service (NSVC)

When the system is in NSVC mode, all telephones with a manual Class of Service are routed to the telephone designated as the night number for the customer group.

Phantom Terminal Numbers (TNs)

Manual Line Service cannot be enabled on a phantom TN.

Feature packaging

Manual Line Service is included in base X11 system software.

Feature implementation

LD 10 – Define Class of Service for Manual Line telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
DN	xxx...x	Directory Number assigned to the telephone.
CLS	MNL	Arrange telephone for Manual Line Service.

Feature operation

To use Manual Line Service from an analog (500/2500 type) telephone, lift the handset. You are automatically connected to the attendant.

Manual Signaling (Buzz)

Manual Signaling (Buzz) permits a Meridian 1 proprietary telephone user to sound a buzz tone at a specific telephone. The Meridian M3000 Touchphone provides the buzzing capability by means of an Active State screen softkey.

To activate this feature, a separate buzz key must be equipped. An associated lamp or indicator is not required, however.

The buzz tone continues as long as the key remains depressed. Manual Signaling (Buzz) has no impact on an existing call or on other active features. If the other telephone is busy on a call, it will still buzz, even if it is a Handsfree call.

Operating parameters

Manual Signaling (Buzz) does not apply to analog (500/2500 type) telephones.

Only Single Appearance Directory Numbers can be buzzed.

Feature interactions

There are no interactions with other features.

Feature packaging

Manual Signaling (Buzz) is included in base X11 system software.

Feature implementation

LD 11 – Add or change Manual Signaling (Buzz) for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx SIG yyy...y	Add a Manual Signaling (Buzz) key, where: xx = key number, and yyy...y = DN to be buzzed (must be a Single Appearance Directory Number).

Feature operation

To buzz a specific telephone:

- Press **Buzz**. The other telephone emits a buzz sound from the speaker for as long as you hold down the Buzz key.

Manual Trunk Service

Manual outgoing trunk service permits you to complete an outgoing call, after ringing the trunk, by dialing a predefined trunk access code. Manual incoming trunks, when seized at the far end, are automatically terminated on a specified Directory Number (DN) or, if no DN is specified, at the attendant.

Manual Trunk Service is defined by the trunk Class of Service, and can be applied to outgoing, incoming, and outgoing/incoming trunks. This feature is available to the Central Office (CO), FX, WATS, and TIE trunks with an immediate start arrangement.

Operating parameters

Manual incoming service can be applied to TIE trunks only.

Feature interactions

There are no interactions with other features.

Feature packaging

Manual Truck Service is included in base X11 system software.

Feature implementation

LD 16 – Add or change an incoming manual trunk route.

Prompt	Response	Description
REQ	NEW, CHG	Create a new route, or modify an existing one.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	TIE	Incoming manual trunks (must be TIE trunks).
ICOG	ICT	Incoming route.
ACOD	xxxx . . x	Trunk route access code.

LD 14 – Add or change an incoming manual trunk.

Prompt	Response	Description
REQ	NEW, CHG	Create a new trunk, or modify an existing one.
TYPE	TIE	TIE trunks are required for manual incoming trunks.
TN	l s c u	Terminal number.
CUST	0-99	Customer number.
RTMB	rrr mmm	Route and member number.
MNDN	xxx...x	Directory Number for automatically terminate.
SIGL	aaa	Trunk signaling, where: aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, or OAD.
STRI	IMM	Incoming start arrangement.
SUPN	(NO), YES	Answer and disconnect supervision (not required) or required.
CLS	(MID), MIA	Manual incoming service (denied) allowed.

LD 16 – Add or change an outgoing manual trunk route.

Prompt	Response	Description
REQ	NEW, CHG	Create a new route, or modify an existing one.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	aaa	Outgoing trunk type, where: aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, ISL, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, or WAT.
ICOG	OGT	Outgoing route.
ACOD	xx . . x	Trunk route access code.
MANO	YES	Enable manual outgoing trunk route.

LD 14 – Add or change an outgoing manual trunk.

Prompt	Response	Description
REQ	NEW, CHG	Create a new trunk, or modify an existing one.
TYPE	aaa	Outgoing trunk type.
TN	l s c u	Terminal number.
CUST	0-99	Customer number.
RTMB	rrr mmm	Route and member number.
MNDN	xx...x	Directory Number for automatically terminate.
SIGL	aaa	Trunk signaling, where: aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, or OAD.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 1 Attendant Console Enhancements

The Meridian 1 Attendant Console Enhancements (MACE) feature expands existing Meridian 1 Attendant Console functionality. This feature provides the following enhancements:

- Attendant Console Autoline
- Individual Attendant Console Directory Number (IADN)
- Attendant Emergency Codes

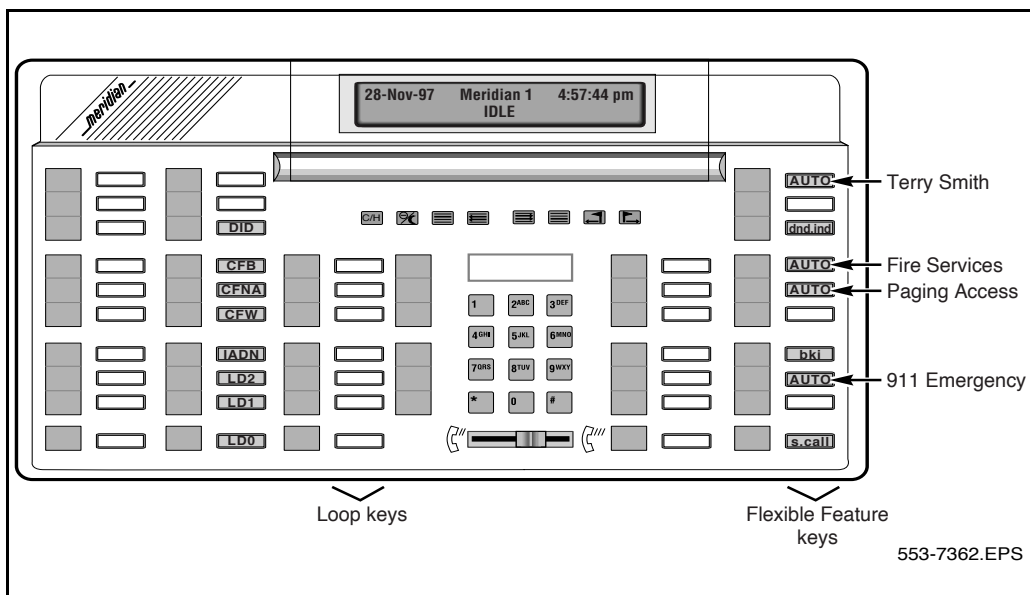
Attendant Console Autoline

The Attendant Console Autoline functionality provides secure autodial services for all types of Attendant Consoles. These services are programmed on Flexible Feature keys on an attendant basis. When the Autoline key is activated, the Meridian 1 system automatically dials a pre-programmed Directory Number (DN). The DN that is stored for the Autoline key can be from 1-31 digits in length and can be either internal or external to the Meridian 1 system.

The Autoline key's functionality is almost identical to that of the Autodial key. However, with Autoline functionality, the DN cannot be programmed from the console. Also, the display key function is simplified. With the Autoline functionality, to display a DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy. On an analog console, to display a DN that is longer than eight digits, the attendant presses the Display Source key after pressing the Autoline key.

Figure 36 illustrates a Meridian 1 Attendant Console with four Autoline keys configured on Key Strip 5. This key strip holds the Flexible Feature keys. On Key 2, Autoline is configured to dial 911 for Emergency Calls; on Key 5, Autoline is configured for Paging Access; on Key 6, Autoline is configured to dial Fire Services; and on Key 9, Autoline is configured to dial Terry Smith's DN.

Figure 36
M1 Attendant Console with four Autoline keys configured



In order for an Autoline call to be placed, the attendant presses a Loop key and then presses the Autoline key. When the Autoline key is pressed, the pre-programmed number is automatically dialed.

Figure 37 shows an Attendant Console display when an Autoline call is placed. In this example, the attendant places an Autoline call to Terry Smith at DN 2029. The attendant presses the Loop key and then the Autoline key that is configured to dial Terry Smith's DN. In this case, once the Autoline key is pressed, the attendant display is as shown in Figure 37.

Figure 37
Attendant display when the Autoline functionality is in progress

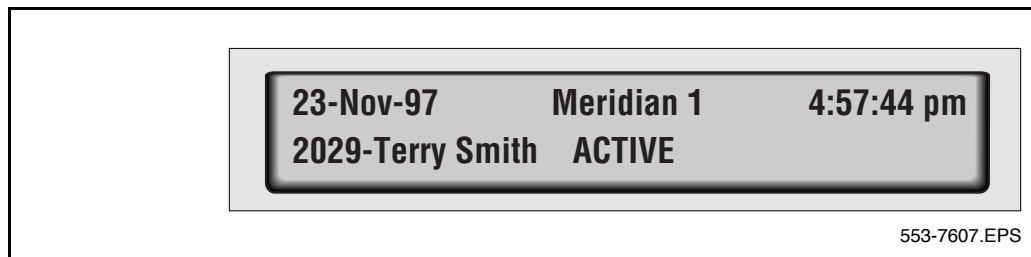
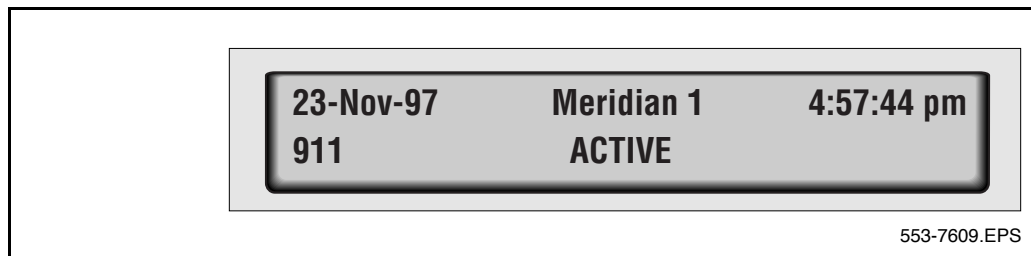


Figure 38 shows an Attendant Console display when an Autoline call is placed to an Autoline DN that is external to the Meridian 1 system. In this example, the Autoline key is programmed for 911 Emergency. When the attendant presses the Loop key and then the Autoline key, the display shows the external DN that is programmed for the Autoline key. In this case, the external DN is 911.

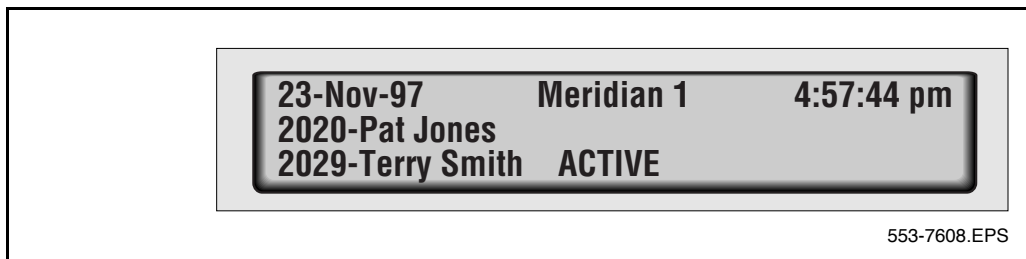
Figure 38
Attendant display when the attendant places an Autoline call to an external Autoline DN



If an attendant is already active on a call and wishes to extend that call to the Autoline DN, the Autoline key is pressed to extend the call.

Figure 39 shows an example of an Attendant Console display when the attendant is already involved in an established call. In this example, Pat Jones at DN 2020 dials the attendant, and a call is established. The attendant wishes to extend the current call to Terry Smith at DN 2029 and does so by pressing the Autoline key that is configured with Terry Smith's DN. Once the Autoline key is pressed, the attendant display is as shown in Figure 39. When the attendant presses the Release key, the display is cleared.

Figure 39
Attendant display when the attendant extends a call to the Autoline DN



Individual Attendant Console Directory Number (IADN)

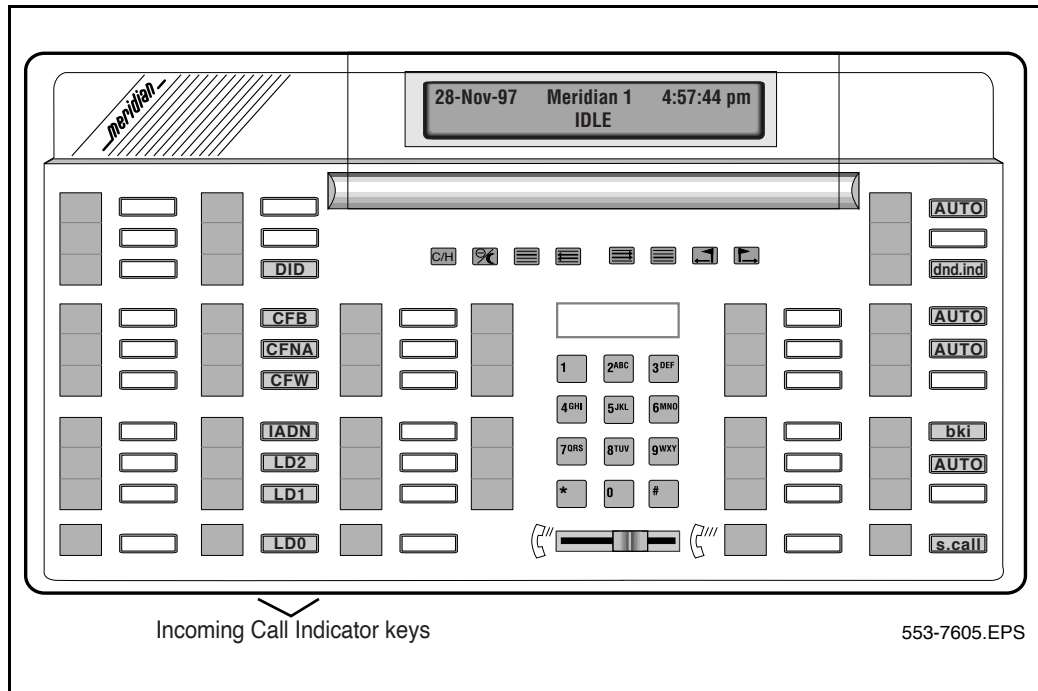
The Individual Attendant Console Directory Number (IADN) functionality allows digital attendant consoles (M2250) to be directly contacted from an internal or external set. Individuals who are paged by an Attendant Console can now re-call that specific console directly, using a new DN type - Individual Attendant Console Directory Number (IADN).

The IADN can have a maximum of four digits or seven digits if Directory Number Expansion (DNXP) package 150 is equipped. The IADN is defined at an attendant level. For an external set to reach the IADN console, the IADN must be defined as a Direct Inward Dialing (DID) number.

A new Incoming Call Indicator (ICI) key is also introduced with the IADN functionality. The IADN ICI key is defined at a customer level. It allows the attendant to answer an IADN call "out of turn" from the attendant queue. If there is at least one IADN call waiting in the attendant queue, the IADN ICI key lamp flashes.

Figure 40 illustrates a Meridian 1 Attendant Console with an IADN ICI key configured on Key Strip 2. This key strip holds the ICI keys.

Figure 40
M1 Attendant Console with an IADN ICI key configured



When an IADN call is made to an Attendant Console that is already active, the call is placed in the attendant queue. An audible tone, Priority Buzing, may be provided to the active attendant as an indication that an IADN call is waiting to be answered.

Note: The Meridian 1 system does not place IADN calls ahead of other calls in the attendant queue. It is the attendant who gives priority to IADN calls by answering them on the IADN ICI key.

For Priority Buzing to be provided to the active attendant, the Individual Attendant DN Buzing (IDBZ) prompt must be set to YES in the Customer Data Block. Also, the IADN ICI key must be configured by defining the Incoming Call Indicator (ICI) prompt in the Customer Data Block.

The default cadence for Priority Buzzing is two seconds on and ten seconds off. However, the cadence can be modified with the Priority Buzzing Cadence (PBUZ) prompt in the Customer Data Block. The PBUZ prompt is a prompt introduced with this feature.

The flexible cadence value range is from 2-16 seconds in multiples of two seconds for the on and the off buzzing phases. If the value entered for either of these two phases is an odd number in the valid range, it is rounded down. For example, if the value entered for the on or off buzzing phase is five, it is rounded down to four.

Idle Attendant Console

An Attendant Console is idle when it is available to receive incoming calls. When an internal or external party dials the idle attendant's IADN, the call is presented to the attendant on an idle Loop key. The IADN ICI key lamp, if configured, flashes when the call is presented, and the Attendant Console receives a continuous buzz. Hence, Priority Buzzing is not applicable in this case. When the attendant answers the call, the IADN ICI, Source (SRC), and Loop key lamps are all lit on the console.

Active Attendant Console

When an Attendant Console is in an active state, the Release (RLS) key lamp is not lit. When an internal or external set places a call to the active IADN attendant, the call waits in the attendant queue to be answered. The treatment given to such a call depends upon whether or not the IADN ICI key is configured as well as how the IDBZ prompt is defined in the Customer Data Block.

When an IADN ICI key is configured and the IDBZ prompt is set to NO in the Customer Data Block, Priority Buzzing is **not** provided when an IADN call is waiting to be answered in the attendant queue. Consider the following example:

- 1 An IADN attendant is involved in an active call.
- 2 An IADN call is placed to the active attendant and waits to be answered in the attendant queue. No Priority Buzzing is provided to the Attendant Console.
- 3 The attendant releases the active call.

- 4** The next call in the queue is presented to the attendant. All ICI keys on the Attendant Console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.
- 5** The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key.

When an IADN ICI key is configured and the IDBZ prompt is set to YES in the Customer Data Block, Priority Buzzing is provided when an IADN call is waiting to be answered in the attendant queue. Consider the following example:

- 1** An attendant is involved in an active call.
- 2** An IADN call is placed to the active attendant and waits to be answered in the attendant queue.
- 3** Priority Buzzing is provided to the Attendant Console. During this time, if another IADN call for the same attendant, is placed in the attendant queue, the Priority Buzzing is not affected.
- 4** The attendant releases the active call.
- 5** The next call in the queue is presented to the attendant.
- 6** The Priority Buzzing stops, and the attendant receives a continuous buzz for the newly presented call. All ICI keys on the Attendant Console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.
- 7** The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key. If there is another IADN call waiting for the attendant in the queue, Priority Buzzing is applied to the attendant again. If there is not another IADN call waiting, then the Priority Buzzing stops. If the attendant selects another call over the IADN call (using another ICI key or taking a non-IADN call if presented on the Loop key), Priority Buzzing begins again.

When an IADN ICI key is **not** configured and whether or not the IDBZ prompt is set to YES, Priority Buzzing **does not** function. The IADN ICI key must be configured for the Priority Buzzing functionality to be applicable. Consider the following example:

- 1 An attendant is involved in an active call.
- 2 An IADN call is placed to the active attendant and waits in the attendant queue. No Priority Buzzing is provided to the Attendant Console.
- 3 The attendant releases the active call.
- 4 The next call in the queue is presented to the attendant.
- 5 The IADN call is only presented to the attendant when its “turn” comes about in the attendant queue. The IADN call is presented on a Loop key in this case.

Attendant Console in Position Busy

An Attendant Console is not able to receive incoming calls when it is in a Position Busy state. In this case, IADN calls unable to reach the busy attendant are treated as normal attendant calls and are instead sent to an available Attendant Console in the system. Priority Buzzing is not provided to the available console, and the IADN ICI key does not flash, as the IADN call was not originally intended for this particular console. The IADN call is presented to the attendant on a Loop key when its “turn” comes about in the attendant queue. No ICI keys are lit for these calls.

When an IADN console leaves the Position Busy state, it receives Priority Buzzing for all of the IADN calls waiting in the attendant queue.

Customer/Tenant in Night Mode

A customer or tenant is in Night Mode when all of its Attendant Consoles are in Position Busy. When an IADN call is placed to an Attendant Console in this situation, the call receives the standard night treatment defined for the Customer. If Network Attendant Service (NAS) is equipped and also has NLDN, Priority Buzzing is provided (if configured).

An Attendant Console returns to an idle state from Position Busy with an IADN call waiting in the attendant queue. Priority Buzzing is only provided to this Attendant Console if there is more than one call waiting in the attendant queue and if the IADN call is not the first call in queue. Otherwise, normal attendant treatment occurs.

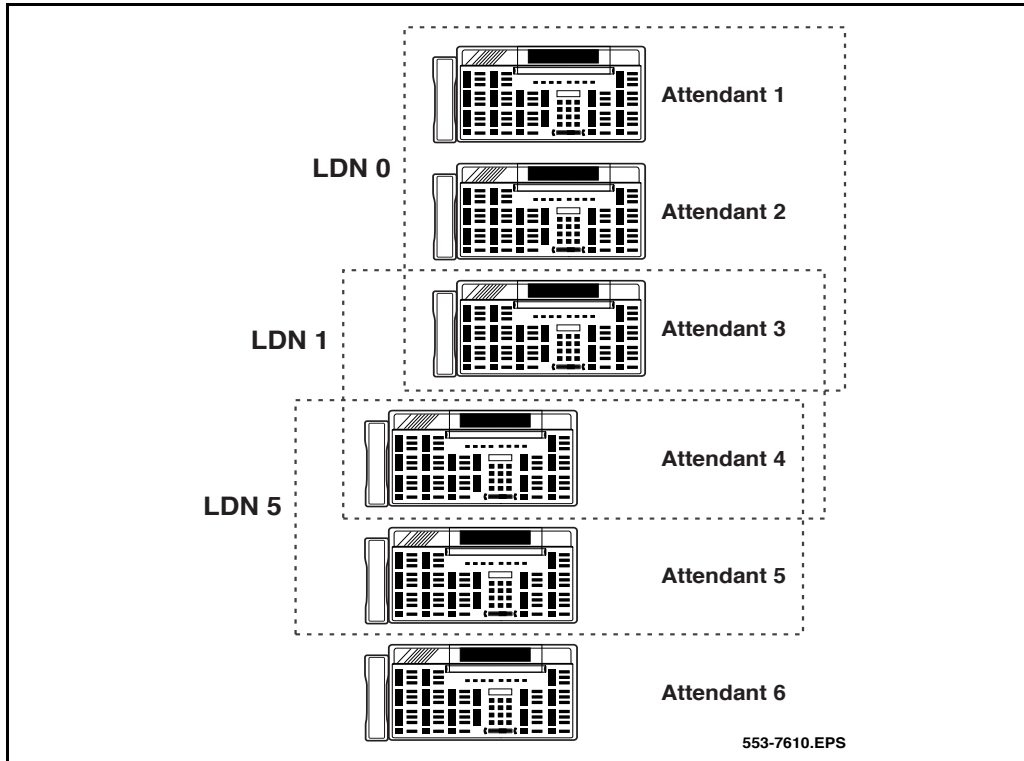
Attendant Emergency Codes

The Attendant Emergency Codes functionality allows an internal/external set to access a group of attendants by dialing an emergency code. This functionality is an enhancement to the existing Departmental Listed Directory Number (DLDN) feature.

The DLDN feature allows specified telephones that share the same numbering plan to belong to one out of a possible six subgroups in a Meridian 1 customer. Each DLDN subgroup is identified by one of the customer's Listed Directory Numbers (LDNs). Each department consists of an LDN (0-5) and an associated list of Attendant Consoles (maximum 63) to which LDN calls are delivered.

Figure 41 provides an example of Attendant Console DLDN groupings. These groups are assigned using the LDA prompt in Overlay 15. In Figure 41, LDN 0 consists of Attendants 1, 2, and 3; LDN1 consists of Attendants 3 and 4; and LDN 5 consists of Attendants 4 and 5. Attendant 6 does not belong to a DLDN group.

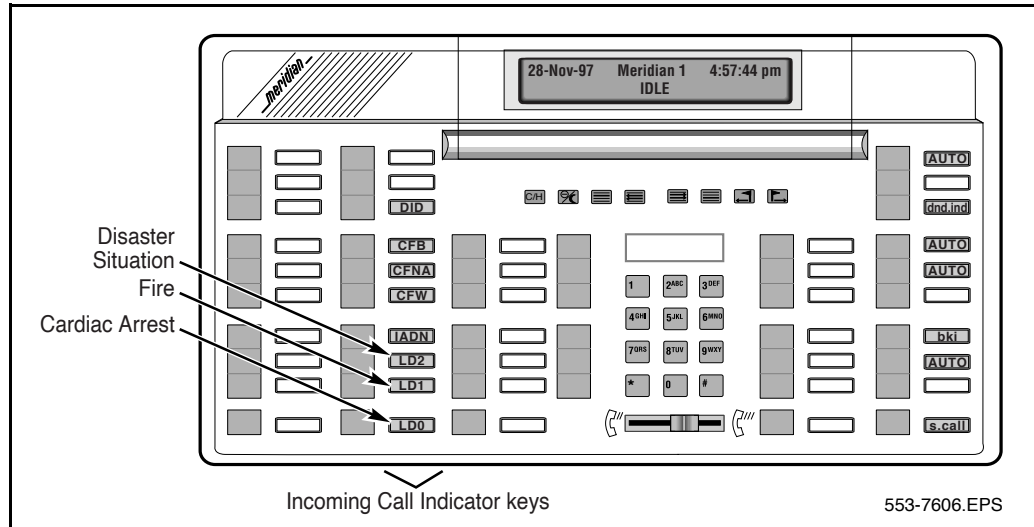
Figure 41
An example of Attendant Console DLDN groupings



ICI keys LD0 to LD5 can be configured for LDN calls. Emergency code calls use these same ICI keys, as the Attendant Emergency Codes functionality is an enhancement of the DLDN feature. One ICI key can be associated with more than one type of incoming call. Therefore, one ICI key can be configured to answer all emergency code calls.

Figure 42 shows an example of a Meridian 1 Attendant Console with three LDN ICI keys configured. In this example, a hospital has three LDNs that are associated with a particular emergency situation. LDN0 and the associated ICI key are used for Cardiac Arrest; LDN1 and the associated ICI key are used for fire emergencies; and LDN2 and the associated ICI key are used for disaster situations.

Figure 42
An M1 Attendant Console with three LDN ICI keys configured



Attendant Emergency Codes functionality provides each DLDN group with the option for Priority Buzzing. Therefore, when the LDN Buzzing (LDBZ) prompt is configured in the Customer Data Block, an audible notification is presented to each of the consoles in the contacted DLDN group. This notification indicates that an emergency code call is waiting to be answered in the attendant queue. The LDBZ prompt allows the selection of each DLDN group that is to be buzzed when an emergency code call is queued.

Therefore, when an internal/external call is placed to LDN0 as an alert of Cardiac Arrest, all of the attendants in this DLDN group are alerted with Priority Buzzing while the call is waiting in the attendant queue. The LD0 ICI key lamp is lit for all Attendant Consoles in the Customer. However, only the attendants of the selected DLDN group receive Priority Buzzing.

The default cadence for Priority Buzzing is two seconds on and ten seconds off. The cadence can be modified by defining the Priority Buzzing cadence (PBUZ) prompt in the Customer Data Block. The Priority Buzzing functionality for emergency code calls is the same as that for IADN calls.

Idle Attendant Console

When an internal/external emergency code call is placed, the Meridian 1 system seeks an idle attendant in the DLDN group. The emergency code calls are presented on an idle Loop key in a “Round Robin” fashion. For example, when an LDN call is received, it is presented to the next listed attendant after the one that was last offered a call. This ensures that emergency code calls are distributed in an equitable fashion. Emergency code calls, dial-0 calls, and timed recalls are serviced according to a circular list for the particular LDN.

When the emergency code call is presented on the idle Loop key, the associated ICI key lamp is lit. The ICI lamp status of other Attendant Consoles in the Customer is not updated, since the call is already presented on the Loop key.

Referring to Figure 41, consider the following example:

- 1 Party 1, an internal set or external trunk, dials LDN0.
- 2 The system finds that Attendant Consoles belonging to this group (Consoles 1, 2, and 3) have presentation status for this call.
- 3 An analysis is now performed to find the attendant that was last offered an LDN call for this group. It is found that Attendant Console 3 was offered the last LDN call.
- 4 The Meridian 1 system attempts to present this call to the next available attendant of this group.
- 5 The scanning begins with Attendant 2. If Attendant Console 2 is idle, the call is presented to it.
- 6 If Attendant Console 2 is not available, the system searches for the next Attendant Console (Console 1) in a round robin fashion.
- 7 When the call is presented to the idle attendant on an idle Loop key, the associated Loop key lamp is lit. Also, the LD0 ICI key, if configured, is lit on this console. The Source (SRC) key winks.
- 8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

When a call is presented to the Attendant Console, the Attendant Console is buzzed continuously by the system, hence Priority Buzzing is **not** applied.

Active Attendant Console

An Attendant Console is in an active state when the Release lamp is dark and the Position Busy key is not activated. When an internal/external call is placed to a DLDN group in which all attendants are active, the call is placed in the attendant queue. The LDN ICI key corresponding to this LDN is updated whenever an Attendant Console of the Customer becomes idle. All active digital Attendant Consoles in the DLDN group receive Priority Buzzing if the LDN ICI key is configured and if this particular DLDN group is defined at the LDBZ prompt.

Referring to Figure 41, consider the following example:

- 1** Party 1 (an internal set or external trunk) dials LDN0.
- 2** The system finds that the Attendant Consoles belonging to this group (Consoles 1, 2, and 3) have presentation status for this call.
- 3** An analysis is now performed to find the attendant that was last offered an LDN call for this group. It is found that Attendant 3 was offered the last LDN call.
- 4** The system now attempts to terminate the call to the next available attendant of the group.
- 5** The scanning begins with Attendant 2, the next attendant, and proceeds in a “Round Robin” fashion until an idle Attendant Console is found.
- 6** If none of the LDN0 consoles are idle, the call is placed in the attendant queue. The call then waits for an idle attendant that has presentation status for the call.
- 7** The system searches for whether or not the LD0 ICI key is configured for the customer. If it is configured, the LD0 ICI key lamp is lit for all other Attendant Consoles not in the DLDN group.
- 8** Priority Buzzing is provided to the digital consoles of this DLDN group, depending on the value of the LDBZ prompt and the configuration of the ICI keys in the Customer Data Block.

When an emergency code call is placed, the corresponding LDN ICI key configuration and the value of the LDBZ prompt is checked. If the DLDN group is included for LDN Buzzing (LDBZ) and if an LDN ICI key is configured, all attendants of the group receive Priority Buzzing.

Referring to Figure 41, consider the following example regarding an active Attendant Console:

- 1 Party 1 (an internal set or external trunk) dials LDN0.
- 2 The LD0 ICI key lamp is lit for all Attendant Consoles not in the DLDN group.
- 3 The LDBZ prompt in the Customer Data Block is checked for whether or not LDN0 should be buzzed when an emergency code call is waiting in the attendant queue.
- 4 When LDN0 is included at the LDBZ prompt, Priority Buzzing is provided to all active digital consoles in this group.

Attendant Consoles 1 and 2 are found to be active and Console 3 in Position Busy. Hence, Consoles 1 and 2 (digital consoles) receive Priority Buzzing.

If Console 3 leaves the Position Busy state, it is presented with the next call in the attendant queue. When the attendant answers the call, Priority Buzzing is provided to the Attendant Console if there is at least one emergency code call waiting in the attendant queue.

- 5 When a call is waiting in the attendant queue, any one of the attendants in the Customer can pick up the call by pressing the ICI key.
- 6 When one of the attendants belonging to LDN0 become free, the first call is presented on an idle Loop key.
- 7 When the emergency code call is presented, the associated Loop key lamp is lit and the Source (SRC) key lamp winks. Priority Buzzing stops for all of the DLDN attendants of this group and normal continuous buzzing is provided to the console where the call is presented.
- 8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

If the LDN ICI key is configured and the LDN group is **not** defined at the LDBZ prompt, the Attendant Consoles of the LDN group are **not** provided with Priority Buzzing.

Referring to Figure 41, LDN 0 is not included at the LDBZ prompt; therefore, no buzzing is provided to the LDN0 group of Attendant Consoles. The LD0 ICI key lamp is lit for all of the attendants not in the DLDN group.

If the LDN ICI key is **not** configured, the LDN call **does not** receive Attendant Emergency Codes treatment, regardless of how the LDBZ prompt is defined in the Customer Data Block. Without the LDN ICI key configured, the call cannot be taken “out of turn” from the attendant queue, and no Priority Buzzing is provided.

Attendant Console in Position Busy

If all attendants in the DLDN group are in Position Busy when an emergency code call enters the attendant queue, the call is given the same treatment as an LDN call under the same conditions. Since all Attendant Consoles in the LDN group are in Position Busy when the call enters the attendant queue, no Priority Buzzing is provided, and the call remains in the attendant queue. This call updates the corresponding LDN ICI key (if configured) on all available attendants in the Customer. Hence, the attendant can answer the call by pressing the ICI key.

When an Attendant Console leaves the Position Busy mode, all of the emergency code/IADN calls waiting in the attendant queue for this particular attendant receive priority treatment. Hence, if any of the Attendant Consoles in the DLDN group leave the Position Busy state before the call is removed from the queue, Priority Buzzing is provided (if configured).

Customer/Tenant in Night Mode

The customer/tenant is in Night Mode if all of its attendants are in the Position Busy. When an LDN/emergency code call is placed, the call receives the standard night treatment as defined for the customer. If Network Attendant Service (NAS) is equipped and also has NLDN, Priority Buzzing is provided (if configured).

Operating parameters

Existing limitations apply to the Meridian 1 Attendant Console Enhancements feature.

Attendant Console Autoline

Autoline functionality is supported on all Attendant Console types.

Any changes to the Autoline Directory Number must be made in Overlay 12 and cannot be done on the Attendant Console itself.

The DN programmed on the Autoline key is not verified for validity during configuration. If the DN is invalid, the attendant receives an overflow tone when the Autoline key is used.

The Attendant Autoline key lamp always remains dark.

Individual Attendant Console Directory Number (IADN)

IADN functionality is supported on digital Attendant Consoles (M2250) only.

IADNs must be unique DNs. Therefore, they cannot be Multiple Appearance DNs.

The IADN is a way to contact an attendant and not a DN key. Hence, when an attendant originates a call, the IADN is not relevant.

The IADN can be programmed from the existing range of DID numbers purchased by the customer.

The Calling Party Name Display (CPND) associated with an IADN is the same as the CPND associated with the Attendant DN.

When an IADN call is placed to a particular attendant when the customer/tenant is in Night Mode, the call receives standard Night treatment as defined for the Customer. During Night Treatment, the call has no priority over other calls in the queue.

As per existing operation, when an attendant places an IADN/LDN call on hold and the system initializes, the IADN/LDN call that is on hold is lost.

As per existing operation, when there is an IADN/LDN call in the attendant queue and the system initializes, all calls in the queue are dropped.

The Call Waiting lamp on the Attendant Console reflects the IADN calls waiting in the attendant queue.

When an IADN call is placed in the attendant queue, a maximum of a two second delay may occur before Priority Buzzing begins.

When an Attendant Console is service changed in Overlay 12 while it is active, the Attendant Console goes into a Position Busy state. In this case, Priority Buzzing stops for any buzzing IADN call waiting in the attendant queue.

If the Attendant Console is service changed in Overlay 12 and REQ = OUT, all IADN calls to this attendant are treated as normal attendant calls and are presented to any available attendant in the Customer/Console Presentation Group. ICI keys are not lit for these calls on other Attendant Consoles.

If the Attendant Console is service changed in Overlay 12 and REQ = CHG, all IADN calls for this attendant are presented to any available attendant in the Customer/Console Presentation Group, unless the IADN attendant leaves the Position Busy state before the call is taken out of the attendant queue and the attendant number is not changed. If this is the case, the call receives priority treatment as defined for IADN.

During service change, when the IADN DN is changed, the IADN calls for the originally intended Attendant Console can still terminate to that console as long as the attendant number remains the same.

When the IADN ICI key configuration is removed from the Customer Data Block, or if IDBZ = NO, then Priority Buzzing for any IADN calls waiting in the attendant queue is stopped. The attendant is no longer able to answer the IADN call "out of turn" from the attendant queue if the ICI key is removed.

If the IDBZ prompt is changed from NO to YES, the IADN calls waiting in the attendant queue do not apply Priority Buzzing to the respective attendants. However, when a new IADN call is placed in the attendant queue, the Attendant Console receives Priority Buzzing within two seconds for all of the IADN calls waiting for this particular console in the attendant queue.

If an IADN ICI key is configured for the Customer, Priority Buzzing is not provided for the IADN calls that are already waiting in the attendant queue. Priority Buzzing is only provided when new IADN calls are placed in the queue.

If the IADN ICI key is not configured, the IDBZ prompt is still given, but its value is ignored. Therefore, Priority Buzzing is not provided in this case.

When an IADN call is placed in the attendant queue and waits for a console that is already being buzzed (Recall Buzzing, Attendant Emergency Codes Priority Buzzing, or another IADN call Priority Buzzing) Priority Buzzing is not provided immediately.

Priority Buzzing is not provided when an IADN call is presented to an idle Attendant Console with normal buzzing.

IADNs cannot be configured as an Attendant Alternative Answering (AAA) DN, Attendant Overflow Position (AOP) DN, or Night DN.

Data calls to an IADN are not supported.

An attendant cannot place a call to another attendant on the same node by dialing the attendant's IADN. If an attendant tries to do this, an overflow tone is given.

Attendant Emergency Codes

All existing limitations/interactions of the DLDN feature apply to emergency code calls.

Attendant Emergency Codes functionality is supported on digital Attendant Consoles (M2250) only.

The DLDN package must be equipped and enabled in order for Attendant Emergency Codes to function.

Attendant Emergency Codes functionality is supported at a customer level only.

A DLDN group may contain any type of Attendant Console; however, only digital consoles receive Priority Buzzing.

When the Attendant DN 0 is called, the call is routed to only those Attendant Consoles belonging to the LDN group. Dial 0 and Slow Answer Recalls are not treated as emergency code calls, and no Priority Buzzing is provided, regardless of how the LDBZ prompt is defined.

When an emergency code call is placed in the attendant queue, a maximum of a two second delay may occur before Priority Buzzing begins.

Each DLDN that is configured as an emergency code number decreases one customer LDN.

When an Attendant Console is service changed in Overlay 12 while it is active, the Attendant Console goes into a Position Busy state. In this case, Priority Buzzing stops for any buzzing emergency code call waiting in the attendant queue. If the Attendant Console leaves the Position Busy state while the emergency code call is still waiting in the attendant queue, the console receives Priority Buzzing.

If a new LDN ICI key is configured for the Customer, Priority Buzzing is not provided for the emergency code calls that are already waiting in the attendant queue. The console receives Priority Buzzing for new emergency code calls placed in the attendant queue.

If a new DLDN group is defined at the LDBZ prompt, Priority Buzzing is not provided for the emergency code calls that were already waiting in the attendant queue. When a new emergency code call is inserted in the attendant queue, however, Priority Buzzing is provided if the corresponding LDN ICI key is configured.

If an Attendant Console is removed from its LDN group while an emergency code call is waiting in the attendant queue, Priority Buzzing is stopped. The status of the LDN ICI key lamp remains the same. Also, the Attendant Console loses its presentation status.

If the ICI key and the LDBZ/IDBZ prompts are not configured appropriately, there may be calls waiting in the attendant queue that are not providing Priority Buzzing to any consoles. If, through service change, the ICI key and the IDBZ/LDBZ prompt are then configured appropriately, Priority Buzzing is still not provided until another valid call enters the queue or the appropriate attendant enters the Position Busy state and then leaves the Position Busy state.

When an Attendant Console is added to an LDN group, Priority Buzzing is not provided to the console for the emergency code calls that are already waiting in the attendant queue. The console only receives Priority Buzzing for new emergency code calls inserted in the attendant queue.

If the LDN ICI key configuration is removed from the Customer Data Block, or if an LDN group is removed from the LDBZ prompt, then Priority Buzzing for any emergency code calls waiting in the attendant queue is stopped. The attendant will no longer be able to answer the DLDN call "out of turn" from the attendant queue.

An emergency code call that enters the attendant queue to wait for an Attendant Console which is already being buzzed (e.g. the recall buzzer, IADN Priority Buzzing, another Attendant Emergency Codes Priority Buzzing) is not given priority treatment immediately.

When an emergency code call is waiting in the attendant queue, the ICI key lamp on the Attendant Console is the only visual indication of the emergency. Audible indication, Priority Buzzing can still be provided.

Priority Buzzing is not provided when an emergency code call is presented to an idle Attendant Console with normal buzzing.

Feature interactions

Attendant Console Autoline

The feature interactions for Attendant Console Autoline are similar to those for Attendant Autodial.

Individual Attendant Console Directory Number (IADN)

Attendant Console

The Attendant Console feature provides equal load distribution among all available attendants. When an IADN call has been handled by an attendant, the system does not consider this attendant as the attendant last used.

Attendant Emergency Codes

If an attendant is already being buzzed for an emergency code call and an IADN call is placed in the attendant queue to wait for this particular attendant, Priority Buzzing is not provided immediately for the IADN call.

Attendant Alternative Answering

Presented IADN calls are given Attendant Alternative Answering (AAA) treatment as defined for the customer. After the predefined timing threshold, unanswered IADN calls are forwarded to the AAA DN. The AAA DN of a console cannot be defined as an IADN.

Attendant Calls Waiting Indication

The Call Waiting lamp on the console winks when the Call Waiting queue Update (CWUP) prompt is set to NO and there is at least one IADN call waiting in the attendant queue for the particular console.

If CWUP = YES in the Customer Data Block, the Call Waiting count on the console includes the IADN calls waiting in the queue. When CWUP = YES, the Call Waiting lamp always remains lit.

If a console is in Position Busy, the IADN call is counted against the Console Presentation Group (CPG) and it is reflected on all consoles of that particular CPG.

Attendant Forward No Answer

IADN calls are given Attendant Forward No Answer (AFNA) treatment as defined for the customer. If an IADN call is not answered in the specified time, it is put back in the attendant queue and the console is put in Position Busy mode. The IADN call now loses its priority and can terminate to any of the available Attendant Consoles or the NITE DN.

Attendant Overflow Position (AOP)

An IADN call is not forwarded to the Attendant Overflow Position (AOP) DN as long as the intended attendant is available. This is because the addressed attendant is still available and the call can eventually terminate to it once it is placed in the queue.

If the attendant is in Position Busy, its IADN calls will be forwarded to the AOP DN. The AOP DN cannot be an IADN.

Attendant Recall (Slow Answer Recall)

The Slow Answer Recall feature is not affected by Meridian 1 Attendant Console Enhancements.

For call presentation, slow answer recalls take priority over all other calls in the attendant queue. When an active attendant becomes idle, the Meridian 1 system first searches for any recalls waiting to be presented and then it attempts to present calls from the main attendant queue.

For an IADN call to be recalled to the same attendant, the Recall to Same Attendant (RTSA) feature must be configured. The Recall ICI key lamp is lit when an IADN call slow answer recalls back to the attendant. The IADN ICI key lamp is not lit in this case, and Priority Buzzing is not applied.

When an analog (500/2500 type) set transfers a call to an IADN, this call is treated as an IADN call whether it is in the queue or presented to the console. When this call is presented to the console, the ICI key lamp is lit and the call is split onto the source and destination sides, as per existing recall functionality.

Attendant Recall (Set Recall)

For call presentation, set recalls do not take priority in the attendant queue.

When an analog (500/2500 type) set without CLS = XFA/TSA performs a switch hook flash or when a Meridian 1 proprietary set presses the Attendant Recall (ARC) key during an established call, this call is treated as an attendant recall. The Recall ICI key lamp is lit and the dialed DN is shown as the Attendant DN.

When an analog (500/2500 type) set with CLS = XFA/TSA performs a switch hook flash and then dials an IADN, the call is treated as a regular set recall while in the attendant queue. The Recall ICI lamp is lit while in the attendant queue. Once this call is presented to the console, it is split onto the source and destination sides as a recall normally does. The IADN ICI lamp is lit.

When a Meridian 1 proprietary set transfers a call to an IADN, Set Recall functionality is applicable.

Automatic Call Distribution

An IADN can be configured as an ACD Night DN. When an ACD Night call attempts to terminate on the Attendant Console, it is treated as a priority call for this attendant.

Console Operations

The IADN feature overrides the presentation status defined by the Console Operations (COOP) feature. Therefore, even if presentation status is denied on the IADN ICI key, IADN calls are automatically presented on the Loop key.

Call Redirection features

Whenever an IADN call is made as a result of Call Redirection, this call receives the standard IADN treatment (i.e. Priority Buzzing and IADN ICI). The Attendant IADN feature does not distinguish between forwarded calls and direct dial IADN calls.

Hunt

If an IADN is defined as part of a Hunt chain, calls terminate to the IADN, following the Hunt chain. Once a call is placed in the attendant queue, however, the next DN in the Hunt chain is not sought.

If the IADN console is in Position Busy, the call is presented to any one of the available attendants in the Customer/Console Presentation Group. Therefore, the next DN in the Hunt chain is not sought once an attempt is made to present the call to the IADN attendant.

Message Center

If an IADN is given as an MWK DN, the Message Waiting calls receive IADN treatment. Therefore, Priority Buzzing is provided, and the IADN ICI key is lit (if configured).

Multi-Tenant Service

Sets belonging to a Customer can be divided into customer subgroups known as tenants. A set belonging to one tenant can call an attendant belonging to another tenant by dialing the attendant's IADN. The IADN functionality takes precedence over the Multi-Tenant Service feature.

Network Attendant Service

Network Attendant Service (NAS) treatment is applied when the Customer/Console Presentation Group is in Night mode. An IADN call rerouted via NAS loses its priority at the remote node.

If the NAS ID of one node is defined as the IADN/emergency code number of the remote node, priority treatment is provided to all redirected calls, including IADN/emergency code calls. In this case, the IADN ICI key has a higher precedence than the corresponding NAS ICI key.

Network Message Services

The IADN ICI key takes priority over the MWC ICI key. When a call is forwarded to an IADN over a network to a Message Center, the call receives Priority Buzzing and the IADN ICI key is updated (if configured).

Night Service

When the Meridian 1 system is in Night mode and an IADN call is the next call to be presented, the call receives Night treatment as defined for the Customer. Priority Buzzing is not provided to the Night DN. The IADN call is presented to the Night DN whenever its "turn" comes about.

If the system returns to Day Mode, the remaining IADN calls in the attendant queue are provided with priority treatment. The Night DN for the Customer/Console Presentation Group cannot be an IADN.

Enhanced Night Service

IADN calls from the public network lose their priority treatment when presented to the Enhanced Night DN. If the system returns to Day Mode, the remaining IADN calls in the attendant queue receive priority treatment. The Enhanced Night DN of a trunk cannot be an IADN.

Permanent Hold

If a set is in Permanent Hold and dials an IADN, the set receives overflow tone.

Attendant Emergency Codes

Attendant Forward No Answer

When an unanswered emergency code call is given Attendant Forward No Answer (AFNA) treatment, it is placed back in the attendant queue when it is not answered within the specified time, and the console is placed in Position Busy. If the other consoles of this particular DLDN group are in an active state, Priority Buzzing is provided for them, depending upon the configuration of the LDN ICI key and the value of the LDBZ prompt.

Individual Attendant Directory Number

If an Attendant Console is already receiving Priority Buzzing for an IADN call that is waiting in the attendant queue, Priority Buzzing is not provided immediately for an emergency code call that enters the attendant queue.

Network-wide Listed Directory Number

When the DLDN dialed at one node is configured as an emergency code number at a remote node, a call routed via Network Attendant Service (NAS) (when Network-wide Listed Directory Number (NLDN) is configured) terminates at the remote node and receives priority treatment.

Feature packaging

The Attendant Console Autoline and the Individual Attendant Console Directory Number (IADN) functionalities are included in base X11 System Software. For Attendant Emergency Codes functionality, however, Departmental Listed Directory Number (DLDN) package 76 is required:

Feature implementation

LD 15 – Configure Priority Buzzing and an Individual Attendant Directory Number (IADN) Incoming Call Indicator (ICI) key for a digital Attendant Console.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	ATT	Attendant Console options.
CUST	xx	Customer number.
...		
IDBZ	YES	Individual Attendant DN Buzzing-on for IADN calls in the attendant queue. NO = Individual Attendant DN Buzzing-off for IADN calls in the attendant queue (default).
PBUZ	xx yy	Flexible Priority Buzzing cadence for IADN and Attendant Emergency Code calls, where: xx = Priority Buzzing - on phase yy = Priority Buzzing - off phase The PBUZ range is from 2 to 16 seconds. If the value entered is an odd number between 2 and 16, it is rounded down to the next lowest even integer.
...		
ICI	xx IADN	ICI key for individual Attendant DN, where: xx = ICI key number (0 - 19).

LD 15 – Configure Departmental Listed Directory Number (DLDN) and Priority Buzzing for Attendant Emergency Code calls.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	LDN	Listed Directory Numbers.
CUST	xx	Customer Number
DLDN	YES	Departmental Listed Directory Numbers
...		
LDN5	xxxx	Emergency code number.
LDA5	1-63	M2250 Attendant Console associated with LDN5.
ICI	xx LD0 xx LD1 xx LD2 xx LD3 xx LD4 xx LD5	Incoming Call Indication for Listed Directory Numbers 0-5. xx = key number 00-19.
LDBZ	n n n n n n	The DLDN groups which should be buzzed when an LDN/emergency code call is in the attendant queue, where: n = 0, 1, 2, 3, 4, and/or 5.

LD 12 – Configure an Autoline DN for an Attendant Console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	2250 ATT 1250	Attendant Console type.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
KEY	nn AUTO xxx...x	Direct Autoline DN, where: nn = Key number (0 - 19) and xxx...x = Autoline DN. The Autoline DN can be 1-31 digits in length.

LD 12 – Configure an Individual Attendant Directory Number (IADN) for a digital Attendant Console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	2250	Attendant Console type.
TN	l s c u c u	Terminal Number. For Option 11C.
ANUM	1 - 63	Attendant Number.
...		
IADN	xxxx	Individual Attendant DN for this Attendant Console. The Individual Attendant DN can be 1-4 digits in length or 1-7 digits in length if DNXP package 150 is equipped. The IADN cannot be a Multiple Appearance DN.

Feature operation

Attendant Console Autoline key

To place an Autoline call:

- 1** The attendant presses a Loop key. The Loop key lamp is lit.
- 2** The attendant presses the Autoline key. The pre-programmed number on the Auto-line key is automatically dialed. The Source (SRC) lamp on the Attendant Loop key winks.
- 3** The dialed party answers the call, and the SRC key lamp is steadily lit.

To extend a currently active call to the Autoline DN:

- 1** The attendant is active on an established call.
- 2** The attendant presses the Autoline key to extend the call.
- 3** The pre-programmed number on the Autoline key is automatically dialed. The destination (DEST) lamp on the Attendant Console winks.
- 4** The dialed party answers the call, and the DEST lamp is steadily lit.
- 5** To complete the transfer, the attendant presses the Release (RLS) key. Once the Release key is pressed, the display is cleared.

To display the DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy.

On an analog console, to display a DN that is longer than eight digits, the attendant presses the display key after pressing the Autoline key.

Individual Attendant Directory Number

The following is an example of Individual Attendant Directory Number (IADN) functionality for an active Attendant Console with an IADN ICI key configured. Also, the IDBZ prompt set to YES in the Customer Data Block.

- 1** An attendant is involved in an active call.
- 2** An IADN call is placed to the active attendant and waits to be answered in the attendant queue.
- 3** Priority Buzzing is provided to the Attendant Console. During this time, if another IADN call for the same attendant, is placed in the attendant queue, the Priority Buzzing is not affected.

- 4 The attendant releases the active call.
- 5 The next call in the queue is presented to the attendant.
- 6 The Priority Buzzing stops, and the attendant receives a continuous buzz for the newly presented call. All ICI keys on the Attendant Console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.
- 7 The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key. If there is another IADN call waiting for the attendant in the queue, Priority Buzzing is applied to the attendant again. If there is not another IADN call waiting, then the Priority Buzzing stops. If the attendant selects another call over the IADN call (using another ICI key or taking a non-IADN call if presented on the Loop key), Priority Buzzing begins again.

Attendant Emergency Codes

The following is an example of Attendant Emergency Codes functionality for Attendant Consoles with an LDN ICI key configured. Also, the DLDN group is included for LDN Buzzing at the LDBZ prompt. Referring to Figure 41:

- 1 Party 1 (an internal set or external trunk) dials LDN0.
- 2 The LD0 ICI key lamp is lit for all Attendant Consoles not in the DLDN group.
- 3 The LDBZ prompt in the Customer Data Block is checked for whether or not LDN0 should be buzzed when an emergency code call is waiting in the attendant queue.
- 4 LDN0 is included at the LDBZ prompt. Therefore, Priority Buzzing is provided to all active digital consoles in this group.

Attendant Consoles 1 and 2 are found to be active and Console 3 in Position Busy. Hence, Consoles 1 and 2 (digital consoles) receive Priority Buzzing.

If Console 3 leaves the Position Busy state, it is presented with the next call in the attendant queue. When the attendant answers the call, Priority Buzzing is provided to the Attendant Console if there is at least one emergency code call still waiting in the attendant queue.

- 5 When a call is waiting in the attendant queue, any one of the attendants in the Customer can pick up the call by pressing the ICI key.

- 6** When one of the attendants belonging to LDN0 become free, the first call is presented on an idle Loop key.
- 7** When the emergency code call is presented, the associated Loop key lamp is lit and the Source (SRC) key lamp winks. Priority Buzzing stops for all of the DLDN attendants of this group and normal continuous buzzing is provided to the console where the call is presented.
- 8** Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

Meridian Companion Enhanced Capacity

The Meridian Companion Enhanced Capacity feature doubles the capacity of Companion Microcellular line cards from 16 to 32 ports. This feature does not change the way a system is configured, only the amount of units that can be configured per line card. For detailed information, refer to the Meridian Companion documentation suite.

Operating parameters

This feature is supported on Companion Microcellular line cards only. The supported systems include Option 11C, 51C, 61C, 81, and 81C with IPE equipment.

Feature packaging

The following packages are required for the Meridian Companion Enhanced Capacity:

- Meridian 1 Companion Option (MCMO) package 240
- MC500 package 350

Feature implementation

This section contains the overlay procedures required to configure the Meridian Companion Enhanced Capacity feature on a Meridian 1 PBX.

LD 10 – Configure the number of units on a Microcellular line card.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	500 set.
TN		Terminal Number.
	l s c u c u	l = loop, s = shelf, c = card, u = unit for Options 51-81C. c = card, u = unit for Option 11C.
...		
CDEN	(4D)	Card density.
WRLS	(NO) YES	Wireless analog set.
MWUN	(16) 32	Maximum number of wireless units. The MWUN prompt appears only if WRLS = YES.
WTYP	(MCMO) DECT	Wireless type.

Feature operation

There are no specific operating procedures required to use this feature.

Meridian Hospitality Voice Services

Meridian Hospitality Voice Services (MHVS) links Meridian Mail Guest Voice Messaging with the Property Management System (PMS) and the Meridian 1. Meridian Mail uses information from the Property Management System Interface (PMSI) to manage guest voice messaging and to coordinate the Message Waiting indications for both voice and text messaging.

Meridian Hospitality Voice Services (MHVS) allows Meridian Mail to intercept messages sent over the Property Management System Interface (PMSI) and to pass the Meridian 1 only those messages required to manage and coordinate message indications for both voice and text messages. Should Meridian Mail ever fail, a Meridian Mail bypass switch allows the Meridian 1 to be directly connected to the Property Management System Interface.

Meridian Hospitality Voice Services provides enhancements to the following features:

- Pretranslation
MHVS will suppress all pretranslation on calls originated by Meridian Mail virtual agents.
- Do Not Disturb
MHVS allows calls to telephones in a Do Not Disturb (DND) mode to be rerouted to Meridian Mail for special handling.
- Controlled Class of Service (CCOS)
When CCOS is allowed on M2327 and M3000 telephones, they do not display the softkey choices for standard Meridian Mail features that do not apply when these telephones are used in guest rooms. Dial Access is required to activate these features.

New Property Management System (PMS) messages (from X11 Release 16) are used to integrate the link.

Operating parameters

The Night Number (NCWF) specified for the AP Recovery enhancement must be local to the system. It cannot be defined using Network Automatic Call Distribution (Network ACD) routing tables.

Attendant Consoles cannot be associated with mailboxes on Meridian Mail.

Softkey menus are suppressed for MHVS commands on M2317 and M3000 telephones when Controlled Class of Service (CCOS) has been activated. Dial Access must be used to operate MHVS features, except guest messaging mailboxes.

When programming the Night Directory Number (Night DN) associated with the customer and Automatic Call Distribution (ACD) queues, be sure to avoid configuring a loopback of Directory Numbers (DNs) for the Night Call Forward DN. For example, if the Night Call Forward DN terminates on a console (directly or indirectly), the attendant Night DN should not terminate on the Meridian Mail virtual ACD DN. With this configuration, calls will remain ringing in the ACD queue under the following conditions:

- The system is in Night Service Mode or
- Meridian Mail fails

The caller remains in the queue until the attendant disengages Night Service, or until the Applications Module Link (AML) recovers from failure.

The use of Integrated Messaging System (IMS) or Integrated Voice Messaging System (IVMS) is not supported with MHVS.

Feature interactions

Attendant End to End Signaling (EES)

Attendant EES (which uses Dual-tone Multifrequency signaling) requires an additional Attendant EES key.

Attendant Overflow Position (AOP)

AOP allows unanswered calls to the attendant to be forwarded to a customer-defined Directory Number (DN) after a defined time. A call can also be overflowed if all the attendants are in Position Busy State. With AOP equipped in X11 Release 16, overflowed calls can be directed to Meridian Mail. The AOP DN must be defined as an Automatic Call Distribution (ACD) Directory Number (DN), and the ACD DN must have an ACD agent assigned as a virtual VMS agent.

Centralized Attendant Service (CAS)

The attendant must be located on the same switch as Meridian Mail for the attendant to use Meridian Mail features.

Digit Key Signaling (DKS)

DKS is supported only from Attendant Consoles at the Meridian Mail site.

Digit Key Signaling (DKS) at Console

With DKS equipped, attendants can assist callers in Meridian Mail activities. The attendant can extend source calls to Meridian Mail or direct calls to Meridian Mail.

Do Not Disturb (DND)

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

M2317, M3000, and Meridian Modular softkey menus

M2317 or M3000 softkey menus are not supported by MHVS. These telephones with Controlled Class of Service Allowed (CCSA) Class of Service are not presented with the Meridian Mail softkey menus when connected to Meridian Mail.

Network ACD

The Night Number (NCFW) specified for the ACD must be local to the node.

Pretranslation

Prior to MHVS, the setup of calls using the Applications Module Link (AML) was not supported from telephones using the Pretranslation feature. With MHVS equipped, call setup using the AML is supported.

Property Management System Interface (PMSI), Digit Key Signaling (DKS), DNDH, and Message Waiting indication

These operations are supported only when PMSI, Meridian Mail, and attendant and room telephones are located on the same Meridian 1 switch.

Stripping of Call Party Name Display (CPND) blanks

The maximum length of a CPND name sent from the PMSI/Background Terminal (BGD) is 27 characters. When the full 27-character length is used, part of the CPND name may scroll off the screen. To avoid this problem, the PMSI/Background Terminal (BGD) software has been updated to strip from the screen all trailing blanks from the CPND name.

Feature packaging

MHVS requires the following packages:

- Meridian Hospitality Voice Services (MHVS) package 179, which requires:
 - Recorded Announcement (RAN) package 7
 - End-to-End Signaling (EES) package 10
 - Make Set Busy (MSB) package 17
 - Integrated Messaging System (IMS) package 35
 - Basic Automatic Call Distribution (BACD) package 40
 - Automatic Call Distribution Package A (ACDA) package 45
 - Message Center (MWC) package 46
 - Command and Status Link (CSL) package 77
 - CSL with Alpha Signaling (CSLA) package 85
 - Auxiliary Processor Link (APL) package 109

- Property Management System Interface (PMSI) package 103, which requires:
 - Controlled Class of Service (CCOS) package 81
 - Background Terminal Facility (BGD) package 99
 - Room Status (RMS) package 100

Attendant Overflow Position (AOP) package 56 is required for AOP Directory Number (DN) enhancement.

- Digit Key Signaling (DKS) package (180), which requires:
 - Meridian Hospitality Voice Services (HVS) package 179

The site may also require other packages, such as:

- Message Registration (MR) package 101
- Automatic Wake Up (AWU) package 102

Feature implementation

Refer to *Meridian Mail Modular Option Guest Voice Messaging* (553-7041-210) and *Property Management System Interface description* (553-2801-101).

Feature operation

Refer to *Meridian Mail Modular Option Guest Voice Messaging* (553-7041-210) and *Property Management System Interface description* (553-2801-101).

Meridian Mail

Related Documents

For complete information concerning Meridian Mail, see the documents in the lists that follow.

Meridian Mail Options

- *Master Index* (553-7001-000)
- *General Description* (553-7001-100)
- *Expansion Guide* (553-7001-211)
- *Networking Installation Guide* (553-7001-213)
- *System Options Guide* (553-7001-215)
- *System Administration Guide* (553-7001-301)
- *System Administration Tools* (553-7001-305)
- *Restore and Voice Volume Recovery Guide* (553-7001-308)
- *Maintenance Messages* (553-7001-510)
- *Site and Installation Planning* (553-7011-200)
- *Installation Checklist* (553-7011-205)
- *Installation Guide* (553-7011-210)
- *Maintenance Procedures* (553-7011-500)

Meridian Mail GP

- *Master Index* (553-7001-000)
- *General Description* (553-7001-100)
- *Expansion Guide* (553-7001-211)
- *Networking Installation* (553-7001-214)
- *System Administration Guide* (553-7001-301)
- *System Administration Tools* (553-7001-305)
- *Maintenance Messages* (553-7001-510)
- *Site and Installation Planning* (553-7031-200)
- *Installation Procedures* (553-7031-210)
- *Maintenance Procedures* (553-7031-500)

Meridian Mail Modular Option

- *Master Index* (553-7001-000)
- *General Description* (553-7001-100)
- *Expansion Guide* (553-7001-211)
- *Networking Installation Guide* (553-7001-213)
- *System Administration Guide* (553-7001-301)
- *System Administration Tools* (553-7001-305)
- *Maintenance Messages* (553-7001-510)
- *Site and Installation Planning* (553-7041-200)
- *Meridian Mail Modular Option Guest Voice Messaging* (553-7041-210)
- *Maintenance Procedures* (553-7041-500)

Meridian Mail Trunk Access Restriction

The Meridian Mail Trunk Access Restriction (MTAR) feature prevents direct or indirect call transfer or conference of external calls to Meridian Mail. In this feature, external calls are defined as incoming/outgoing trunk calls that originate or terminate outside a private network.

This definition is applicable to all types of trunks, with the exception of TIE trunk calls. External calls are separated from a transferring/conferencing set on a network using TIE trunks. MTAR operation is dependant on the information sent to the remote node from the node that is attempting to transfer/conference. MTAR is triggered if the network information (such as Network Attendant Service or Calling Line Identification) indicates that an external call and a transfer/conference attempt to Meridian Mail is occurring. MTAR is also triggered if local information, such as Route Class, indicates an external call and a transfer/conference attempt to Meridian Mail is occurring.

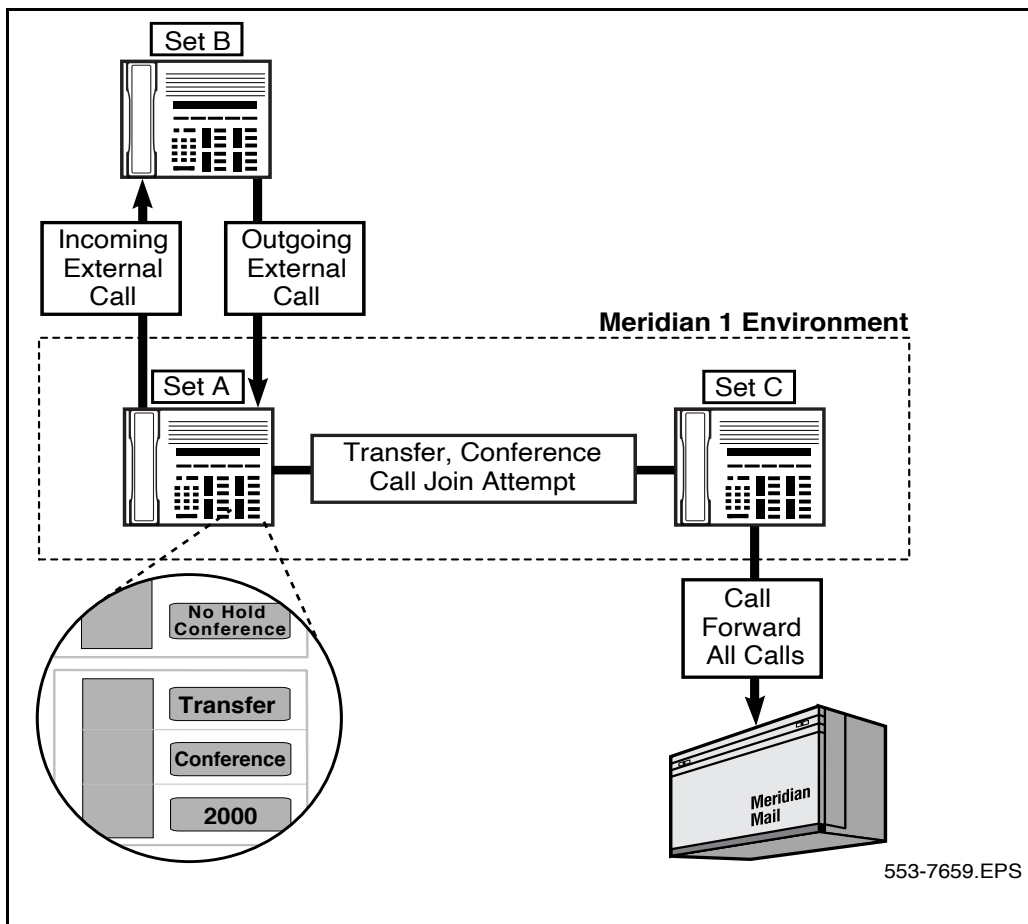
Meridian Mail Trunk Access Restriction averts potential Meridian Mail system abuse by distinguishing between internal and external calls that are directed to Meridian Mail. When activated, Meridian Mail Trunk Access Restriction impacts the operation of the following features:

- Call Transfer
- Conference
- No Hold Conference
- Call Join capabilities of the Multi-Party Operation feature

Meridian Mail Trunk Access Restriction prevents the completion of any Call Transfer, Conference, No Hold Conference or Call Join attempts on incoming/outgoing external calls to Meridian Mail.

As illustrated in Figure 43, Maters capabilities prevent an established call between Set A, an internal call, and Set B, an external call, from being forwarded to Meridian Mail. When Set A attempts to either Transfer, Conference, No Hold Conference or Call Join Set B to Set C, which is either a direct Meridian Mail DN or has activated Call Forward All Calls (CFAC) to Meridian Mail, the transfer and conference keys are ignored when pressed to complete operation.

Figure 43
Meridian Mail Trunk Access Restriction Call Transfer



Operating parameters

MTAR does not treat Centralized Attendant Position and Night Attendant sets as Attendant Consoles. These sets receive treatment based on their actual set type. For example, if the night attendant is a Meridian 1 proprietary set, then it is treated as a Meridian 1 proprietary set.

The operation of an Attendant Console is not affected when this feature is enabled. An attendant can transfer or conference an external line to Meridian Mail directly or indirectly.

MTAR does not affect Automatic Attendant, Customer Controller Routing, Integrated Voice Response or Meridian Link features. However, if a user disallows any of these features from accessing Meridian Mail, the application must be written to take this into account.

Call transfer from ISDN Basic Rate Interface (BRI) set is not supported.

In a networking environment, Meridian Mail must reside on the same node as the transferring/conferencing set.

Feature interactions

Traffic Reporting

Traffic Reporting and Meridian Administration Tool's (MAT) traffic report, TFC005, are modified to report the number of times this feature is requested. A new line is added for the Meridian Mail Trunk Access Restriction which is identified by the feature number "27" and its peg count.

Network Call Transfer

Network Call Conference

Meridian Mail Trunk Access Restriction (MTAR) requires the transferring or conferencing set and Meridian Mail to be located on the same node. If the transferring or conferencing set are located not on the same node as Meridian Mail, the MTAR feature is not provoked because the call transfer/ conference attempt is terminated by a network on Meridian Mail.

However, an external call can be transferred or conferenced over the network, using TIE trunks. This operation is dependant on the type of network information the remote node forwards to the node where the transfer/conference attempt is made. Meridian Mail must be on the transferring/conferencing node. If network information is provided, indicating that an external call is attempting to transfer/ conference to Meridian Mail, the MTAR feature is invoked. When no network information is provided, MTAR is provoked if the local information (Route Class) indicates that an external call to Meridian Mail is being attempted.

Feature packaging

Meridian Mail Trunk Access Restriction requires Message Waiting Center (MWC) package 46.

Feature implementation

Meridian Mail Trunk Access Restriction feature requires prior installation of Meridian Mail. The implementation of this feature, therefore, assumes that Meridian Mail has been properly configured.

LD 15 – Enable Meridian Mail Trunk Access Restriction.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Customer Features and Options.
CUST	xx	Customer number.
- OPT	MCI	Message Centre Included.
...		
- MTAR	YES	Meridian Mail Trunk Access restricted. NO = Meridian Mail Trunk Access allowed.

Feature operation

Call Transfer/Conference

Meridian 1 Proprietary Set

Set A is a Meridian 1 proprietary set with Transfer Key and Conference Key.

- 1 An incoming/outgoing external call is established between Set A and Set B, an external party. The call between Set A and Set B is active on Key X.
- 2 Set A presses the Transfer/Conference Key that automatically puts Set B on Hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail or is a Meridian Mail DN.
- 4 When Set A attempts to transfer/conference Set B by pressing more than once the Transfer/Conference Key it is ignored.
- 5 Set A recovers Set B by pressing Key X.

No Hold Conference

Meridian 1 Proprietary Set/ISDN BRI Set

When Meridian Mail Trunk Access Restriction is enabled, direct or indirect no hold conference to an external call is permitted. During direct or indirect no hold conference, the calling party is never put on hold.

Set A is a Meridian 1 proprietary set or an ISDN BRI set with a No Hold Conference Key configured as either No Hold Conference, Conference Autodial, Conference Speed or Conference Hotline.

- 1 An incoming/outgoing external call is established between Set A and Set B, an external party. The call between Set A and Set B is active on Key X.
- 2 Set A presses the No Hold Conference Key.
- 3 Set A dials Set C. Set C is has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
- 4 The conference is set up as normal. However a two party connection between Set B, an external party, and Meridian Mail is not allowed if the call controller releases. If this occurs, the connection between the trunk and Meridian Mail party is dropped.

Transfer

Analog (500/2500 type) Set

Set A is an Analog (500/2500 type) set with a XFA Class of Service (transfer and three/six party conference allowed).

- 1 An incoming or outgoing external call is established between Set A and Set B, an external party.
- 2 Set A performs a switchhook flash that puts Set B on hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
- 4 Before or after the Meridian Mail has answered, Set A attempts to transfer Set B to Meridian Mail by going on-hook.
- 5 This attempt is treated as an illegal transfer. Set A is re-rung and reconnected with Set B when going off-hook.

Conference

Analog (500/2500 type) Set

Set A is an Analog (500/2500 type) set with a XFA Class of Service (transfer and three/six party conference allowed).

- 1 An incoming or outgoing external call is established between Set A and Set B, an external party.
- 2 Set A performs a switch hook flash that puts Set B on hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
- 4 Before or after the Meridian Mail has answered, Set A attempts to conference Set B to Meridian Mail by performing another switchhook flash.
- 5 The conference is not permitted. Set A is reconnected to Set B. The call to Meridian Mail is disconnected.

Set A is an Analog (500/2500 type) set with a TSA Class of Service (three party service allowed).

- 1 An incoming or outgoing external call is established between Set A and Set B, an external party.
- 2 Set A perform a switch hook flash that puts Set B on hold.
- 3 Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
- 4 Before or after Meridian Mail has answered, Set A attempts to conference Set B to Meridian Mail by dialing the conference control digits.
- 5 The conference is not permitted and Set A is reconnected to Set B. The call to Meridian Mail is disconnected.

Table 87 summarizes how different external calls are handled when Meridian Mail Trunk Access Restriction is enabled.

Table 87
Summary of Meridian Mail Trunk Access Restrictions

Telephone	External Call Type	Operation	Failure Treatment	Result
500/2500	Incoming	Transfer to Meridian Mail (MMail)	Re-ring to transferring set	Not allowed
500/2500	Incoming	Transfer to set with Call Forward All Calls (CFAC) to MMail	Re-ring to transferring set	Not allowed
500/2500	Outgoing	Transfer to MMail	Disconnect external call and Meridian Mail	Not allowed
500/2500	Outgoing	Conference to set with CFAC to MMail	Disconnect external call and Meridian Mail	Not allowed
500/2500	Outgoing/ Incoming	Conference to MMail	Reconnect to external call. Disconnect call to MMail	Not allowed

500/2500	Outgoing/ Incoming	Conference to set with CFAC to MMail	Reconnect to external call. Disconnect call to MMail	Not allowed
Meridian 1 Proprietary	Outgoing/ Incoming	Transfer/Conferenc e to MMail	Operation ignored	Not allowed
Meridian 1 Proprietary	Outgoing/ Incoming	Transfer/Conferenc e to set with CFAC to MMail	Operation ignored	Not allowed
Meridian 1 Proprietary	Outgoing/ Incoming	No Hold Conference to Meridian Mail or to set CFAC to MMail	Not applicable	Allow
Meridian 1 Proprietary	Outgoing/ Incoming	No Hold Conference release to make MMail to trunk two-party connection	Disconnect MMail and external trunk	Not allowed
Meridian 1 Proprietary	Outgoing/ Incoming	Call Join of external call to MMail	Operation ignored	Not allowed
Basic Rate Interface	Outgoing/ Incoming	Conference to MMail	Operation ignored	Not allowed
Basic Rate Interface	Outgoing/ Incoming	Conference to set with CFAC to MMail	Operation ignored	Not allowed
Attendant	Outgoing/ Incoming	Transfer/Conferenc e to Meridian Mail	Not Applicable	Allowed
Attendant	Outgoing/ Incoming	Transfer/Conferenc e to set with Call Forward All Calls to Meridian Mail	Not Applicable	Allowed

Meridian Mail Voice Mailbox Administration

The Meridian Mail Voice Mailbox Administration (VMBA) feature enables the Meridian 1 system administrator to use Meridian 1 administration overlays to administer and maintain the Meridian Mail Voice Mailbox Application. This feature streamlines the process of implementing and maintaining voice mailboxes (VMBs).

VMBA provides the following capabilities:

- Accessing the Voice Mailbox Application via LDs 10 and 11 rather than via a separate terminal
- Viewing application and mailbox statistics to help ensure the integrity of the application
- Synchronizing the Meridian 1 and Meridian Mail databases using special audit and upload functions:
 - The audit function helps ensure that name data stored on the Meridian 1 is synchronized with name data stored on Meridian Mail. The system administrator can run the audit manually or request that the system run it periodically.
 - For sites that want to implement VMBA and already have VMBs configured on Meridian Mail, the VMBA upload function lets the system administrator create or update the Meridian 1 VMB database from the existing Meridian Mail VMB database. Upload can significantly reduce the time required to implement VMBA.

Access to Meridian Mail VMB administration functions is still available with the Meridian Mail administration console. However, to prevent database inconsistencies, use the Meridian 1 for VMB administration when VMBA is equipped.

In X11 Release 19, VMBA is supported on RT, XT, NT, and STE systems, as well as on options 21A, 21E, 51, 61, 71, and 81. Telephone types supported include the SL-1, Meridian Modular telephones, M2317, M2000, M3000, and analog (500/2500 type) telephones.

CAUTION

There is a potential impact on the Meridian 1 CPND database when using the VMBA application. Therefore, users should read with care the sections entitled “Name processing considerations” on page 1188 and “Site with a preconfigured Meridian Mail database” on page 1200.

Operating parameters

The appropriate VMB Class of Service must be defined on Meridian Mail before the Meridian 1 can add VMBs. Otherwise, Meridian Mail transaction errors will occur. A Meridian Mail Class of Service specifies a particular set of Meridian Mail options.

A Meridian 1 supports only one Meridian Mail system for VMBs.

The Meridian 1 allows for only one VAS and one customer to be configured for this application.

If a VMB is deleted on the Meridian 1 but not on Meridian Mail, the result could be an orphan VMB. If the DN for the deleted VMB is reused on the Meridian 1, Meridian Mail deletes the old DN and adds the new one, thereby recovering the associated VMB. If the DN is not reused, the orphan VMB is not recovered.

VMB changes made directly on a Meridian Mail administration terminal may not be detected for up to five days, because Meridian 1 automatic database audits (if equipped) can only run every five days.

The VMB status printed in LD 20 indicates the status of transactions on the Meridian 1, not on Meridian Mail. For example, if a VMB is disabled on Meridian Mail, its state is not updated on the Meridian 1.

VMBs cannot be configured for telephones served by a remote Meridian Mail subsystem.

A VMB is not affected when a user's telephone is disabled or being relocated. The VMB remains logged in and continues to receive incoming messages.

Feature interactions

Automatic Set Relocation

Relocating a user with an associated VMB to a new TN will not affect the VMB. The VMB remains logged in and continues to receive incoming voice messages while the telephone is being relocated.

A telephone that is relocated out but not relocated back in can still have an active VMB. A relocated telephone must be deleted manually on the Meridian 1 before its associated VMB is removed.

Call Waiting Redirection

Unanswered calls given Call Waiting treatment may now be allowed to forward to Voice Mail through the activation of the Call Waiting Redirection feature. The greeting given to the caller is for a "no answer" condition.

CPND

There is significant interaction between the Meridian 1 CPND database and the Meridian Mail VMB database. The sections entitled "Common data elements" on page 1188 and "Name processing considerations" on page 1188 describe these interactions.

Meridian Mail 8

Although there is no user impact, unsolicited link messages will appear when VMBA is equipped.

Common data elements

Table 88 shows the data that is stored and synchronized between Meridian 1 and Meridian Mail.

Table 88
Data stored by both the Meridian 1 and Meridian Mail

Meridian 1	Meridian Mail	Description
DN	Mailbox number	Meridian 1 DN to which a VMB is assigned
VMB Class of Service	Class of Service	Specific set of Meridian Mail options
CPND name	First name/Last name/Initial	Name associated with a VMB (optional)
Second DN	Second DN	Second DN sharing a mailbox (optional)
Third DN	Third DN	Third DN sharing a mailbox (optional)

VMB data configured on the Meridian 1 and downloaded to Meridian Mail is subject to the same validation routines as data entered directly at the Meridian Mail administration terminal. When downloaded VMB data fails Meridian Mail validation, a message prints on the Meridian 1 TTY.

Name processing considerations

There are basic differences in how Meridian 1 CPND and Meridian Mail process name data. This section describes those differences and makes specific recommendations for minimizing their impact on your system.

Because this feature may affect your name data, print the Meridian 1 and Meridian Mail name databases before beginning to implement VMBA on a system with VMBs already implemented. (Use the appropriate administrative overlays to print the databases.)

Name lengths

X11 Release 18 versus X11 Release 19

In X11 Release 18 and earlier, CPND stores names on the Meridian 1 in a single 27-character field. In X11 Release 19 and later, CPND stores names in two fields (first name and last name) with a combined length of up to 27 characters. A conversion from X11 Release 18 to X11 Release 19 includes the following name processing:

- The entire contents of the X11 Release 18 CPND name field is placed in the X11 Release 19 first name field.
- The X11 Release 19 last name field is set to blanks.

Although this processing preserves existing name data, no automated way is provided for separating name data into first and last name. Therefore, after completing the conversion, you may want to consider using the upload function of VMBA. This function replaces Meridian 1 CPND name data with Meridian Mail name data, which is separated into first and last name.

Meridian 1 versus Meridian Mail

Because the allowable name lengths differ between Meridian Mail and Meridian 1, it is recommended that you use the most restrictive case for name lengths on both systems.

Meridian Mail accepts the following name lengths:

- Up to 21 characters for first name
- Up to 40 characters for last name, and
- Up to 61 characters for combined first and last names.

In X11 Release 19, Meridian 1 CPND accepts the following name lengths:

- Up to 27 characters for first name
- Up to 27 characters for last name, and
- Up to 27 characters for combined first and last names.

When the VMBA application is installed, the recommended name lengths on both Meridian 1 and Meridian Mail are as follows:

- Up to 21 characters for first name. Meridian Mail truncates a Meridian 1 first name that is longer than 21 characters.
- Up to 27 characters for combined first and last names. If names on Meridian Mail exceed a combined length of 27 characters, they are truncated on the Meridian 1 during an upload.
- Up to 27 characters for last name. Last names are truncated to 27 characters when uploaded.

Name handling during an upload

If the CPND package is equipped and CPND is configured for the customer, the following name processing occurs during an upload:

- 1** If a name already exists on the Meridian 1, it is replaced with the uploaded name using the expected length (XPLN) and display formats configured for that name.
- 2** If a name does not exist on the Meridian 1, the uploaded name is added using the default length (DFLN) specified for the customer and the default display format of FIRST, LAST.
- 3** If the names received from Meridian Mail are longer than the expected or default length, the first name is truncated until both names fit into the configured length. If necessary, the last name is also truncated.

For example, if Meridian Mail sends the name JACK FROST and XPLN is 8, the name is truncated to JA FROST. If XPLN is 4, the name is truncated to FROS.

A subsequent audit with DATA_CORRECT set to ON causes the name on Meridian Mail to be updated with the Meridian 1 name (either JA FROST or FROS).

Character sets

Meridian Mail supports a subset of the characters that Meridian 1 supports. When Meridian Mail encounters a name from the Meridian 1 that contains characters outside its supported character set, it rejects the name. Therefore, it is recommended that you use the most restrictive character set.

The character sets supported by the Meridian 1 and Meridian Mail are as follows:

- Meridian 1: ASCII H.20 through H.7E, excluding asterisk (*) and exclamation point (!)
- Meridian Mail: ASCII H.20 through H.7E excluding the plus sign (+), underscore (_), and question mark (?)

Therefore, on a system with VMBS, the Meridian 1 user should avoid using the asterisk (*), exclamation point (!), plus sign (+), underscore (_), and question mark (?) in CPND names.

Database synchronization considerations

As you configure and implement VMBA, keep the following points in mind:

- Meridian 1 and Meridian Mail each has its own name database. Therefore, to ensure synchronization, enter and change name information from the Meridian 1 only. VMBA facilities ensure that corresponding changes are made to the Meridian Mail database. However, remember that changes made directly to the Meridian Mail are not made to the Meridian 1 database.

- The VMBA Audit facility not only detects VMB database mismatches; with Data Correction enabled, the Audit facility invokes processing to make the Meridian Mail VMB database match the Meridian 1 VMB database. See Table 89.

Table 89
Effect of running Audit with Data Correction enabled

Status of VMB		Effect on VMB databases	
Meridian 1	Meridian Mail	Meridian 1	Meridian Mail
VMB not configured	VMB not configured	No change	No change
VMB not configured	VMB configured	No change	No change
VMB configured	VMB not configured	No change	VMB added
VMB configured	VMB configured; database matches Meridian 1	No change	No change
VMB configured	VMB configured; database does not match Meridian 1	No change	VMB database changed to match Meridian 1 database

- The VMBA Upload facility forces the Meridian 1 VMB database to match the Meridian Mail VMB database. In the case where VMB is not configured on Meridian Mail, an upload will delete the Meridian 1 VMB database. See Table 90.

Table 90
Effect of running Upload

Status of VMB		Effect on VMB databases	
Meridian 1	Meridian Mail	Meridian 1	Meridian Mail
VMB not configured	VMB not configured	No change	No change
VMB not configured	VMB configured	VMB added	No change
VMB configured	VMB not configured	VMB deleted	No change
VMB configured	VMB configured; database matches Meridian 1	No change	No change
VMB configured	VMB configured; database does not match Meridian 1	VMB database changed to match Meridian Mail database	No change

Feature packaging

Meridian Mail Voice Mailbox Administration (VMBA) is available as package 246. It requires X11 Release 19 on the Meridian 1, and Meridian Mail MM9.

Although not required, Calling Party Name Display (CPND) package 95 for the Meridian 1 is recommended. Certain Meridian Mail features, such as name dialing, require that CPND be equipped.

Alarm Filtering package 243 is recommended because of the additional information that appears in the formatted output.

Feature implementation

Be sure to print the name databases for both the Meridian 1 and Meridian Mail before beginning to implement the VMBA application.

Implementing VMBA requires that it be installed and equipped on the Meridian 1. (In addition, Meridian Mail must be MM9 or later.) This section includes instructions for three implementation scenarios:

- 1** A site with no preconfigured database on either the Meridian 1 or Meridian Mail.
- 2** A site with a preconfigured database on the Meridian 1, but not on Meridian Mail.
- 3** A site with VMBs configured on Meridian Mail, but not on the Meridian 1.

Site with no preconfigured database

- 1 If necessary, configure and enable the AML link to Meridian Mail. For assistance, refer to the *Meridian Link description* (553-3201-110).
- 2 Configure the VMBA application in LD 17 on the VAS link associated with Meridian Mail. Set the DATA_CORRECT and AUTO_AUDIT options to ON to simplify database maintenance and ensure data integrity.

Table 91
LD 17 – Configuring the VMBA application

Prompt	Response	Description
REQ	NEW	Add.
TYPE	VAS	Release 19 gate opener.
VAS	NEW, CHG	Add or change a value added server link.
- VSID	0-15	VAS identifier.
- AML	0-15	Application Module Link identifier.
- APPL	NEW VMBA	Configure the VMBA application associated with a VSID.
- CUST	0-99	Customer number.
- - DATA_CORRECT	ON	Enable automatic database correction during audit; the Meridian Mail database is updated to match the Meridian 1 database.
AUTO_AUDIT	ON	Enable automatic database audit; the Meridian Mail database is audited every 5 days as part of daily routines.

If the AML link is active, the VMBA application is automatically enabled after it is configured in LD 17. If the AML link is not active, the VMBA application is placed in the LINKOOS (link out of service) status.

- 3** Configure the VMB Classes of Service on Meridian Mail. Transaction errors occur if a Class of Service specified on the Meridian 1 has not been configured on Meridian Mail.
- 4** Use LDs 10 and 11 to administer VMBs on the Meridian 1. The database changes are automatically downloaded to Meridian Mail if both the AML and the VMBA application are enabled. If either is disabled, the VMBs that are added or changed are left in the UPDATE PENDING state. They are downloaded when both the AML link and the application are enabled. See Tables 92 and 93.

Table 92

LD 10 – Add a VMB on a 500/2500 telephone

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500, 2500	DN related data.
TN	l s c u	Terminal number.
CUST	0-99	Customer number.

Table 92
LD 10 – Add a VMB on a 500/2500 telephone

Prompt	Response	Description
DN	xxxx	Directory number.
- MARP	YES	Multiple Appearance Redirection Prime.
- CPND	NEW, CHG	Gateway to change Calling Party Name Display data.
- - VMB	NEW, CHG	Gateway to change VMB data associated with the above DN.
- - VMB_COS	0-127	VMB class of service; must already be defined on Meridian Mail to avoid transaction errors.
- - SECOND_DN	xxx...x	Second DN sharing this VMB. To delete a DN, enter X <CR>.
- - THIRD_DN	xxx...x	Third DN sharing this VMB. To delete a DN, enter X <CR>.
- - KEEP_MSGS	(NO), YES	For a new VMB only, indicates whether messages and current password on Meridian Mail should be preserved if a VMB with the same DN already exists.

Table 93
LD 11 – Add a VMB on a digital telephone

Prompt	Response	Description
REQ	NEW	Add.
TYPE	aaaa	Telephone type.
TN	l s c u	Terminal Number.
CUST	0-99	Customer Number.
KEY	xx yyy zzzz	Telephone function key assignments.
- MARP	YES	Multiple Appearance Redirection Prime.
- CPND	NEW, CHG	Gateway to Calling Party Name Display data.
- - VMB	NEW, CHG	Gateway to change VMB data associated with the above DN.
- - SECOND_DN	xxx...x	Second DN sharing this VMB. To delete a DN, enter X <CR>.
- - THIRD_DN	xxx...x	Second DN sharing this VMB. To delete a DN, enter X <CR>.
- - KEEP_MSGS	YES, (NO)	For a new VMB only, indicates whether messages and current password on Meridian Mail should be preserved if a VMB with the same DN already exists.

Site with a preconfigured Meridian 1 database

Typically, this scenario involves a new Meridian 1 installation. The database is created on the Meridian 1 and subsequently downloaded when the AML link and Meridian Mail are operational.

Configuring the database

- 1 Configure the VMBA application in LD 17 on the VAS associated with Meridian Mail. See Table 91 on page 1195. Set the DATA_CORRECT and AUTO_AUDIT options to OFF until the installation is complete.

The AML link does not have to be configured at this point because there is no actual hardware to enable.

- 2 Configure the telephones and associated VMBs. The VMBs will be left in UPDATE PENDING state. See Tables 92 and 93.

Installing the database at the customer site

- 1 Ensure that the Meridian Mail database is configured with the VMB Classes of Service that were used when configuring the Meridian 1 database. *Do not proceed with step 2 until this step is completed.*
- 2 If necessary, configure and enable the AML link to Meridian Mail. For assistance, refer to the *Meridian Link description* (553-3201-110).
- 3 Unless the VMBA application is in a manually disabled state, it will be automatically enabled. If it is manually disabled, use LD 48 to enable it. See “Enabling the VMBA application” on page 1201.
- 4 When the VMBA application is enabled, the system will begin downloading the preconfigured database to Meridian Mail. Use the PRT VMB option in LD 20 to monitor the progress of the download.
- 5 After the download is complete, check the Meridian 1 TTY for errors and make corrections manually.
- 6 Use LD 48 to initiate a manual audit of the entire database. This is to verify that the VMB and CPND data on the Meridian 1 matches the downloaded data on Meridian Mail. See “Starting a manual audit” on page 1210.

To determine the status of the audit, use the STAT VMBA <vsid> AUDT command in LD 48. When the audit is complete, check the audit report for errors; make corrections manually.

- 7 Configure the DATA_CORRECT and AUTO_AUDIT options as desired. It is recommended you set them to ON to help ensure database integrity.

Installation is now complete. Use the Meridian 1 to perform ongoing administration of VMBS.

Site with a preconfigured Meridian Mail database

Existing sites installing the VMBA application may have VMBS already configured on Meridian Mail. LD 48 includes an upload option that simplifies VMB data configuration on the Meridian 1.

CAUTION

The upload option also causes name data configured on Meridian Mail to be uploaded to the Meridian 1. Any existing names on the Meridian 1 are replaced with names currently configured on Meridian Mail. See “Name processing considerations” on page 1188 for an explanation of the changes that may result.

- 1 If necessary, configure and enable the AML link to Meridian Mail. For assistance, refer to the *Meridian Link description* (553-3201-110).
- 2 Configure the VMBA application in LD 17 on the VAS associated with Meridian Mail. See Table 91, on page 1195. Set the DATA_CORRECT and AUTO_AUDIT options to OFF until the installation is complete.

If the AML link is active, the VMBA application is automatically enabled after it is configured in LD 17. If the AML link is not active, the VMBA application is placed in the LINKOOS (link out of service) state.

- 3 Initiate the database upload by entering the following command in LD 48:

ENL VMBA <vsid> UPLD ALL

To check the status of the upload, enter the following command in LD 48:

STAT VMBA <vsid> UPLD

- 4 When the VMB UPLOAD COMPLETE message appears, investigate and resolve any errors that occurred during the upload.

- 5** Initiate a manual database audit using the following command in LD 48:

ENL VMBA <vsid> AUDT ALL

This will verify that the VMB and CPND data on the Meridian 1 matches the data on Meridian Mail.

- 6** Manually resolve any errors detected by the audit. Perform any necessary name cleanup.
- 7** Configure the DATA_CORRECT and AUTO_AUDIT options as desired. It is recommended you set them to ON to help ensure database integrity.

Installation is now complete. Use the Meridian 1 to perform ongoing administration of VMBs.

Feature operation

Enabling the VMBA application

Use the VAS gateway in LD 17 to configure the VMBA application. See Table 91, on page 1195. After configuring the VMBA application, the Meridian 1 sets the VMBA application state to INACTIVE and immediately attempts to establish a VMBA session with Meridian Mail. If successful, the Meridian 1 changes the VMBA application state to ACTIVE and prints an APPLICATION ENABLED message on the TTY. If unsuccessful, the following actions occur:

- If the AML link is down:
 - The system issues a “FAILED TO ENABLE APPLICATION” message to the TTY.
 - The application’s state is changed to LINKOOS (link out of service).
 - The application is automatically enabled when the link becomes available.
- If the AML link is up but the application is not responding on Meridian Mail:
 - The system attempts to establish a session every two minutes until successful or until the user disables the application using LD 48.

- If the AML link is up but the application is not equipped on Meridian Mail:
 - For MM8 and earlier Releases, the system attempts to establish a session as described above. Such attempts obviously fail. Disable VMBA until the upgrade to MM9 occurs.
 - For MM9 and later Releases, Meridian Mail indicates to the Meridian 1 that the feature is not configured. The message “FAILED TO ENABLE APPLICATION” appears on the TTY, indicating that the request is rejected. The application remains in INACTIVE status. Retries continue until the user disables the application in LD 48 or until the application is equipped on MM9.

If the VMBA application is not automatically enabled, use the following command in LD 48 to enable it:

ENL VMBA <vsid>

where <vsid> is the VAS identifier, in the range of 0-15.

Disabling the VMBA application

LD 48 accepts the following command to disable the VMBA application:

DIS VMBA <vsid>

where <vsid> is the VAS identifier, in the range of 0-15.

The following actions occur when the application is disabled:

- 1 The VMBA application state is changed from ACTIVE to MANDIS.
- 2 All VMB transactions in progress with Meridian Mail are aborted. VMBs defined on the Meridian 1 but not successfully updated on Meridian Mail remain in the UPDATE PENDING state. They will be processed when the application is reenabled.
- 3 Database audit or upload activities are aborted.
- 4 The VMBA session established with Meridian Mail is released.

Determining the status of the VMBA application

LD 48 accepts the following command to print the status of the VMBA application:

```
STAT VMBA <vsid>
```

where <vsid> is the VAS identifier, in the range of 0-15.

Output from this command, shown in the following example, indicates the status of the application, the audit function, and the upload function:

```
VMBA ACTIVE
AUDIT INACTIVE
UPLOAD INACTIVE
```

Valid application states for VMBA appear in Table 94.

Table 94
VMBA application states

State	Explanation
INACTIVE	The application has been configured in LD 17 but is inactive for one of the following reasons: — An application session request was sent to Meridian Mail but confirmation has not yet been received. — Meridian Mail is not configured to support the VMBA application (it does not have the application equipped, or it is running on MM8 or earlier). — A “FAILED TO ENABLE APPLICATION” message on the TTY indicates a reason why the application is inactive.
MANDIS	The application was manually disabled using LD 48.
LINKOOS	The application is inactive because the link to Meridian Mail is out of service.
ACTIVE	The application is enabled and operational.

Managing voice mailbox data

Adding or changing a VMB

Use LDs 10 and 11 to add or change a VMB. See Table 92 on page 1196 and Table 93 on page 1198. Use LD 10, 11, or 95 to add or change a name.

When a VMB is added or changed, the system places the VMB in the UPDPEND (update pending) state and informs a background process that an update is pending. The background process initiates an update transaction with Meridian Mail, with one of these outcomes:

- The operation is successful; the VMB state becomes CONFIGURED.
- The operation fails (perhaps because of bad data); the VMB state becomes UPDFAIL (update failed) and a technician must manually intervene to correct the error condition.
- If the VMB already exists on Meridian Mail when the Meridian 1 requests a VMB add, one of the following outcomes results:
 - If the response to the KEEP_MSGS prompt in LDs 10 and 11 was NO, Meridian Mail deletes the existing VMB and creates a new one using the configuration information specified by the Meridian 1. All existing messages and passwords are deleted.
 - If the response to the KEEP_MSGS prompt in LDs 10 and 11 was YES, Meridian Mail keeps all existing messages and passwords associated with the VMB, but replaces the existing configuration information with the new configuration specified by the Meridian 1. This information includes user name, Class of Service, and so forth. Meridian Mail automatically enables newly created VMBs.

Deleting a VMB

There are three ways to delete a VMB:

- When using LDs 10 and 11, enter OUT at the VMB prompt.

When doing a normal CHG or ECHG on a telephone in LDs 10 and 11, enter OUT at the VMB prompt to delete the telephone's VMB.

- When using LDs 10 and 11 to delete a telephone, enter OUT at the REQ prompt.

If a telephone is configured with a Single Appearance DN, the DELETE_VMB prompt appears after the technician enters OUT at the REQ prompt. A YES response causes the VMB to be deleted on both the Meridian 1 and Meridian Mail. A NO response causes the VMB to be deleted on Meridian 1 but not on Meridian Mail.

The DELETE_VMB and the KEEP_MSGS prompts allow a technician to move a user from one telephone type to another without having to delete and re-create the VMB.

- DELETE_VMB = NO when deleting a DN keeps the old mailbox. KEEP_MSGS = YES when adding a new telephone (with the old, previously deleted DN) keeps the VMB messages and password from the old DN intact.
 - DELETE_VMB = NO when deleting a DN keeps the old mailbox. KEEP_MSGS = NO when adding a new telephone (with the old, previously deleted DN) deletes the VMB messages and password associated with the mailbox.
- When changing a Single Appearance DN on a telephone, the system automatically deletes the old DN and associated VMB.
- When the changed DN is entered, if it is currently assigned to another telephone that has a VMB associated with it, the telephone with the changed DN becomes a user of that VMB. If the changed DN does not currently have a VMB, one can be added.
- Note:** When changing the DN for a member of a Multiple Appearance DN group, the VMB for the Multiple Appearance DN is unaffected.

Printing VMB data

LDs 20 and 83 support printing VMB data associated with a telephone. With X11 Release 19 and later, LDs 10 and 11 can access LD 20 to facilitate printing VMB data after it is entered.

LD 20 provides three ways to print VMB data:

- Use the PRT DNB command to print the DN block. See Table 95.

Table 95

LD 20 – Print the DN block

Prompt	Response	Description
REQ	PRT	Print.
TYPE	DNB	DN related information.
CUST	0–99	Customer Number.
DN	xxxx	Directory Number.

- Use the PRT TNB command to print the TN block. See Table 96.

Table 96

LD 20 – Print the TN block

Prompt	Response	Description
REQ	PRT	Print.
TYPE	TNB, aaaa	TN block, or any telephone configured in LD 11.
TN	l s c u	Terminal Number.

- Use the PRT VMB command to print the VMB DN and VMB state. See Table 97. For a definition of each state, see Table 98.

Table 97
LD 20 – Print VMB data

Prompt	Response	Description
REQ	PRT	Print.
TYPE	VMB	VMB related information.
CUST	0-99	Customer Number.
DN	xxxx xxxx-yyy (ALL)	Print data for a single DN. Print data for a range of DNs. Print data for all DNs with VMBs.
VMB_STATE	(ALL) UPDPEND CONFIGURED UPDFAIL MISMATCH UPDINPROG INVALID	Print all VMBs regardless of state. Print VMBs in update pending state. Print configured VMBs. Print VMBs whose updates failed. Print VMBs with database mismatches. Print VMBs with updates in progress. Print VMBs in an invalid state.

Table 98
VMB states

State	Explanation
CONFIGURED	The VMB is configured on the Meridian 1 and Meridian Mail.
UPDPEND	A VMB update is pending. The VMB has been added or changed on the Meridian 1 but Meridian Mail has not yet been updated. When the AML link comes up (if it is down), or when the backlog of updates (if any) is processed, the VMB will be updated automatically.
UPDINPROG	A VMB update is in progress. The request was sent to Meridian Mail but a confirmation has not yet been received by the Meridian 1.
UPDFAIL	A transaction with Meridian Mail failed. A VMB UPDATE FAIL error message appears on the Meridian 1 TTY indicating the cause of the failure. A technician must intervene to correct the problem.
MISMATCH	There is a database mismatch between the Meridian 1 and Meridian Mail. The mismatch was detected by VMBA Audit but not corrected (because database correction is not enabled in LD 17). A "VMB MISMATCH FOUND" error appears on the Meridian 1 TTY indicating the mismatch. A technician must intervene to correct the problem.
INVALID	The VMB is in an invalid state. Verify that the VMB data for the DN is correct on the Meridian 1. Then use LD 48 to run VMB Audit on the DN.

To print VMB data in LD 83, respond with TNB at the REQ prompt. This response causes the TN block to print, including VMB data. See Table 99.

Table 99
LD 83 – Print ODAS data

Prompt	Response	Description
REQ	TNB	Print TN data.
CUST	0-99	Customer Number.

Determining VMB state

Review the printed VMB data to determine the status of a particular VMB. Valid VMB states appear in Table 98.

Auditing the VMB database

The VMBA application provides both automatic and manual synchronization procedures to help ensure the consistency of the Meridian 1 and Meridian Mail databases. The databases may lose synchronization during one of the following events:

- A technician changes VMBs directly on Meridian Mail, rather than through the Meridian 1.
- A transaction error occurs during transmission between the Meridian 1 and Meridian Mail.

CAUTION

LD 17 includes a data correction setting (DATA_CORRECT = ON). With this option activated when an audit is run, the system resolves any discrepancy by changing the Meridian Mail database to match the Meridian 1 database. If the databases are out of synchronization because VMB data was changed directly on Meridian Mail, the audit replaces the changed Meridian Mail data with the original Meridian 1 data. Therefore, it is advisable to run an audit initially with DATA_CORRECT = OFF to determine what discrepancies (if any) exist.

Using automatic audit

Responding with ON to the AUTO_AUDIT prompt in LD 17 causes a detailed database consistency check to run every five days. During this audit, Meridian Mail compares its VMB data with each Meridian 1 DN's data. There are three possible results:

- The data for that DN matches.
Meridian Mail indicates a match to the Meridian 1.
- The data for that DN does not match, and DATA_CORRECT = ON.
Meridian Mail changes its data to match the data on the Meridian 1. A message appears on the Meridian 1 TTY indicating that a discrepancy was detected and corrected.

- The data for that DN does not match, and DATA_CORRECT = OFF.

A message appears on the Meridian 1 TTY indicating that a discrepancy was detected. Manual intervention is required to correct the discrepancy.

Starting a manual audit

To start the audit function manually, use the ENL VMBA command with the AUDT option in LD 48. The format of the command is as follows:

```
ENL VMBA <vsid> AUDT <ALL, xxxx>
```

where

<vsid> is the VAS ID on which the application is configured
ALL specifies that all configured VMBs be audited
xxxx specifies the DN whose VMB is to be audited

Disabling audit

Use the DIS VMBA with the AUDT option to disable the audit function. The format of the command is as follows:

```
DIS VMBA <vsid> AUDT
```

where <vsid> is the VAS ID.

This command disables both automatic and manual audits.

Determining audit status

Use the STAT VMBA with the AUDT option to determine the status of an audit. The format of the command is as follows:

```
STAT VMBA <vsid> AUDT
```

where <vsid> is the VAS ID.

Output from this command takes the following format:

```
AUDIT ACTIVE
  x AUDITED
  y MISMATCHES FOUND/CORRECTED
  z ERRORS
```

where

x is the number of VMBs audited
y is the number of mismatches found (and corrected, if
DATA_CORRECT = ON)
z is the number of failed audit operations

Uploading the Meridian Mail VMB database

Existing sites installing the VMBA application may already have VMBs configured on Meridian Mail. To eliminate the need for a technician to add each VMB manually on the Meridian 1, the VMBA application includes the ability to upload the Meridian Mail VMB database to the Meridian 1.

The VMB upload command in LD 48 causes the following processing, if the ALL option is specified. The processing is applied to all SCR, SCN, MCR, and MCN DNs configured on the Meridian 1.

- 1 For each DN on the Meridian 1, Meridian Mail checks to see if a VMB is currently defined.
- 2 If a Meridian Mail VMB exists for the DN, the VMB data associated with the DN, including the VMB name, is uploaded to the Meridian 1. The Meridian 1 uses the uploaded data to create the VMB data and name (or to replace the existing VMB data and name) for that DN.

CAUTION

If the second or third DNs received from Meridian Mail are greater than four digits (or seven digits, if the DN expansion feature is equipped), they are discarded. A subsequent audit with data correction enabled deletes them from Meridian Mail.

- 3 If a Meridian Mail VMB does not exist for the DN, and if a VMB is currently configured for the DN on the Meridian 1, the VMB is deleted.

Note: A name currently configured for the DN on the Meridian 1 is not deleted.

Starting a database upload

To start a database upload, use the ENL VMBA command with the UPLD option in LD 48. The format of the command is as follows:

ENL VMBA <vsid> UPLD <ALL,xxxx>

where

<vsid> is the VAS ID on which the application is configured
ALL specifies that data for all configured VMBs is to be uploaded
xxxx specifies the DN whose VMB data is to be uploaded

Disabling a database upload

Use the DIS VMBA with the UPLD option to disable the upload. The format of the command is as follows:

DIS VMBA <vsid> UPLD

where <vsid> is the VAS ID.

Determining upload status

Use the STAT VMBA with the UPLD option to determine the status of an upload. The format of the command is as follows:

STAT VMBA <vsid> UPLD

where <vsid> is the VAS ID.

Output from this command takes the following format:

UPLOAD ACTIVE
 x UPLOADED
 y DELETED
 z ERRORS

where

x is the number of VMBs uploaded
y is the number of VMBs deleted
z is the number of failed upload operations

Meridian Manager

Note: Meridian Manager is supported with X11 Release 17 and earlier only.

Meridian Manager consists of the following three personal computer-based applications:

- Station Administration
This user-friendly interface to the SL-1 allows additions, moves, and changes within SL-1 Telephone Data Blocks (LD 10 and LD 11).
- Work Order System
This application provides administration databases for the handling of inventories, configurations, work orders and cabling records.
- Traffic Reporting
This application collects, processes, and analyzes traffic data taken from the SL-1 system. The performance of the SL-1 is optimized by providing clear, easy to understand graphs and reports on trunks, attendants, attendant queues, network loops, and processor use.

The three Meridian Manager applications run under MS-DOS. Meridian Manager software is supported on the IBM PC AT and PS/2, Compaq DeskPro, and Hewlett-Packard Vectra personal computer families. The applications are available individually or together in one package.

Complete instructions for installing and operating Meridian Manager software packages can be found in the following Northern Telecom documents:

- *Feature Description* (P0707599)
- *Station Administration* (P0707698)
- *Work Order System* (P0707699)
- *Traffic Reporting* (P0707700)

Operating parameters

Refer to the documents listed.

Feature interactions

Refer to the documents listed.

Feature packaging

Not applicable.

Feature implementation

Not applicable.

Feature operation

Not applicable.

Meridian MAX/ACD-MAX

Meridian MAX and ACD-MAX are management tools that supplement the Automatic Call Distribution (ACD) feature on the Meridian 1. Meridian MAX and ACD-MAX compile and display ACD operations information and generate management reports. Meridian MAX and ACD-MAX are connected to the Meridian 1 through one or two Serial Data Interface (SDI) ports.

The specific functions Meridian MAX and ACD-MAX perform include the following:

- receive agent, queue, and trunk status data from the Meridian 1
- calculate the necessary statistics
- display data for current performance and store data for past-performance reports
- generate and print all performance reports based on historical data
- offer configuration control
- schedule and create report definitions
- manage current-performance display screens
- provide a menu-driven interface for supervisors, and
- manage the various parameters set by the system administrator.

The following platforms exist. Meridian MAX 4.0 is an AM-based product designed for an Option 21-81. A single-module system supports up to 150 ACD positions and 3000 calls per hour. The dual-module system supports up to 500 ACD positions (which can be increased to 1000 via a purchasable option) and handles 10,000 calls per hour.

The Meridian MAX-IPE 4.6 is an intelligent peripheral equipment module that fits into the Option 11 or the Option 21-81. It is designed to meet the needs of smaller customers. Meridian MAX-IPE 4.6 provides the same functionality as the single-module Meridian MAX 4.0, except that it has flexible ACD position sizing up to 80 positions.

ACD-MAX is an HP-based product designed for the Option 21-81. A single-tower system supports up to 150 ACD positions and 3000 calls per hour. The dual-tower system supports up to 500 ACD positions (which can be increased to 1000 via a purchasable option) and handles 10,000 calls per hour.

Related documents

For complete information regarding ACD-MAX and Meridian MAX, see the following documents.

ACD-MAX

- *Master Index* (553-4001-003)
- *ACD-MAX Installation* (553-4001-110)
- *ACD-MAX Operations* (553-4401-510)
- *ACD-MAX System Messages* (553-4001-810)
- *ACD-MAX Overview* (553-4001-910), and
- *ACD-MAX 3.0 Supervisor's User Guide* (P0706646).

Meridian MAX 4.0

- *Application Equipment Module installation guide* (553-3201-200)
- *Meridian MAX Master Index* (553-4001-002)
- *Meridian MAX 3.3-AM Installation* (553-4001-101)
- *Meridian MAX 3.3-AM System Message* (553-4001-801)
- *Meridian MAX 3.3-AM Overview* (553-4001-901), and
- *Meridian MAX 3.3 Supervisor's User Guide* (P0734369).

Meridian MAX-IPE 4.6

- *Master Index* (553-4001-024)
- *Meridian MAX-IPE 4.6 Installation* (553-4001-121)
- *Meridian MAX-IPE 4.6 Maintenance and Diagnostics* (553-4001-821)
- *Meridian MAX-IPE 4.6 Overview* (553-4001-921), and
- *Meridian MAX-IPE 4.6 Supervisor's Guide* (P0741145).

Meridian 1 Initialization Prevention and Recovery

The Meridian 1 Initialization Prevention and Recovery feature reduces the occurrences of initializations by tracking specific hardware faults and automatically disabling the affected hardware locally. This feature offers the following specific functionalities:

- Network Loop Response Time-out Initialization Prevention (LRIP)
- Serial Data Interface Device Response Time-out Initialization Prevention (SRIP)
- Network Loop Overload Initialization Prevention (LOIP), and
- Localized Faulty Hardware Recovery (FHWR).

Network Loop Response Time-out Initialization, Serial Data Interface Device Response Time-out Initialization Prevention, and Network Loop Overload Initialization Prevention are designed to prevent system initialization. The function of Localized Faulty Hardware Recovery is to automatically disable any faulty loops, Serial Data Interface (SDI) devices or Expanded Serial Data Interface (ESDI) devices identified by this feature.

Network Loop Response Time-out Initialization (LRIP)

When a network loop fails to respond to a processing request, the LRIP function is automatically invoked to avert a system initialization. An FHW000 message is printed on all maintenance TTYs to notify the system administrator of the faulty loop. The loop is marked as faulty in the Meridian 1 database.

Serial Data Interface Device Response Time-out Initialization Prevention (SRIP)

When a Serial Data Interface (SDI) or ESDI device fails to respond to a processing request, the SRIP function is automatically invoked to avert a system initialization. An FHW001 message is printed on all maintenance TTYs to notify the system administrator of the faulty SDI. An FHW002 message is printed on all maintenance TTYs to notify the system administrator of the faulty ESDI. The device is marked as faulty in the Meridian 1 database.

Network Loop Overload Initialization Prevention (LOIP)

When loop overload is detected, the LOIP function is automatically invoked to avert a system initialization. This function disables the signaling capability of the network loop and marks it as faulty in the Meridian 1 database before allowing the existing processing to continue. An FHW003 message is printed on all maintenance TTYs to indicate the faulty network loop and to indicate that an INI000 0006 has been averted. The device is marked as faulty in the Meridian 1 database.

Localized Faulty Hardware Recovery (FHWR)

Once a network loop, SDI or ESDI is identified as being faulty, it is tracked by the FHWR function. When the Meridian 1 is available to load and run a background routine and the faulty network loop, SDI or ESDI device is still in enabled status, an appropriate maintenance overlay is automatically invoked to disable it. A technician can also manually disable it by using existing maintenance overlay commands. The faulty loop, SDI or ESDI device is tracked by the FHWR function until the loop is disabled.

When a maintenance overlay is running and Multi-User Login is not enabled, an OVL111 xx FHWR message is given prior to a user logging into the system to indicate that the system is automatically performing the FHWR maintenance task. If the user does log in, the FHWR maintenance task is interrupted; when the user logs out, the FHWR function will reload the maintenance overlay to resume disabling the faulty hardware. Once it has disabled the loop, an FHW004 message is printed on all maintenance TTYs to indicate that a faulty network loop has been automatically disabled and the maintenance overlay has terminated (the message FHW005 is printed for an SDI device and FHW006 for an ESDI device). The device is marked as faulty in the Meridian 1 database.

Operating parameters

This feature applies to Meridian 1 Options 51C, 61C, 81 and 81C.

After the Network Loop Overload Initialization Prevention function has identified a faulty network loop, if there are trunks configured on the hardware, far-end seizure of such trunks are treated in the same manner as a non-responding trunk.

Feature interactions

Meridian 1 Fault Management

FHW000, FHW001, FHW002, FHW003, FHW004, FHW005, and FHW006 can be defined as a trigger string that is monitored by the Meridian 1 Fault Management feature.

Feature packaging

The Meridian 1 Initialization Prevention and Recovery feature is part of base X11 system software. There are no additional packaging requirements.

Feature implementation

No change to existing configuration is required for the Meridian 1 Initialization Prevention and Recovery feature.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 911

The number 911 has been adopted for the purpose of reporting emergencies and requesting emergency services. For localities with 911 systems, the number:

- is the same in all communities
- is easily remembered, even under adverse conditions
- provides direct telephone access to emergency services regardless of the time of day, or the caller's familiarity with an area, or the caller's ability to identify the type of emergency

A 911 system is planned, implemented, and operated under the auspices of local governments. In most communities, 911 provides access to police, fire, and emergency medical services. In some locations additional services are accessible (for example, dialing 911 in certain locations provides access to Coast Guard search and rescue services). Approximately 80 percent of all 911 calls are intended for the police, with the balance split between fire and ambulance.

Because the overwhelming majority of 911 calls require police attention, local police departments generally maintain, manage, and staff the center to which emergency calls are first directed. These centers are referred to as primary answering centers. A secondary answering center could be a police, fire, or ambulance station (for example, fire-related 911 calls may be transferred to a secondary answering center that handles incoming calls regarding fires). In many instances, the fire department also determines the degree of urgency for emergency medical services.

If the primary or secondary answering center is busy or out of service, the 911 call is directed to a backup answering center, referred to as an alternate answering center.

The public network routes a 911 call to the appropriate primary answering center based on the caller's telephone number. For this reason, callers dialing 911 give up their right to privacy regarding:

- the telephone number of the station from which they are calling, and
- the billing address associated with that telephone number.

To protect a caller's right to privacy, some communities still allow the use of seven-digit emergency numbers, routed either to an answering center or directly to the responding agency.

Basic 911 service

Basic 911 service routes emergency calls to an answering center based on the location of the Public Exchange/Central Office serving the calling station. The jurisdiction of an answering center is determined by the Central Office boundaries. The most basic 911 system involves only one Central Office and one exchange service area, and can be a single answering center.

Enhanced 911 service

In areas where telephone company Central Office boundaries do not match jurisdictional boundaries, there is a problem in identifying which emergency agency should receive the emergency call. There may be an even more complicated situation if the 911 network includes two or more primary answering centers, and each serves areas that do not match the Central Office serving areas.

Enhanced 911 (E911) service ensures that an emergency call originating in any particular jurisdiction covered by the 911 system is recognized and forwarded to the appropriate responding agency in the same geographical jurisdiction as the originating call.

Enhanced 911 service uses more sophisticated equipment and features than basic 911 service. Specialized features include:

- Automatic Number Identification (ANI)
- Automatic Location Identifier (ALI), and
- Selective Routing (SR).

Display of the ANI associated with the originating call sometimes replaces the need for the following basic 911 options: Called Party Hold; Emergency Ringback; and Switchhook Status. Therefore, sometimes these features are not provided with enhanced 911 service.

The Automatic Number Identification (ANI) of a 911 call consists of eight digits (a Numbering Plan or Information digit followed by the seven digits of the calling party number). Whether the first digit of the ANI string is to be interpreted as a Numbering Plan Digit (NPD) or an Information Digit (ID) depends on the trunk interface and Meridianp1 configuration.

The Automatic Location Identifier (ALI) host computer uses the ANI to locate the ALI record for the calling party number. This includes the name and address, and whether the line is business or residence. An enhanced 911 system creates ALI information from the ALI record and automatically routes the ALI information to an optional data terminal display at the answering center.

An enhanced 911 system routes all emergency calls from the originating Central Offices through an E911 Tandem, sometimes called a 911 control office, to the primary answering center. There, using Selective Routing features, a call taker can transfer the call through the public network by signaling the E911 Tandem. The Autodial Tandem transfer feature can be used for this. For example, if the primary answering center transfers calls to several fire departments, it uses one fire department button. The option automatically:

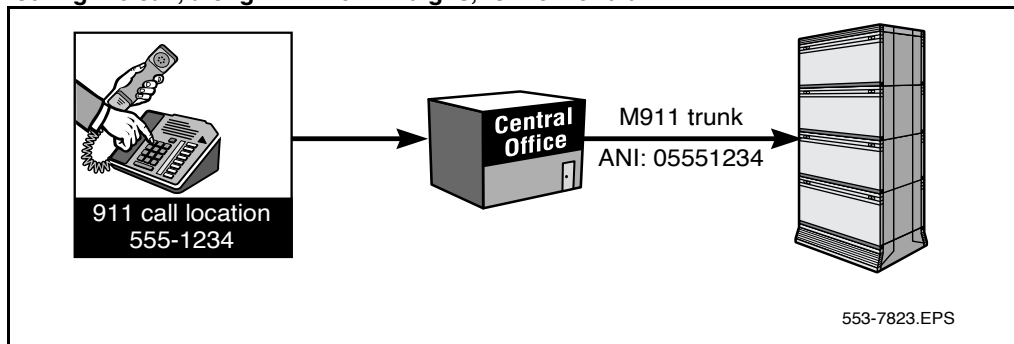
- identifies the fire department associated with the caller's location, and
- transfers the call to that department.

Meridianp911(M911) system

The Meridianp911 system:

- gives priority to emergency calls
- routes priority calls, without interrupting service, to answering positions that can identify and dispatch the assistance required with minimum delay
- displays the calling party's number
- puts the calling party number into Call Detail Recording (CDR) Q and N records, and
- provides an external notification that an emergency call is queued.

Figure 44
Routing the call, along with the ANI digits, to the Meridian 1



When a call arrives at the Meridianp1 via an M911 trunk, the trunk software in the Meridianp1 communicates with the serving Central Office (CO) (either the local Central Office or the M911 tandem office) to receive the ANI information via multifrequency (MF) signaling. When all ANI digits are received, the Meridianp1 software starts to process the call.

Meridian 911 Call Abandon (Release 21 and later)

A 911 call is considered abandoned by the Meridian 1 if the call terminates on a 911 trunk route, and the calling party disconnects after trunk seizure, but before the call is answered. This can occur while the call is waiting in an Automatic Call Distribution (ACD) or Controlled DN (CDN) queue, or when the call is presented to the ACD agent but is not yet answered.

The Call Abandon feature allows the Meridian 1 to treat an abandoned call as though the calling party is still connected. The call maintains its place in the ACD queue, and is presented to an agent. When the agent answers, the agent receives a continuous, cadenced six-second tone, as well as an indication on the set's display, to indicate that the call is an abandoned call. Automatic Number Identification (ANI) information is also displayed. The agent can then call back the originator of the call.

Once the call is abandoned, the trunk is released for other 911 calls. Information on abandoned calls can be included in Call Detail Recording (CDR) records if New Format CDR (FCDR) package 234 is equipped.

Operating parameters

Meridian 911

Meridian 911 routes are restricted to incoming traffic only.

Incoming M911 trunks use MF signaling only. Dial Pulse (DP) and Dual-tone Multifrequency (DTMF) are not supported for M911 routes.

911 Calls on Integrated Services Digital Network (ISDN) trunks are not supported.

A call is considered a 911 call by X11 software if it arrived on a trunk belonging to an M911 route. Calls dialing 911 internally can, through configuration of the Electronic Switched Network (ESN) digit manipulation tables, be terminated locally (for example, to a Controlled DN), but these calls are internal calls to the software, not 911 calls.

ANI is expected for every call. Meridian 911 does not support 911 calls from an E911 Tandem which does not support sending ANI.

The priority of incoming trunk calls internally transferred to an Automatic Call Distribution (ACD) DN queue (a secondary answering center) may be preserved via blind transfer only. All other types of call modification (for example, consultation transfer, or conference) are treated as internal calls and the calls are linked to the low priority queue of the ACD DN.

The No Hold Conference feature, the recommended feature for transferring calls between answering positions, is not available on analog (500/2500 type) sets.

The Call Prioritization (911 calls presented with higher priority. For instance, superceding business or non-911 calls) and Call Waiting Notification features are applicable to ACD answering centers only. These cannot be supported on Multiple Appearance Directory Number (MADN) answering centers.

The first answering center must be an ACD DN.

M911 trunk calls must terminate on a CDN. If an autoterminate DN is specified that is not a CDN, an SCH error message is printed. If a CDN is used as the autoterminate destination of at least one M911 trunk, the CDN cannot be removed via LD 23 (an SCH message will be given). To remove the CDN, all M911 trunks terminating to it must be removed, or they must be changed to terminate to a different CDN.

CDNs as well as ACD DNs are normal dialable numbers. Nothing prevents non-911 calls from arriving at either the CDN, or any of the ACD DNs acting as answering centers via direct dialing. Non-911 calls arriving at CDNs are defaulted to the CDN's default ACD DN; non-911 calls arriving at an ACD DN are treated as normal calls.

The Call Waiting Notification (CWNT) package 225 is a separate package and an M911 system can be installed without it. If the package is not equipped, no external alert can be given for 911 calls arriving at an ACD queue.

The CWNT software is available for 911 calls in ACD queues only. There is no provision for alerting MADN call takers of arriving 911 calls.

911 calls in an ACD queue are not treated any different from other ACD calls. Therefore, if Recorded Announcement (RAN) is configured for the ACD queue, 911 calls will be given RAN treatment. The same interactions between RAN and Central Office loopstart trunks exist for M911 as they do for general ACD operation.

Meridian 911 Call Abandon (Release 21 and later)

Calls released by the originator after the call has been answered are not calls abandoned by the definition used for the M911 Call Abandon feature and do not receive abandon treatment.

Abandoned calls waiting in the ACD queue activate the Call Waiting Notification Terminal Number.

If ANI is not received, the abandoned call is not presented to the agent since it is no longer useful; however, a Call Detail Recording (CDR) N record, if configured, can be printed to indicate that the call has abandoned.

Only external 911 calls abandoned before answer are supported.

When the call is abandoned, the speech path is dropped, and the trunk is released.

If Flexible Tones and Cadences (FTC) package 125 is equipped, it is possible to configure a tone other than the one provided by default.

Call Abandon is configured on a per route basis.

Call Abandon is supported on 911 trunks only.

No B record is generated by CDR for an M911 abandoned call, because the B record is package dependent and only applies to an established call with Internal CDR.

Wireless sets are not supported at the Public Safety Answering Point (PSAP) or Secondary Safety Answering Point (SSAP) for Call Abandon.

An MF tone receiver (QPC916 or NTAG20AA) is required.

Feature interactions

Meridian 911

Automatic Call Distribution Interactions

ACD-C Reports

The Meridian 911 product does not change the ACD-C reports. M911 will use the ACD-C reports for CDNs as introduced for Customer Controlled Routing (CCR) in Release 17.

Only four of the fields in the report will have any meaning. Because M911 uses the Route-to Application Module Link (AML) message instead of the Queue-to message, only “Route To”, “Default DN”, “Abandoned”, and “Calls Accepted” are meaningful. Those calls that are successfully routed count towards the “Route To” category. Those calls that get default treatment count towards the “Default DN” category. Those calls that abandon while they are in the CDN queue count towards the “Abandoned” category. The “Calls Accepted” category will be the sum of the “Route To”, “Default DN”, and “Abandoned” categories.

The “# of Calls in the Queue” category represents those calls that are sitting in the CDN queue. This should always be zero, since calls waiting for a Route-to request from the Application Module are sitting in a timing queue as opposed to the CDN queue.

M911 calls routed to an ACD answering center will show up in the normal ACD queue and agent reports for that queue. Calls routed to MADN answering centers will show up only in the CDN report.

ACD-D Auxiliary Message

No changes to the ACD-D reports are needed for Meridian 911.

Controlled Directory Number (CDN) Ceiling

The CDN ceiling feature returns busy tone to calls arriving at the CDN while it is in default mode. If a 911 call should arrive while these conditions are true, the 911 call will not hear busy tone, but will be linked into the default destination ACD DN's queue. Therefore, the setting of the ceiling value is irrelevant if only 911 calls are expected at the CDN. The ceiling value will, however, still be applied to non-911 calls arriving at the CDN.

Controlled Directory Number (CDN) Ringback

911 calls get ringback immediately upon arrival at a CDN, whereas CCR calls do not.

Customer Controlled Routing (CCR) Call Abandoned Message (ICAB)

This message is sent for controlled calls that were abandoned before being answered.

Customer Controlled Routing (CCR) Call Enters Queue Message (ICEQ)

This message is sent to ACD-MAX each time a default call is placed in the default ACD DN (default mode).

Customer Controlled Routing (CCR) Call Modification Message (ICCM)

This message is sent to ACD-MAX when a call modification request (route to, disconnect, busy) is successfully executed upon a CDN controlled call.

Note that since the Route To, Disconnect and Busy treatments remove CDN control from the call, ICCM messages will be sent for the call for each of the queues from where it must be removed. The ICCM message also applies to Enhanced ACD Routing calls or CDN default calls which were busied by the call ceiling value while trying to route to the default ACD-DN.

Customer Controlled Routing (CCR) "Route to" Command

The Route to destination for 911 calls are restricted to ACD DN's only. If the routing destination is not an ACD DN, the call will be routed to the CDN's default destination ACD DN. CCR calls can be routed to any dialable number.

Enhanced ACD Routing/Customer Controlled Routing

The Enhanced ACD Routing/Customer Controlled Routing (EAR/CCR) features introduce CDNs. The Enhanced ACD Routing (EAR) package 214 allows CDNs to be configured and is a prerequisite of the Meridian 911 (M911) package 224.

INIT ACD Queue Call Restore

INIT ACD Queue Call Restore restores M911 Abandoned calls waiting in either ACD or CDN queues. M911 Automatic Number Identification information is restored on the set display.

Interflow

911 calls interflow just like any other ACD calls. If the interflow feature is configured so that if a call gets busy tone from an internal destination, the 911 call will not get busy tone, but will instead be linked back into the source ACD queue.

If the interflow destination is a number outside the Meridian 1, the software has no control over the treatment the call gets, so this configuration is not recommended for 911 sites.

Load Management Commands

No changes are made to Load Management for Meridian 911.

Night Service

Night Call Forward

It is recommended that the primary ACD DN not be put in Night Service. If the primary ACD DN is put in Night Service, calls will be sent to the Night Call Forward (NCFW) destination. Even if a 911 call arrived on a trunk with Called Party Disconnect Control (CPDC) defined, the call will still be allowed to NCFW, unlike non-911 ACD calls. This restriction is lifted for 911 calls only. The CWNT set will not ring for calls entering the queue while in Night Service when the queue has a NCFW destination specified.

Overflow

911 calls will overflow (by count and by time) just like any other ACD calls.

Supervisor Control of Queue Size

This feature causes calls to get busy tone once the overflow threshold (OVTH) of the ACD queue is exceeded. This feature is bypassed for 911 calls.

Call Detail Recording (CDR) Records

ANI available for 911 calls is included as the Calling Line Identification (CLID) in CDR Records pertaining to 911-trunk calls. CDR Records affected are: Normal Records, Start/End Records, Authorization Code Records, Connection Records (Q, R, and F records), and Charge Account Records.

Called Party Disconnect Control

The Called Party Disconnect Control (CPDC) feature is used to retain a 911 trunk when a 911 call is disconnected by the caller. No modification to the feature is required for Meridian 911, except lifting the CPDC and ACD NCFW limitation. 911 calls, arriving via trunks with CPDC defined, will be allowed to NCFW, unlike non-911 ACD calls.

Calling Party Name Display

The Calling Party Name Display feature can be used to configure and display the incoming 911 route name.

Calling Party Privacy

An incoming 911 call with ANI information will always display the ANI digits on the terminating set or pass the ANI information to the Meridian 911 application.

Conference

When a call is answered, and then conferenced, the trunk priority is lost (the conference consultation call is an internal call and treated as low priority by the software). This operation is the same for normal calls and 911 calls.

Dialed Number Identification Service (DNIS)

DNIS is not supported on 911 trunks.

Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI)

Answering positions are not supported on BRI sets.

Integrated Services Digital Network (ISDN) Primary Rate Interface

911 trunks are not supported on ISDN PRI Trunks or Integrated Service Link (ISL) trunks.

Malicious Call Trace

The Malicious Call Trace (MCT) feature is modified to be supported on ACD sets. ACD sets are allowed to have the Malicious Call Trace Allowed (MCTA) Class of Service and a Trace (TRC) key defined. The feature is activated via pressing the MCT key or dialing an MCT access code.

No Hold Conference

No Hold Conference calls are treated as internal calls and are linked to the low priority queue of the ACD DN.

Single and Multiple Call Ringing for MADNs

The DN keys for multiple appearance sets can be defined as an SCR (single call ringing) key or as an MCR (multiple call ringing) key. For those DNs (keys on MADN sets) that are SCR, only one call may be answered at a time. That is to say that once a call taker has answered a call, future calls to that DN will receive busy tone until the call taker on that DN has disconnected.

For DNs that are MCR, calls will only be given busy tone once every call taker is busy answering a call. If one call taker is answering a call and there are other call takers available, a new call to that DN will cause the sets of the available call takers to ring. Any available call taker can then answer the new call.

Transfer

Trunk priority associated with an incoming 911 call is only preserved if blind transfer is used.

Meridian 911 Call Abandon (Release 21)

Attendant Break-In

Since an abandoned call does not have a speech path established, the Break-In deny treatment is given to the attendant so that Break-In cannot occur.

Automatic Call Distribution (ACD)

When a call is abandoned, the call remains in its current state (i.e., ACD queue, CDN queue, or ringing on an ACD agent set).

Automatic Call Distribution Reports

ACD-C and ACD-D packages are not modified for M911 Call Abandon. However, a new interpretation for the report fields are needed for abandoned calls. The incoming call is pegged as an abandoned call when the caller abandons. However, it is not repeatedly pegged as an answered call when the call taker answers the abandoned call.

For ACD-C package, the CALLS ANSWD field only accounts for real calls; the ABANDONED field accounts for abandoned calls that are answered, assuming all abandoned calls are eventually answered by an agent. Consequently, the CALLS ACCPTD field is equal to the CALLS ANSWD field plus the ABANDONED field (number of calls entering queue = number of real calls + number of abandoned ones). This way the Average or Total Call Processing (DCP) Time accurately reflects the amount of time an agent spent on real calls, since answering an abandoned call requires little time. The work an agent does for an abandoned call is more accurately reflected in the DN OUT and OUT TIME fields, which mean total number of outgoing calls and total time of all outgoing calls respectively. Since the agent must hang up the abandoned call and call back to see what the condition is, the outgoing call that is made is more valuable for reporting the agent's work.

For the ACD-D package, the reports also need to be interpreted in this way. When the caller abandons, a CAB message is sent to Meridian MAX; however, later when an abandoned call is answered by an agent no CAA message is sent to Meridian MAX.

Call Force

M911 abandoned calls cannot be call forced.

Called Party Disconnect Control

There is no interaction with M911 Call Abandon and Called Party Disconnect Control.

Conference

M911 abandoned calls cannot be conferenced.

Display Calls Waiting Key

ACD Calls Waiting Key

Ongoing Status Display

Real-time Display

In all of these situations, abandoned calls contribute to the queue count.

Hold

M911 abandoned calls cannot be put on hold.

Initialization

Unanswered abandoned calls are lost if the system initializes.

Interflow

Abandoned calls contribute to the queue count. An abandoned call can interflow only to ACD DN's.

Network ACD

Network ACD is not supported.

Night Call Forward (NCFW)

Abandoned Calls can be forwarded to the Night Call Forward DN only if the NCFW DN is an ACD queue because Call Abandon is supported only in an ACD environment. If non-ACD, then the call is dropped.

Night Service Key

Abandoned calls are part of the transition mode when agents go to Night Service and the supervisor selects transition mode.

No Hold Conference

M911 abandoned calls cannot be No Hold conferenced.

Not Ready Key

When an abandoned call is presented to an agent and the agent presses the Not Ready key, the call is put back into the queue. If an agent is established on an abandoned call and presses the Not Ready key, the call is dropped.

Overflow by Count

Abandoned calls contribute to the queue count. An abandoned call can overflow.

Supervisor Observe

Since there is no speech path between the ACD agent and the caller, the supervisor observe feature will be blocked. The supervisor can still press the observe key to observe an agent active on an abandoned call, but will hear silence.

Transfer

M911 abandoned calls cannot be transferred.

Feature packaging

The following packages are required:

- Digit Display (DDSP) package 19
- Basic Automatic Call Distribution (BACD) package 40
- Automatic Call Distribution Package B (ACDB) package 41
- Automatic Call Distribution Package A (ACDA) package 45
- Enhanced Automatic Call Distribution Routing (EAR) package 214
- Meridian 911 (M911) package 224
- Call Waiting Notification (CWNT) package 225

The following additional packages are not required, but are recommended:

- At least one of either Call Detail Recording (CDR) package 4 or Call Detail Recording on Teletype Machine (CTY) package 5
- Automatic Call Distribution Package C (ACDC) package 42 (not needed if packages 51 and 52 are enabled)

- Automatic Call Distribution Load Management Reports (LMAN) package 43
- Automatic Call Distribution Package D (ACDD) package 50
- Automatic Call Distribution Package D, Auxiliary Link Processor (LNK) package 51
- Call Party Name Display (CPND) package 95
- Malicious Call Trace (MCT) package 107
- Calling Line Identification in Call Detail Recording (CCDR) package 118

The M911 Call Abandon feature is included in Meridian 911 (M911) package 224, and requires Call Identification (CALL ID) package 247.

If an application also involves Meridian Link, Meridian Link Module (MLM) package 209 is required.

Feature implementation

This section provides an example of how to configure Meridian 911. The order in which all items need to be configured to get M911 to run on the Meridian 1 is shown. In addition, the implementation procedures for M911 Call Abandon are shown.

LD 10 – Configure a Terminal Number for an analog (500/2500 type) set with a Class of Service of CWNA (Call Waiting Notification Allowed).

Prompt	Response	Description
REQ	NEW	New.
TYPE	500	Type of telephone set.
TN	l s c u	Terminal Number (loop, shelf, card, and unit).
DES	xxx	Office Data Administration System (ODAS) package designator.
CUST	0-99	Customer number.
...		

DN	nn...n	Internal Directory Number.
...		
CLS	CWNA	Call Waiting Notification Allowed Class of Service (DTN or DIP).

LD 23 – Configure ACD DN's. The CWNC (CWNT control) is recommended to be set as YES for the primary answering centers (rings for priority calls only) and NO for secondary answering centers (rings for all calls).

Prompt	Response	Description
REQ	NEW	New.
TYPE	ACD	ACD Data Block.
CUST	0-99	Customer number.
ACDN	nn...n	ACD Directory Number.
...		
MAXP	nn	Maximum number of agent positions.
...		
ISAP	YES	ACD DN uses Meridian Link messaging.
VSID	n	Server ID used for Meridian Link messaging (defined in LD 17).
...		
OVTH	2047	Recommended overflow threshold.
...		
CWNT	l s c u	Call Waiting Notification TN.
CWNC	YES	Call Waiting Notification control.

LD 23 – Configure CDNs. The ceiling value is irrelevant for 911 calls terminating at the CDN, but will be applied to non-911 type calls. When the ceiling value is exceeded, new non-911 calls will receive busy tone.

Prompt	Response	Description
REQ	NEW	New.
TYPE	CDN	Controlled Directory Number Data Block.
CUST	0-99	Customer number.
CDN	nn...n	Controlled DN number.
...		
DFDN	nn...n	Default ACD DN.
CEIL	2047	Recommended Ceiling Value.
RPRT		Report control.
CNTL	YES	Controlled mode (controlled = YES).
VSID	n	Server ID used for Meridian Link messaging (defined in LD 17).

LD 16 – Configure an M911 route.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route data block.
CUST	0-99	Customer number.
ROUTE	nnn	Route number.
TKTP	DID	Meridian 911 routes use Direct Inward Dialing trunks.
M911_ANI	YES	Enter YES for 911 route.

M911_TRK_TYPE	(911T), 911E	911T = E911 tandem connection. 911E = End office connection.
NPID_TBL_NUM	0-7	Numbering Plan or Incoming Digit (NPID) Table Index (NPID Table must be created earlier in LD 16 before using it here).

LD 16 – The following prompting sequence creates a Numbering Plan or Information Digit (NPID) Table:

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	NPID	Numbering Plan or Information Digit data block.
IDTB	0-7	ID table index. ID table index to be used by this M911 route.
NPID	0-9	NPID for M911 routes.
TRMT	(NONE), NPA, FAIL, TEST	Numbering Plan Digit or Information Digit treatment.
- NPA	nnn	Numbering Plan Area. Prompted only if TRMT = NPA.

LD 14 – Configure 911 trunks.

Prompt	Response	Description
REQ	NEW	New.
TYPE	DID	Meridian 911 trunks must be DID.
TN	l s c u	Terminal number (loop, shelf, card, and unit).
...		
XTRK	XUT, XEM	Universal, or Enhanced E&M trunk card.
CUST	0-99	Customer number.
NCOS	xx	Network Class of Service Group Number.
RTMB	xx xx	Route number and Member number.

MNDN	xxxx	Manual Directory Number.
ATDN	xxxxxxx	Autoterminate DN.
TGAR	xx	Trunk Group Access Restriction.
SIGL	EAM, EM4, LDR	Trunk signaling.
...		
STRI	WNK	Incoming start arrangement.
SUPN	YES	Answer and disconnect required.
CLS	MFR APY	Meridian 911 trunks must have MFR and APY Classes of Service (this is done automatically).

LD 16 – Configure Call Detail Recording (CDR).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	0-99	Customer number.
ROUTE	xxx	Route number.
TKTP	DID	Meridian 911 routes use DID trunks.
...		
CDR	YES	CDR trunk route.
INC	YES	CDR records generated on incoming calls.
QREC	NO	CDR ACD Q initial records to be generated.

LD 17 – Configure the insertion of ANI digits into the CDR record.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PARM	Release 19 gate opener.
...		
- CLID	YES	Calling Line ID (ANI for M911) in CDR.

LD 10 – Configure non-ACD sets (i.e., Analog [500/2500 type] sets).

Prompt	Response	Description
REQ	NEW	Add a set.
TYPE	500	Type of telephone set.
TN	l s c u	Terminal Number (loop, shelf, card, and unit).
CDEN	(DD), SD, 4D	(Double), single and quadruple card density.
CUST	0-99	Customer number.
DIG	xx yy	Dial Intercom Group number and Member number.
DN	nn...n	Directory Number.
...		
IAPG	2	ISDN/AP status message group.
...		
CLS	USMA	Unsolicited Status Messages Allowed Class of Service. M911 position.

LD 11 – Configure non-ACD sets (i.e., Meridian 1 proprietary sets).

Prompt	Response	Description
REQ	NEW	Add a set.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, and 3000.
TN	l s c u	Terminal Number (loop, shelf, card, and unit).
CDEN	(DD), SD, 4D	(Double), single and quadruple card density.
DES	x...x	ODAS set designator.
CUST	0-99	Customer number.
KLS	1-7	Number of Key/Lamp strips.
...		
CLS	USMA MCTA	Unsolicited Status Messages Allowed Class of Service. M911 position; Malicious Call Trace allowed.
...		
IAPG	2	ISDN/AP status message group.
...		
KEY	xx SCR yyyy	This defines a Single Call Ringing DN key. The xx is the key number and the yyyy is the DN.

LD 11 – Configure Meridian 1 proprietary sets to function as ACD sets.

Prompt	Response	Description
REQ	NEW	Add a set.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, and 3000.
TN	l s c u	Terminal Number (loop, shelf, card, and unit).
CDEN	(DD), SD, 4D	(Double), single and quadruple card density.

DES	x...x	ODAS set designator.
CUST	0-99	Customer number.
KLS	1-7	Number of Key/Lamp strips.
...		
CLS	ADD AGN USMA MCTA	AGN is for agent; SUPN is for supervisor. USMA = M911 position, and MCTA = Malicious Call Trace allowed.
...		
IAPG	2	ISDN/AP status message group.
...		
KEY	0 ACD yyyy	Key 0; ACD; ACD Directory Number.
KEY	xx TRC	Malicious Call Trace key. The xx is the key number.

LD 16 – Enable M911 Call Abandon.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	DID	M911 trunks are DID trunk type.
...		
M911_ANI	(NO), YES	Set to YES to receive ANI for M911 routes.
M911_TRK_TYP E	(911T), 911E	Meridian 911 ANI trunk types, where: T911T = E911 tandem connections, and 911E = End office connection.

M911_ABAN	(NO), YES	Optional call abandon treatment, where: YES = abandoned call treatment for this route, and NO = no abandoned call treatment for this route.
M911_TONE	(YES), NO	Optional call abandon tone, where: YES = tone given on answer, and NO = silence given on answer.

LD 56 – Configure the new flexible tone for M911 abandoned calls, if desired.

Prompt	Response	Description
REQ	NEW, CHG, PRT	New, change, or print.
TYPE	FTC	Flexible Tone and Cadence data block.
TABL	0-31	FTC table number.
DFLT	0-31	Default table number.
RING	<CR>	
...		
CAB	YES	M911 Call Abandon upon Answer Tone.
TDSH	i bb cc tt	TDS external, burst, cadence, and tone.
XTON	0-255	NT8D17 TDS Tone code.
XCAD	0-255	NT8D17 cadence code for FCAD.

Feature operation

Meridian 911 operation

To answer a call at a primary, secondary, or alternate answering center that is configured with ACD positions, the 911 call taker presses the ACD DN key. The DN of the incoming call is displayed on the call taker's set.

Meridian 911 Call Abandon operation

When the call is abandoned it remains in its current state (for instance, in CDN or ACD queue or ringing a call taker). Once the call taker answers, a continuous cadenced tone is heard for six seconds, followed by silence. This tone is programmable with the FTC package; otherwise, a default is given. The call taker must hang up and dial the ANI that is shown on the terminal display if call back is required.

Upon answer, the telephone set display is updated with the 911 call taker's ANI and the trunk group name if the Call Party Name Display feature is used. Since the call has been abandoned, the telephone set display flags the abandoned call by appending "ABAND" to the ANI.

Figure 45 shows what is displayed on a telephone set with a Numbering Plan Digit (NPD) call with an NPD of 2 and with the Call Party Name Display feature enabled. The trunk group name is displayed on the first line of the set display; the ANI appears on the second line.

Figure 45
Display for an NPD call

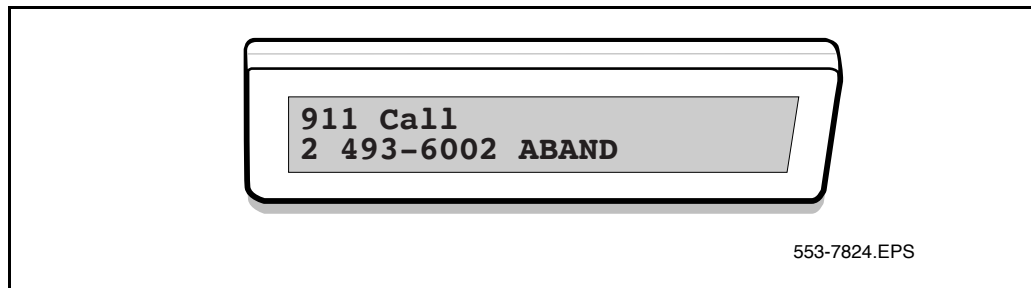


Figure 46 shows a set with an NPA call with an NPD of 1 that was translated to 415 and has the Call Party Name Display feature enabled. The trunk group name (for example, Palo Alto) is displayed on the first line of the set display. The ANI appears on the second line.

Figure 46
Display for an NPA call



Message Center

Message Center allows an incoming trunk or internal call to be automatically routed to a Message Center if it is not answered at the original destination. The main functions of the Message Center are to:

- receive and take messages for calls forwarded to the Message Center
- convey messages to called telephones or consoles on request, and
- activate and deactivate Message Waiting indication at users' telephones.

Automatic and manual diagnostics are provided to clear all active Message Waiting indications when required. Three types of Message Center operations are offered:

- Meridian 1 proprietary telephone
- Attendant Console, and
- Automatic Call Distribution (ACD).

Depending on the packages equipped, you can have any Message Center option or combination of Message Center options.

Operating parameters

For complete information, see *Message Center description and operation* (553-2691-100).

Feature interactions

Call Waiting Redirection

Unanswered calls given Call Waiting treatment may now be allowed by the Call Waiting Redirection feature to be forwarded to a CFNA DN which may be a Message Center. The call redirection reason is "no answer".

Feature packaging

For complete information, see *Message Center description and operation* (553-2691-100).

Feature implementation

For complete information, see *Message Center description and operation* (553-2691-100).

Feature Operation

For complete information, see *Message Center description and operation* (553-2691-100).

Network Message Services – Message Center (NMS-MC) X11 Release 15

This release introduces Network Message Center. For a complete discussion, see the feature module on Network Message Services.

Message Registration

Message Registration (MR) allows customers to meter local calls so that Hospitality administration can read, change, and reset message units stored on the meters.

Software meters accumulate call charges for room phones, administration phones, customer phones, Attendant Consoles, incoming TIE trunks, and Central Office (CO) trunks.

Operating parameters

Meters are incremented when Reverse Battery (RVB) signals are received from loop start or ground start Central Office (CO) trunks. The meter is incremented once for each completed local call, regardless of duration, against the originating Directory Number (DN). No charge is made to any meter if a call over a metered route is not established.

Metering is applied on a route basis. When provisioning a customer for the MR feature, calls that are to be metered can have access only to routes that are metered. Metered calls cannot be overflowed to a nonmetered route.

One software meter is assigned to every telephone Directory Number, attendant DN, and Trunk Access Code (TRC) that requires metering. Each software meter can count up to 32,766 calls before being automatically reset to zero. Prior to reset, the meter contents are displayed on the system background terminal.

The ATTN meter accumulates charges for all metered calls made by Attendant Consoles within a customer group. The TRK meter is provided for each incoming tie trunk route and Central Office (CO) route. Charges are registered for tandem call connections made by incoming TIE trunks over a meter-assigned route. One overflow meter, the CUST meter, allows each customer to accumulate any charges that cannot be registered to another meter.

With call modification, the party originating the metered call has its meter charged. Once the meter is charged, the charge cannot be transferred to another party's meter through Call Modification.

Attendant-originated calls to metered routes are charged to the party connected to the call source. If no party is connected to the source, the attendant's meter is charged.

If the attendant originates a call to a CO trunk, and the call is not extended to an internal Directory Number, the attendant's meter is incremented.

Incoming TIE trunks involved in metered tandem calls are charged to a meter associated with the route, to allow for billing to a party other than the customer.

Metered calls made within the customer that cannot be charged to any other meter are charged to the overflow meter associated with the CUST meter.

Message Registration (MR) uses only the Reverse Battery (RVB) type of answer supervision. Periodic Pulse Metering is not supported.

A QPC219, QPC330, or QPC450 trunk card must be used for the CO trunk routes receiving Reverse Battery Signals (RVB). Also, a QPC330 card must have its signaling set up as for a QPC219 trunk card.

The NT8D14 Universal trunk does not provide MR.

A Background Terminal (BGD) assigned meter access Controlled Class of Service (CCOS) can automatically read, change, or print meter values. The reading, changing, and printing can also be done manually. From a BGD, any meter can be turned on or off (for instance, set to accumulate or not accumulate charges), except for the customer meter, which is always on. When the BGD accesses a meter, a classification indicating the meter type is shown. The five possible meter classifications are

- ROOM (room number)
- ADMN (administration)
- ATTN (attendant console)
- TRK (trunk)
- CUST (customer/miscellaneous)

For detailed information regarding Background Terminal (BGD) commands for MR, refer to *Background Terminal user guide*.

Meter contents can also be read or changed by a Meridian 1 proprietary telephone equipped with a Message Registration key/lamp pair (MRK) and a display. The M2317 telephone can also be used. Three values are shown on the display for MR:

- the Directory Number (DN) of the telephone whose meter value is being changed
- the existing value of the meter
- the new value being entered

An MRK cannot be assigned to Automatic Call Distribution (ACD) agents.

The Call Detail Recording (CDR) feature does not display message registration meter information.

Feature interactions

Attendant Administration

MR service change is not supported by Attendant Administration.

Call Transfer

Conference

Call Forward All Calls

The party that originates a call is charged. The charge cannot be moved to another party using Transfer, Conference, or Call Forward All Calls.

Coordinated Dialing Plan (CDP)

Centralized Attendant Service (CAS)

MR is mutually exclusive of CDP, and CAS.

Maintenance

Any maintenance testing done on metered trunks does not affect the meter values.

Multiple Appearance Directory Number (MADN)

For MADNs, the system selects the appropriate meter for the DN based on following this procedure:

- 1 It accesses the meter of the most recently configured telephone having a Prime DN (PDN) appearance and Message Registration Allowed (MRA) Class of Service.
- 2 If no Terminal Number (TN) in the DN block has MRA Class of Service, the customer meter is charged. For the Message Registration Key (MRK), the system provides overflow and sets the MRK lamp to flash. For the Background Terminal (BGD), it prints a NO DATA FOUND message.

Multi-Tenant Services

The ability to retrieve or update hotel or motel Room Status (RMS) and meter counts exists at the customer level, not at the tenant level.

Feature packaging

Message Registration (MR) package 101 requires:

- Controlled Class of Service (CCOS) package 81, and
- Background Terminal Facility (BGD) package 99.

Feature implementation

LD 16 – Activate Message Registration on routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	aaa	Trunk route type, where: aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, FGOT, ISA, MCU, MDM, MUS, PAG, R232, R422, RAN, RCD, RLM, RLR, or TIE.
- MR	(NO), YES, RVB	Only prompted if TKTP = COT or FGOT; MR provided on (no routes), all routes, or Reverse Battery (RVB) routes.

LD 14 – Change a trunk.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	COT	CO trunks.
TN	l s c u	Terminal Number.
CLS	(PIP), PSP	Polarity (insensitive) or sensitive. Use PSP for QPC218, QPC219, QPC295. Use PIP for QPC330, QPC331.

LD 10 – Allow or deny analog (500/2500 type) telephones access to meters.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	(MRD), MRA	MR (denied) or allowed.

LD 11 – Allow or deny Meridian 1 proprietary telephones access to meters.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, or 2616.
TN	I s c u	Terminal Number.
CLS	aaa	Digit Display options, where: aaa = ADD, DDS, NDD.
	(MRD), MRA	MR (denied) allowed.
KEY	xx MRK	MR key, where: xx = key number.

Feature operation

No specific operating procedures are required to use this feature.

Message Waiting Indication (MWI) Interworking

Message Waiting Indication (MWI) Interworking provides a means to pass the Message Waiting Indicator across a private network with the following types of systems: Meridian 1, DMS-100, DMS-250, Meridian SL-100. This feature is compatible with Meridian 1 Network Message Services.

MWI Interworking enables Meridian 1 users to subscribe to the voice message system on a DMS-100, DMS-250, Meridian SL-100, or users on the DMS-100, DMS-250, Meridian SL-100 to subscribe to the voice message system on a Meridian 1.

With this feature, a single message system can serve a combined network, with either of the following configurations:

- Meridian 1 hosts the Message Center, and serves both Meridian 1 users and users of the DMS-100, DMS-250, Meridian SL-100 in the same enterprise group. See Figure 47.
- The DMS-100, DMS-250, Meridian SL-100 hosts the Message Center, and serves both Meridian 1 users and users of the DMS-100, DMS-250, Meridian SL-100 in the same or different enterprise groups. See Figure 48.

Figure 47
Private Corporate Network with Meridian 1 hosting the Message Center

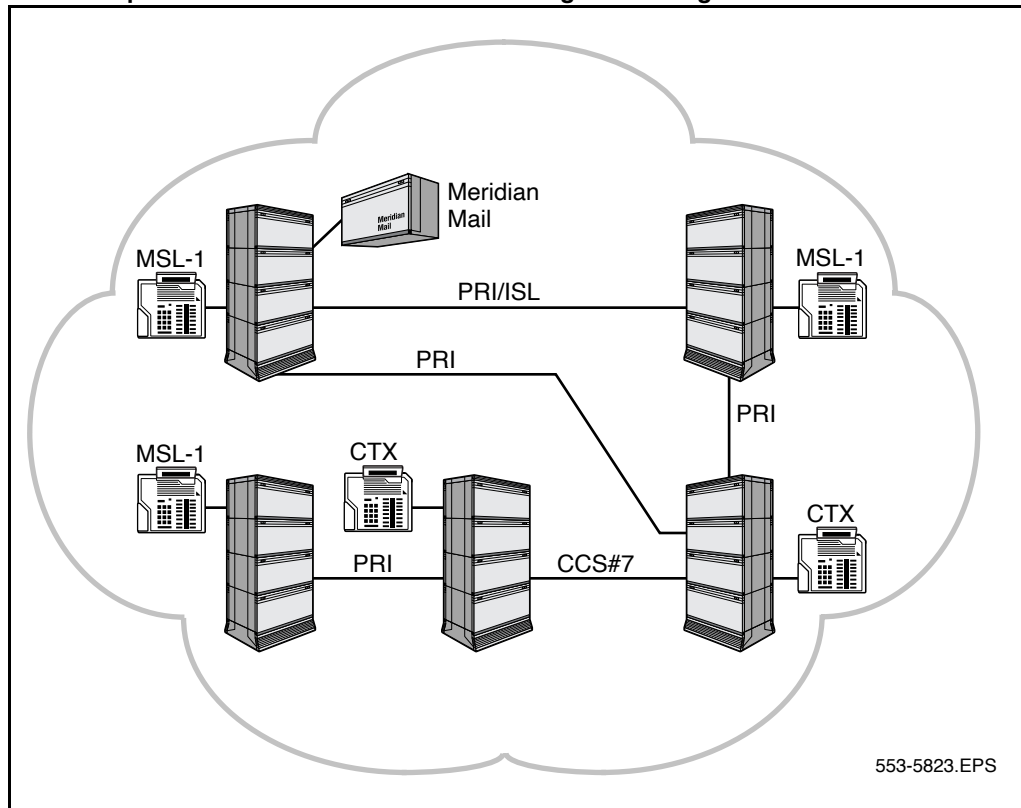
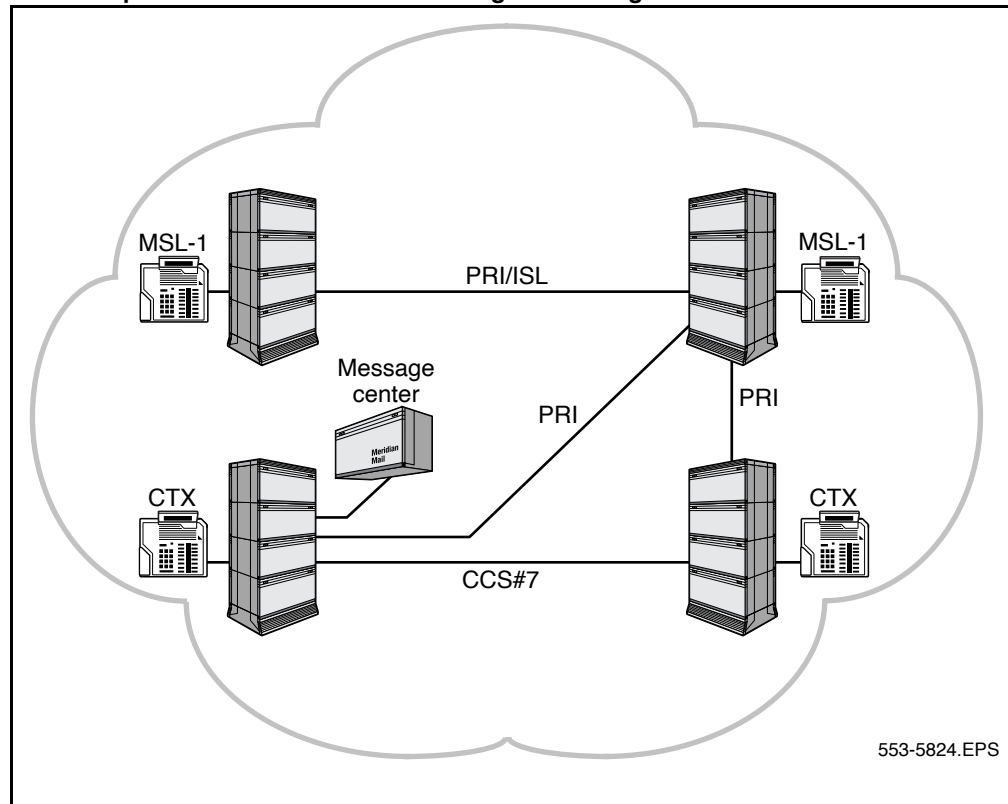


Figure 48
Private Corporate Network with DMS hosting the Message Center



Operating parameters

To connect a Meridian 1 to Meridian 1 use Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI), or ISDN Signaling Link (ISL).

To connect a Meridian 1 to DMS-100, DMS-250, Meridian SL-100 use Primary Rate Interface.

To connect a DMS-100, DMS-250, Meridian SL-100 to a DMS-100, DMS-250, Meridian SL-100 use Primary Rate Interface, or Common Channel Signaling System #7(CCS7).

If the Message Center is on a Meridian 1 and it serves users on DMS, the Meridian 1 must be on X11 Release 19 or later.

If the Message Center is on DMS for MWI Interworking, a Meridian 1 that is connected to DMS must be on X11 Release 19 or later.

End-to-End Signaling is required to access the Message Center features from a local or remote system.

Only Meridian Mail is supported for use as the Message Center on a Meridian 1. This feature does not support any other messaging system, such as a manual Message Center hosted on a Meridian 1, a non-Meridian product hosting the Message Center, or other server applications (such as fax servers or e-mail).

The DMS-100, DMS-250, Meridian SL-100 can be a tandem switch. DMS Batch Change Supplement 36 (BCS36) software or later supports DMS-100, DMS-250, and SL-100 systems. Only Northern Telecom systems are supported.

Feature interactions

D-channel (DCH) Error Monitoring

X11 Release 17 DCH Error Monitoring monitors ISDN messages on a per feature basis. The conflict between the Service Identifier used by Meridian 1 and DMS for Network Message Services is resolved by providing a different Service Identifier (H70). X11 Release 19 supports both the existing (H7C) and new Service Identifiers.

However, if the MWI RCAP for the D channel is added or deleted in LD 17, the D channel message monitoring must be disabled and enabled so that DCH Error Monitoring will work properly for the Network Message Services (NMS) feature.

ISDN/Auxiliary Processor (AP) Link Recovery

Calls in the Meridian Mail Automatic Call Distribution (ACD) queue are redirected to the ACD Night Call Forward DN when the Application Modular Link (AML) goes down.

Multiple Customer MWI

Interworking does not support multiple customers because Meridian Mail supports only one customer. If multiple customers are required, multiple Meridian Mail servers are required.

Multi-Tenant Service

Meridian Mail Phase 8 and later supports Multi-Tenant Service. For MWI Interworking, tenants that belong to the same customer group can use one or multiple Message Center servers. Tenants from different customer groups cannot use the same Meridian Mail. The customer can allow (or disallow) access to this feature for specific tenants by configuring (or not configuring) the tenant's telephones for call forwarding to a Meridian Mail DN.

Network Message Services – Meridian Mail

The Facility message for MWI Interworking uses a different Transaction Capabilities Application Part (TCAP) format from that used for other network message services. Message conversion occurs when sending and receiving MWI Facility messages with software earlier than X11 Release 19.

Trunk Optimization Before Answer

There is no Trunk Optimization when the call is redirected to DMS, or answered by Meridian Mail. This applies to applications such as Auto Attendant.

Feature packaging

Message Waiting Indication Interworking (MWI) is package 219, which requires the Network Message Service features of Meridian Mail Release 7. It also requires that the DMS-100, DMS-250, Meridian SL-100 be equipped with BCS36 software at a minimum.

The originating node (i.e., the node with Message Center users) requires the following packages:

- Message Waiting Indication Interworking (MWI) is package 219, if connected to DMS (BCS36) for interworking
- Network Message Services (NMS) package 175
- Basic Automatic Call Distribution (BACD) package 40 and Automatic Call Distribution Package A (ACDA) package 45, if an ACD DN is used as the Message Center DN
- Integrated Services Digital Network (ISDN) package 145
- 1.5 Mbps Primary Rate Access (PRA) package 146 or Integrated Services Digital network Signaling Link (ISL) package 147
- Advanced ISDN Network Services (NTWK) package 148
- Message Waiting Center (MWC) package 46
- End-to-end Signaling (EES) package 10

The host node (i.e., the node hosting the Message Center) requires the following packages:

- Message Waiting Indication Interworking (MWI) package 219
- Network Message Services (NMS) package 175
- Integrated Message System (IMS) package 35
- Command Status Link (CSL) package 77
- Basic Automatic Call Distribution (BACD) package 40

- Automatic Call Distribution Package A (ACDA) package 45
- Integrated Services Digital Network (ISDN) package 145
- 1.5 Mbps Primary Rate Access (PRA) package 146 or Integrated Services Digital Network Signaling Link (ISL) package 147
- Advanced ISDN Network Services (NTWK) package 148
- Message Waiting Center (MWC) package 46
- End-to-end Signaling (EES) package 10 (X11 Release 19 or later is required)

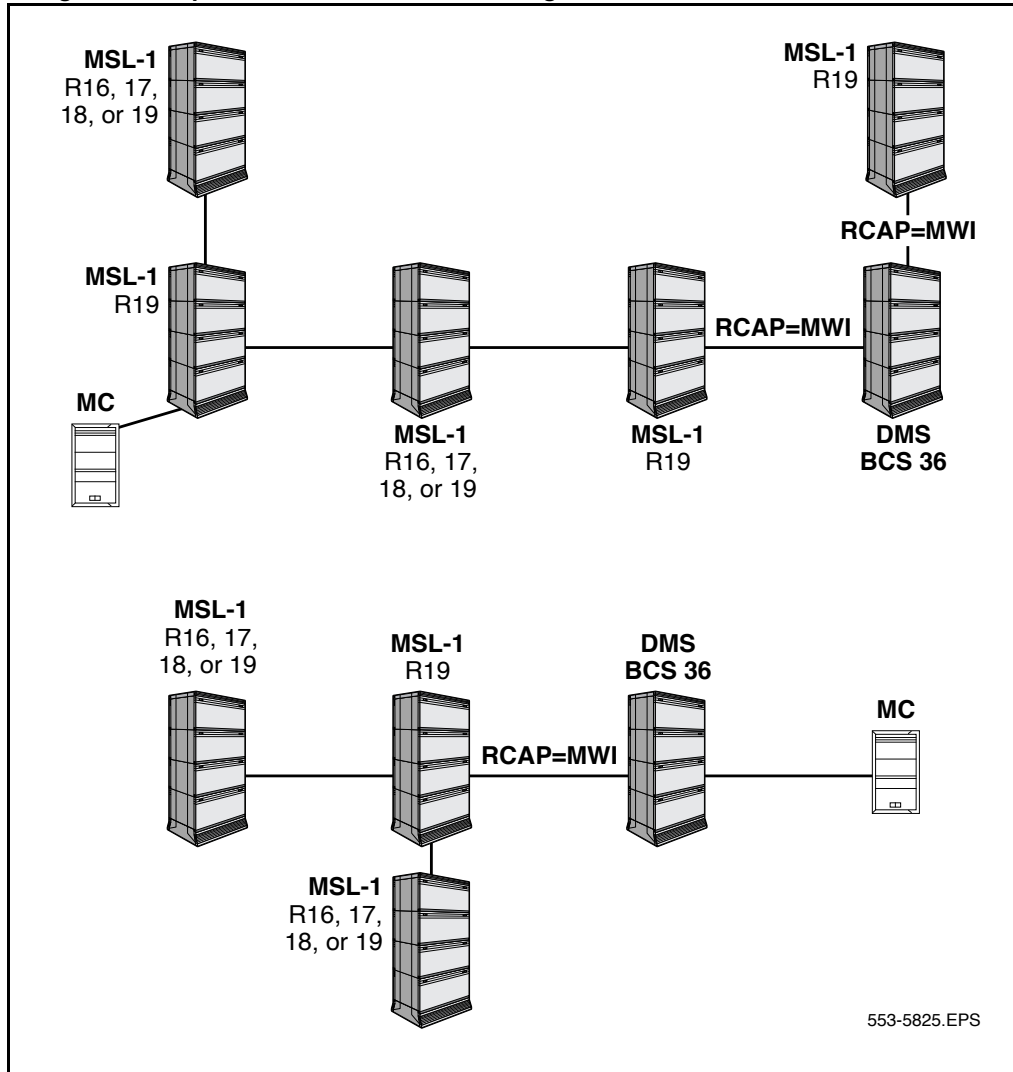
The tandem node (that is, the node that does not have Message Center users) requires the following hardware:

- Message Waiting Indication Interworking (MWI) package 219, if connected to DMS (BCS36) for interworking
- 1.5 Mbps Primary Rate Access (PRA) package 146 or Integrated Services Digital Network Signaling Link (ISL) package 147
- Advanced ISDN Network Services (NTWK) package 148

Feature implementation

See Figure 49 for the configuration required for MWI Interworking.

Figure 49
Configuration requirements for MWI Interworking



LD 17 – Configure the MWI remote D-Channel capability.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Release 19 gate opener.
...		
- RLS	19	Release ID of the switch at the far end of the D-channel interface.
- RCAP	MWI	Add MWI as a remote D-channel capability; use XMWI to remove the capability.

LD 23 – Configure a Message Center DN.

Prompt	Response	Description
REQ	NEW/CHG	Add, or change.
TYPE	ACD	Automatic Call Distribution data block.
CUST	0-99	Customer number.
ACDN	xxxx	ACD Directory Number.
MWC	YES	ACD DN message center DN.
NCFW	xx.....xx	DMS message center DN, 10-digit public number prefixed by an ESN access code or an Electronic Switched Network (ESN) number prefixed by an ESN access code (if Uniform Dialing Plan is used).

Feature operation

No specific operating procedures are required to use this feature.

Message Waiting Indicator by Directory Number

The Message Waiting Indicator by Directory Number (MWDN) feature increases the flexibility in presenting a message waiting indication on the M2006, M2008, M2016, M2216, and M2616 Meridian 1 proprietary sets. The MWDN feature provides the following functionalities:

- presentation of multiple message waiting indications on one set
- presentation of multiple message waiting indications for one mailbox on more than one set
- presentation of remote message waiting indications for message monitoring
- support for one mailbox for multiple Directory Numbers (DNs)

Multiple message waiting indications on one set

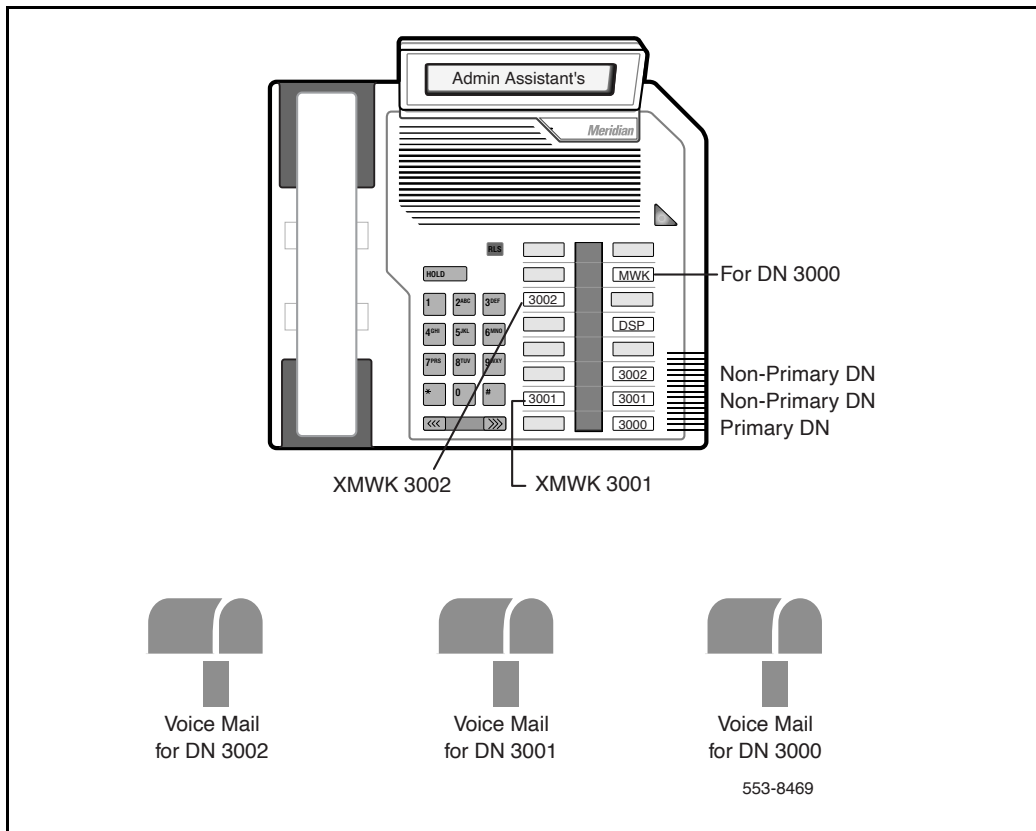
Prior to the MWDN feature, where more than one DN was configured on one set, only the Primary Directory Number (PDN) -- or the single appearance non-PDN -- had a Message Waiting Key (MWK) and the LED for the message waiting indication. There was no message waiting indication for DNs other than the PDN.

The MWDN feature allows a user to have a separate MWK, called the Extended Message Waiting Key (XMWK), for each of the mailbox DNs configured on that set. The DN associated with the XMWK must be configured as a non-PDN on that set.

The XMWK starts flashing when a new voice message is received for the DN associated with this key. Once all the new voice messages have been retrieved, the indication on the XMWK associated with that DN is canceled.

Multiple message waiting indications on one set has application for environments where one set has the DN's for several individuals. Figure 50 shows a scenario where an administrative assistant monitors the DN's for several individuals from his/her set.

Figure 50
Multiple message waiting indications on one set



Multiple message waiting indications for one mailbox on more than one set

Prior to the MWDN feature, if there was more than one appearance of a DN, the MWK could be turned on or off only for the primary appearance of that DN. With the MWDN feature, when a mailbox DN appears on more than one set, the XMWK can be configured for the non-primary appearance of the mailbox DN on each set. The DN associated with the common mailbox must be configured as a non-PDN on all the sets where it appears (except for the one PDN set).

When a new voice message is received for the DN associated with the common mailbox, all the XMWKs configured on all the sets and associated with this DN start flashing. Once all the new messages from the common mailbox have been retrieved by any of the users, the message waiting indication on all the XMWKs associated with the general mailbox DN is canceled.

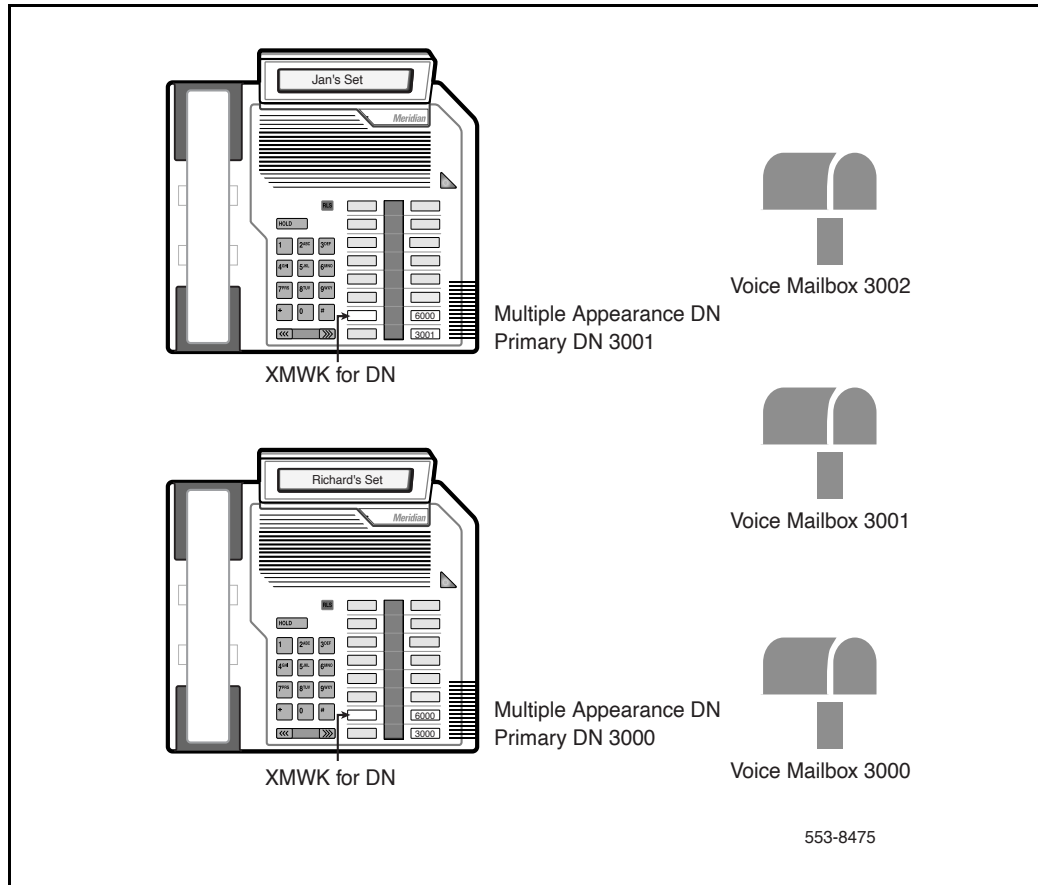
Figure 51 shows multiple message waiting indications for one mailbox on many sets. An application of this component of the MWDN feature is a person with more than one set with a shared DN, such as a mobility user in a macrocellular environment (that is, within a building). With the MWDN feature, messages coming into this DN will light up the message waiting indicators both their desk set and their mobility telephone. In this scenario, both the desk set and mobility telephone must be on the same switch.

Remote message waiting indication for message monitoring

Prior to the MWDN feature, if a new voice message was received, users had to see the message waiting indication or log in to their mailbox from a remote set to query if they had voicemail. With the MWDN feature, users can monitor the status of their mailboxes from a remote set without logging into their sets. When a new message arrives to the monitored mailbox DN, the message waiting indication is propagated to the Remote Message Waiting Key (RMWK) on a remote set that is programmed for that mailbox DN. The RMWK monitors those DNs which have at least one primary appearance.

The Message Center DN must be configured; configuring the monitored mailbox DN is optional. The RMWK for the mailbox DN is user programmable from the set.

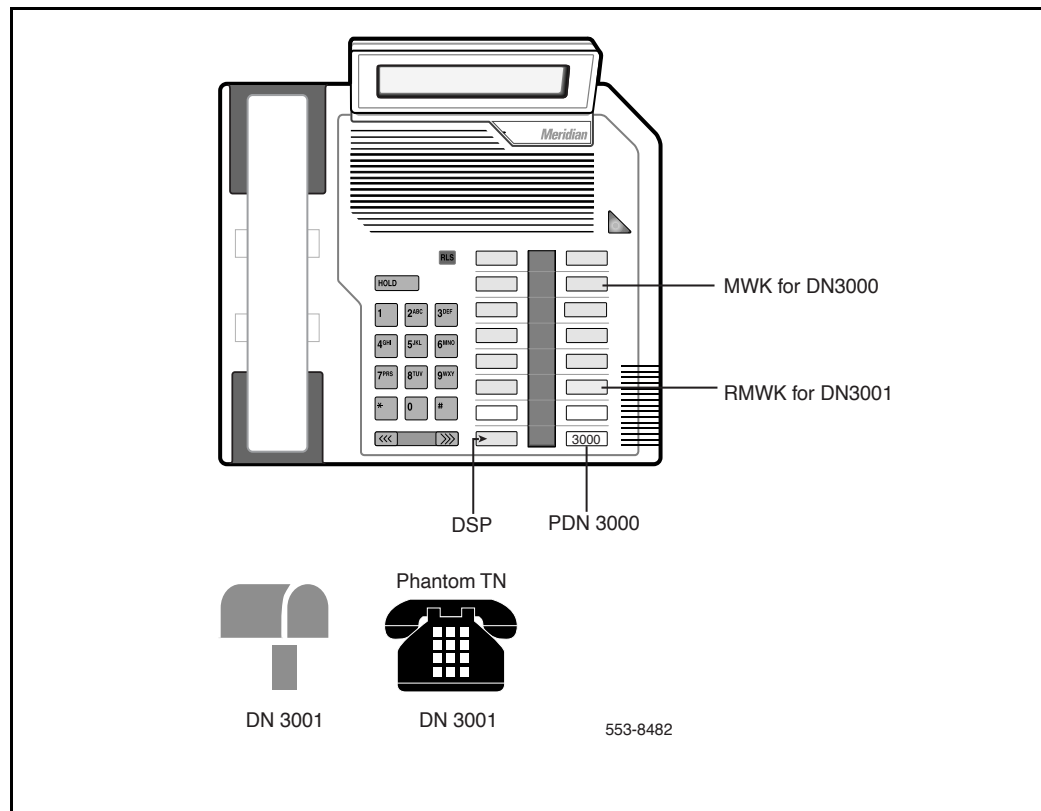
Figure 51
Multiple message waiting indications for one mailbox on more than one set



When programmed, the RMWK starts flashing if any new voice message arrives for the associated mailbox DN; if not, the RMWK remains steadily lit. To cancel the RMWK function, press the RMWK when it is lit or flashing.

The temporary redirection and message waiting indicator propagation of a Phantom TN uses this component of the MWDN feature. Figure 52 illustrates a Phantom TN, DN 3001, with a RMMA/RMMO class of service. A RWMK key is configured on a set to monitor the messages for the DN 3001. Any new voice message to the Phantom DN 3001 is shown on the RMWK. When a new voice message is received for DN 3001, the RMWK starts flashing; once all the new voice messages are retrieved for DN 3001, the RMWK becomes steady lit.

Figure 52
RMWK operation when a Phantom TN is call forwarded to a set

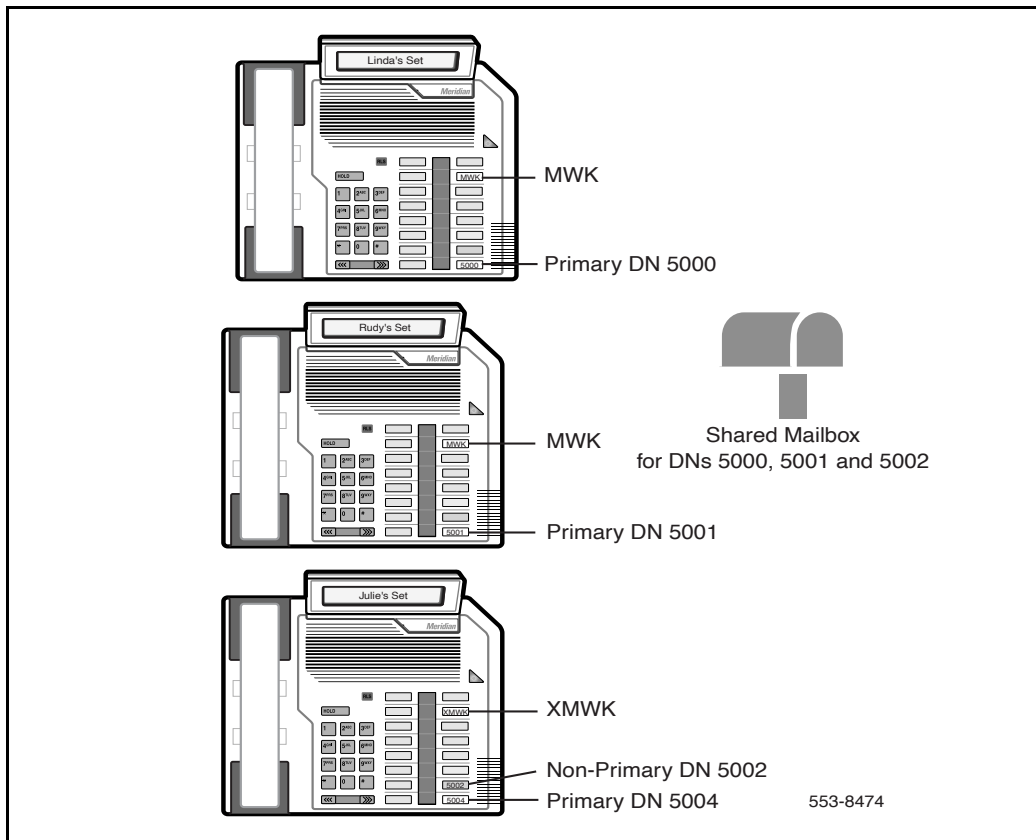


One mailbox for multiple DN

Prior to the MWDN feature, three DNs could be associated with one mailbox; however, only the PDN which shares the mailbox displayed the message waiting indication. The MWDN feature extends the message waiting indication to all Meridian 1 proprietary set appearances on which the three DNs sharing the mailbox are configured.

This feature is used in an environment such as a technical support area with up to three technicians having their own DN but sharing a common mailbox. Figure 53 shows DNs 5000, 5001 and 5002 with a shared mailbox.

Figure 53
One mailbox for multiple DNs



Operating parameters

MWDN supports features within the same node; it does not support features on different nodes across a network. For example, MWDN supports Meridian Mail if it is on the same node; the MWDN feature does not support Meridian Customer Defined Network (MCDN) messaging services across a network.

Meridian Mail 9 is required to support one mailbox for multiple DN functionality. The Voice Mailbox Administration (VMBA) package 246 must be equipped to enable the functionality of one mailbox for multiple DNs.

The MWDN feature does not support message waiting indication in the macrocellular environment.

The Remote Message Waiting Key (RMWK) monitors PDNs only.

A DN can be monitored by only one RMWK at a time.

Each Extended Message Waiting Key (XMWK) can be associated with one non-PDN only on each set.

Feature interactions

Display key

With the MWDN feature, the Display key (DSP) shows the Message Center DN and the mailbox DN associated with the XMWK and the RMWK. This display occurs when a user presses the DSP and then either the XMWK or the RMWK. If there is no mailbox DN associated with the RMWK, only the Message Center DN is displayed.

Multiple Appearance DN

For the Multiple Appearance DN feature:

- On sets where the DN is configured as a PDN, the message waiting indication occurs on the MWK and red LED.
- On sets where the DN is configured as a non-PDN, the message waiting indication occurs on the XMWK and the red LED depending upon the LMPN or LMPX class of service. The LMPN class of service is defined as the red LED reflects the status of the mailbox associated with the PDN. The LMPX class of service is defined as the red LED reflects the status of the mailboxes associated with both PDN and non-PDNs.

The RMWK can be used to monitor a Multiple Appearance DN if the DN has at least one primary appearance.

Phantom Terminal Number

The Phantom Terminal Number feature permits users to define and configure Terminal Numbers (TNs) with no associated physical hardware. The Phantom TN can be associated temporarily with a physical set. With the MWDN feature, a user can monitor the mailbox associated with the Phantom DN through the RWMK on a Meridian 1 proprietary set.

Feature packaging

The MWDN feature requires these packages:

- Digit Display (DDSP) package 19
- Message Waiting Lamp Maintenance (MWC) package 46
- Voice Mailbox Administration (VMBA) package 246

Feature implementation

For all the following tasks, first enable the Message Center in the Customer Data Block in LD 15. See page 1276.

To configure multiple message waiting indications on one set or on many sets:

- Configure the class of service options for the Extended Message Waiting Key (XMWK) and its LCDs on Meridian 1 proprietary sets in LD 11. See page 1277.

To configure remote message waiting indications on one set:

- Configure the Remote Message Waiting Key (RMWK) to monitor remote sets with a mailbox in LD 11. See page 1278.
- Configure new class of service options to enable analog (500/2500) sets to be monitored remotely in LD 10. See page 1279.

Note: All sets with primary DNs to be monitored **must** be configured as RMMA/RMMO.

- Configure new class of service options to enable Meridian 1 proprietary sets to be monitored remotely in LD 11. See page 1280.

Note: All sets with primary DNs to be monitored **must** be configured as RMMA/RMMO.

To configure message waiting indications on sets where DNs sharing a mailbox appear:

- Configure the class of service option to enable the message waiting indication for all the analog (500/2500) sets on which the DNs sharing the mailbox are configured in LD 10. See page 1281.
- Extend the message waiting indication function to all the Meridian 1 proprietary sets on which the DNs sharing the mailbox are configured in LD 11. See page 1282.

LD 15 – Enable the Message Center in the Customer Data Block.

Prompt	Response	Description
REQ:	NEW	Add new data.
	CHG	Change existing data
TYPE:	RDR	Call Redirection.
CUST		Customer number.
	xx	xx = 0-99 for Options 51C-81C. xx = 0-31 for Option 11C.
OPT		Options.
	MCI	Message Center Included..

LD 11 – Configure the class of service option for the Extended Message Waiting Key (XMWK) and its LEDs on the Meridian 1 proprietary sets.

To configure the XMWK key, the DN to be associated with the XMWK must be configured as a non-Primary Directory Number (non-PDN) on this set.

Note: The DN associated with the XMWK must not have an XMWK already associated with it on this set.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	aaaa	Type of set. aaaa = 2006, 2008, 2016, 2216, 2616.
...		
CLS	MWA LMPX	Class of service option. Message Waiting Allowed. (MWD) = Message Waiting Denied. The red LED on the Meridian 1 proprietary sets reflects the status of the mailbox associated with both the PDNs and non-PDNs with the associated Extended Message Waiting Keys (XMWKs) or the Remote Message Waiting Keys (RMWKs). (LMPN) = The red LED on Meridian 1 proprietary sets reflect the status of the mailbox associated with the PDNs.
...		
KEY	xx XMWK xxxx yyyy	Telephone function key assignments. Extended Message Waiting indication key Where: xx = key number xxxx = Message Center DN yyyy = mailbox DN Note: XWMK cannot be configured on key 0.

LD 11 – Configure the Remote Message Waiting Key (RMWK) to monitor remote sets with a mailbox.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	aaaa	Type of set. aaaa = 2006, 2008, 2016, 2216, 2616.
...		
CLS	MWA LMPX	Class of service option. Message Waiting Allowed. (MWD) = Message Waiting Denied. The red LED on the Meridian 1 proprietary sets reflects the status of the mailbox associated with both the PDNs and non-PDNs with the associated Extended Message Waiting Keys (XMWKs) or the Remote Message Waiting Keys (RMWKs). (LMPN) = The red LED on Meridian 1 proprietary sets reflect the status of the mailbox associated with the PDNs.
...		
KEY	xx RMWK xxxx [yyyy]	Telephone function key assignments. Remote Message Waiting indication key Where: xx = key number xxxx = Message Center DN [yyyy] = DN to be monitored {optional}

LD 10 – Configure new class of service options to enable analog (500/2500) sets to be monitored remotely.

Note: All sets with primary DNs to be monitored **must** be configured as RMMA/RMMO.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	500	Analog (500/2500) set.
TN	l s c u cu	Terminal Number: l = loop, s = shelf, c = card, u = unit for Options 51-81C. c = card, u = unit for Option 11 C.
...		
CLS		Class of service option.
	MWA	Message Waiting Allowed.
		MWD = Message Waiting Denied.
	RMMA	Allow the set to be remotely monitored for messages.
	RMMO	Allow the set to be remotely monitored for messages and allow the set to override, if it is being monitored already.
		(RMMD) = Deny set for Remote Monitoring of Messages.

LD 11 – Configure the class of service to enable Meridian 1 proprietary sets to be monitored remotely.

Note: All sets with primary DNs to be monitored **must** be configured as RMMA/RMMO.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	aaaa	Type of set. aaaa = 2006, 2008, 2016, 2216, 2616.
TN	l s c u cu	Terminal Number: l = loop, s = shelf, c = card, u = unit for Options 51-81C. c = card, u = unit for Option 11 C.
CLS	MWA LMPX RMMA RMMO	Class of service option. Message Waiting Allowed. MWD = Message Waiting Denied. Enable the red LED on the supported Meridian 1 proprietary sets to reflect the status of the mailboxes associated with both PDN and non-PDNs. (LMPN) = do not enable the red LED on the supported Meridian 1 proprietary sets to reflect the status of the mailboxes associated with both PDN and non-PDNs. Allow set for Remote Monitoring of Messages. Allow set for Remote Monitoring of Messages and Override, if it is being monitored already. (RMMD) = Deny set for Remote Monitoring of Messages.

LD 10 – Extend the message waiting indication function to all the analog (500/2500) sets on which the DN's sharing the mailbox are configured.

Note: Voice Mailbox Administration (VMBA) must be configured before configuring one mailbox supporting Multiple Appearance DN's. Refer to *Message Center description and operation* (553-2691-100) for information on configuring VMBA.

Prompt	Response	Description
REQ:	NEW	Add new data.
	CHG	Change existing data
TYPE:	500	Analog (500/2500) set.
...		
CLS		Class of service option.
	MWA	Message Waiting Allowed.
		MWD = Message Waiting Denied.
	SMWA	Allow Extended Message Waiting Indication.
		(SMWD) = Deny Extended Message Waiting Indication.

LD 11 – Extend the message waiting indication function to all the Meridian 1 proprietary sets on which the DN's sharing the mailbox are configured (whether the DN's are PDN or non-PDN).

Note: Voice Mailbox Administration (VMBA) must be configured before configuring one mailbox supporting Multiple Appearance DN's. Refer to *Message Center description and operation* (553-2691-100) for information on configuring VMBA.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	aaaa	Type of set. aaaa = 2006, 2008, 2016, 2216, 2616.
...		
CLS	MWA SMWA	Class of service option. Message Waiting Allowed. Allow Extended Message Waiting Indication. (SMWD) = Deny Extended Message Waiting Indication.

Feature operation

Remote message monitoring:

- 1 Press the RMWK with the set in idle position.
- 2 The set winks and displays RMWK XXXX (where XXXX is the existing mailbox DN) prompting for a new mailbox DN. If there is no mailbox DN, the set displays RMWK.
- 3 Enter the new mailbox DN.
- 4 The screen displays the digits. Press the RMWK to validate the mailbox DN.

Note: If you press the RMWK without entering the digits, the RMWK remains programmed for the DN which was stored previously. If there is no DN stored, the Overflow tone is given.

- 5 If the DN is invalid, the Overflow tone is given. If the mailbox DN is valid:
 - If the set on which this DN is configured as PDN has a class of service set to RMMA or RMMO and is not monitored:
 - the RMWK starts flashing if there are any new voice messages for this DN.
 - the RMWK lamp becomes steady lit and the screen changes to idle mode if no new voice message exists for this DN.
 - If the set on which this DN is configured as PDN has a class of service set to RMMO and is being monitored by another set, this set overrides and continues to monitor.
 - Overflow tone is given if any set on which this DN is configured as PDN has class of service set to RMMD.
 - Overflow tone is given if any set on which this DN is configured as a PDN has class of service set to RMMA and is being monitored by another set.
- 6 To cancel remote message monitoring, press the RMWK when it is lit or flashing.

Message Waiting Lamp Maintenance

This maintenance enhancement alleviates the “dark effect” when neon lights are tested in low ambient light conditions.

Because the dark effect is inherent to neon lamps, it is recommended that PBXT Message Waiting Lamp tests not be run during low ambient light conditions. The line card detector circuitry can register lamp failures under these circumstances, and the Message Waiting Lamp test may be unreliable. Lamps are listed as faulty when they fail the test once in three attempts.

The PBXT Message Waiting Lamp tests can be run under one of the following conditions:

- automatically at a system-specified time, or
- manually at any time (LD 32).

Automatic scheduling should consider low traffic times, when there is still enough ambient light to avoid the dark effect. To prevent the automatic scheduling of LD 32, LD 32 must be excluded from the daily routines (“midnights”) and the system-defined hour must be the default “X” value.

When the hour defined defaults to the “X” value, an error message is output to remind the customer that the PBXT tests are still part of the daily routines, unless LD 32 is removed from the list.

Operating parameters

There are no feature requirements.

Feature interactions

There are no interactions with other features.

Feature packaging

The Message Waiting Lamp Maintenance feature requires Message Waiting Center (MWC) package 46.

Feature implementation

LD 17 – Define the time for the maintenance tests.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN OVLY	Configuration Record. Release 19 gate opener.
OVLY	(NO), YES	Change overlay area options.
- PBXH	hh	PBX Hour for maintenance tests, where: hh = hour for tests, 0-23.
	x	Enter x if no tests are to be performed.

Feature operation

No specific operating procedures are required to use this feature.

Multifrequency Compelled Signaling

Multifrequency Compelled (MFC) signaling is a signaling protocol that allows a Meridian 1 to exchange information with another Meridian 1, or a Central Office (CO)/Public Service Telephone Network (PSTN). In addition to providing a medium for transmitting called address digits, MFC offers both exchanges an extensive set of signals describing the status and category of the calling and called parties.

Information on MFC signaling and MFC signaling related features can be found in the *Multifrequency Compelled Signaling* (553-2861-100) NTP.

Multi-Party Operations

Multi-Party Operations (MPO) introduces a number of capabilities. The capabilities are:

Call Join

Allows Meridian 1 proprietary set users to conference a held party into an active call without having to redial the held party.

Call Join applies to all Meridian 1 proprietary sets, regardless of the Class of Service assigned, that are equipped with a Three-party (AO3) or Six-party (AO6) Conference key and at least one secondary DN or Call Waiting key.

This feature allows a Meridian 1 proprietary set user to conference a party held with an active party on their set, or transfer the active party to the held party by forming a conference then disconnecting.

Call Join is not available at the Attendant Console.

Three-party Service

Allows analog (500/2500 type) set users to toggle between two parties with the option of forming a conference between them, or releasing the active party and reconnecting the held party. Included under the Three-party Service capability are:

- **Three-party Service Timer** – A programmable timer to allow dialing of a Control Digit after a Register Recall.
- **Consultation Call Disconnect Option** – An option to provide alternative treatment to the parties involved in a Consultation call when the Consultation connection is released.

Three-party Service applies to analog (500/2500 type) sets with Three-party Service Allowed (TSA) Class of Service.

During a normal two-party call, the user can place the established call on hold and originate another call. After the second call is established, the user can:

- a Dial the Conference Control Digit (CNFD) to form a three-party conference between the user, held, and active parties, or transfer the active party to the held party by forming a three-party conference then disconnecting.
- b Dial the Toggle Control Digit (TGLD) to exchange the active and held calls.
- c Dial the Disconnect Control Digit (DISD) to release the active call and reconnect the held call.

Programmable Control Digits

The Control Digits may be programmed in LD 15.

Three-party Service time out treatment

A timer is provided on a customer basis to activate an optional time out treatment. The optional time out treatment is to release the active party and connect to the held party if the controlling party of a Consultation call does not dial a Control Digit within the time specified during a Register Recall. The result is the same as if the controlling party had dialed the Control Digit assigned to the DISD function.

The optional time out treatment is selected by the user by responding to the Control Digit Time Out (CDTO) prompt in LD 15 with a value in the range of 2 to 14 seconds.

If the user selects either the default, 14 seconds, or enters 14 seconds, then the operation is as it was prior to the introduction of the Three-party Service time out treatment. That is, if a Control Digit is not entered within 14 seconds, Overflow Tone is provided for 14 seconds, after which the call returns to its previous state; the held party remains on hold and the consulted party is reconnected. If a Register Recall is performed while Overflow Tone is given the call returns to its previous state.

Six-party Conference Enhancement for Analog (500/2500 type) sets

Provides analog (500/2500 type) set users with the ability to Conference up to six parties.

If the MPO package is equipped, then Six-party Conference Enhancement is available to analog (500/2500 type) sets with a combination of the TSA and existing C6A Classes of Service.

This capability is an extension of Three-party Service which allows the user to build a conference of up to six parties by consulting and selectively adding members through the use of Control Digits.

Ignore Switchhook Flash

Provides the ability, on a customer basis, to ignore a Switchhook Flash from analog (500/2500 type) sets. This eliminates the confusion between a flash signal and a dial “1” signal on Dial Impulse analog (500/2500 type) sets, especially when the Dial Impulse analog (500/2500 type) sets have been assigned DTN Class of Service.

If the flash is to be ignored, analog (500/2500 type) sets must have a Ground (EARTH) Button in order to use features which require a Register Recall.

Forced Register Recall

Provides an option, on a customer basis, to force analog (500/2500 type) set users assigned DTN Class of Service to issue a Register Recall before dialing a Control Digit.

If the system does not have the Forced Register Recall option activated, then a Switchhook Flash is interpreted as a dial “1”, default CNFD, causing that Control Digit assignment to be activated.

Manual return after enquiry (Manual Hold)

Provides an option (MHLN) to require analog (500/2500 type) set users to issue a Register Recall to return to a held party following a Consultation dialing time out.

At present, when an analog (500/2500 type) set places a party on hold by using a Register Recall, sets with DIP Class of Service receive 30 seconds, while Digitone (DTN) Class of Service sets receive 14 seconds, of Special Dial Tone followed by 14 seconds of Overflow Tone before the held party is reconnected. During this period the held party is listening to silence or RAN if equipped.

The Manual Return after Enquiry option (MHL D) controls the way the held party is reconnected to the controlling party. If MHL D = NO (the default), the controlling party is automatically reconnected to the held party after the overflow tone timeout. If MHL D = YES, the controlling party receives silence indefinitely after the overflow tone timeout until a second recall is performed to retrieve the held party. There is no automatic reconnection of the held party. The controlling party may manually return to the held party by performing a second Register Recall during Special Dial Tone, Overflow Tone or during the silence period.

Recovery of Mis-operation during Call Transfer

The Recovery of Mis-operation during a Call Transfer feature provides protection against having calls lost due to mis-operation of the Call Transfer feature. Mis-operation occurs whenever the user initiates an unexpected action that would normally cause a call to be lost.

If a station user tries to perform an illegal Call Transfer (for example, Call Transfer to a vacant number or Call Transfer to a busy extension), the station user receives the appropriate indication on the Consultation connection (for example, Overflow Tone and Busy Tone). However, since transfer in the ringing state is allowed, the user may still mis-operate and complete the Call Transfer operation immediately after dialing the desired number.

If a Meridian 1 proprietary set user attempts to complete a Call Transfer by pressing the Call Transfer key, the call is only transferred if the dialed party is in the ringing state or in the Consultation state with the controlling party. In other states the attempt to Call Transfer is ignored.

When an analog (500/2500 type) (500/2500) set initiates a supervised call transfer to a DN in any other state than ringing, the call transfer mis-operation treatment is dependent upon the option chosen for AOCS (all other cases) in the customer data block (LD 15). If any set (either analog or digital) attempts a blind transfer in ringing state, the misoperation treatment is dependent upon the option chosen for Ring No Answer (RGNA) type of mis-operation assigned in LD 15.

A number of options are available, where a call is transferred while the transferred station is ringing. For example if AAR, or DAR is selected, the transferred station will ring for an optional number of ring cycles (RCY2). On the expiration of this timer, the transferring set is rung back for an optional number of ring cycles (RCY1) with an optional recall ringing cadence. If the transferring station does not answer during the optional ringing cycles (RCY1), the transferred call will be forwarded to the attendant or Night Service DN (AAR) if external or disconnected (DAR) if internal.

The Recovery options are specified for both RGNA and AOCS cases in LD 15 when the MPO package is equipped. Separate treatment can be specified for external and internal calls.

Switchhook Contact Bounce

The situation occurs when an analog (500/2500 type) set goes on-hook. Switchhook contact bounce during disconnect may be interpreted by the system as a switchhook flash followed by an on-hook. When this occurs there is an unintended Call Transfer to the attendant or other type of mis-operation.

In order to resolve this problem, with the MPO package equipped, the software is modified to delay recognition of any action for a minimum of 256 milliseconds following receiving a valid switchhook flash from analog (500/2500 type) type sets. During this delay, any signaling received from the parties involved is ignored.

Operating parameters

Tones and cadences are limited by their availability on the equipped Tone and Digit Switch (TDS) card on pre-Meridian 1 systems.

For enhanced functionality of the Multi-Party Operations, the following features should be equipped:

- Automatic Hold for Meridian 1 proprietary sets
- Ground Button and Flash timers, and
- Recall of mis-operation ringing cadence and Control and Special Dial Tones requires the Flexible Tones and Cadences (FTC) feature.

Feature interactions

Access to Paging trunks

Analog (500/2500 type) sets with TSA Class of Service are restricted from initiating a Consultation connection while connected to a paging trunk.

Access to Recorded Dictation trunks

Analog (500/2500 type) sets with TSA Class of Service are restricted from initiating a Consultation connection while connected to a dictation trunk.

Attendant Administration

Attendant Administration allows certain station classes of service to be altered. The operation of Attendant Administration is modified so that if an attendant tries to alter either XFA or XFD Class of Service, then Three-party Service (TSA) Class of Service is disallowed. The TSA and XFA Classes of Service are mutually exclusive. When XFA is assigned, TSA will be disallowed if it was not configured. XFD is not mutually exclusive with TSA, but TSA will not be automatically assigned if the Class of Service is changed to XFD. TSA Class of Service cannot be assigned via Attendant Administration.

This feature can not be used to setup the Three-party Service TSA Class of Service.

Attendant Recall

For analog (500/2500 type) sets with TSA Class of Service, Attendant Recall is accomplished by performing a Register Recall during the two-party connection and dialing the Attendant DN.

Call Forward All Calls

A set which has activated Call Forward All Calls can still initiate calls and become the controlling party of a consultation connection. In this case, if the set mis-operates, then Multi-Party operations, while re-ringing the controlling party as a part of mis-operation recovery, ignores the Call Forward All Calls indication present on the controlling party.

Call Forward No Answer

For Call Transfer with Ring No Answer (RGNA) if the user has selected an option other than Standard, the optional treatment has priority over the CFNA option selected in the LD 15. If the user has chosen the standard option for RGNA, the call will be treated as a normal CFNA call, and handled according to the options selected for CFNA in LD 15. Once the call is routed to a Night DN during recovery of mis-operation and the Night DN does not answer, the call is treated according to the NFNA and FDN options chosen for the Night DN. The Night DN can use flexible CFNA DN in two levels. MPO mis-operation does not change the operation of the DNFD timer if one has been configured in LD 15.

Call Pickup

Analog (500/2500 type) sets with PUA and TSA Class of Service can pick up a call only if they are not involved in another call. After picking up a call, the user can form a Consultation connection and dial Programmable Control Digits as normal.

Call Transfer

Analog (500/2500 type) telephones with TSA Class of Service perform a supervised Call Transfer by going on-hook after establishing a conference. This differs from operation with XFA Class of service, where transfer can be achieved by going on-hook during Consultation connection. If an analog (500/2500 type) telephone with TSA Class of Service goes on-hook during consultation connection, it is treated as mis-operation of All Other Cases and the recovery actions are done based on the CCDO and AOCS options selected in LD 15. If CDOC = NO, an analog (500/2500 type) telephone can achieve a transfer by going on-hook after establishing a conference.

During the Consultation connection, the non-controlling parties are restricted from using Call Transfer, Conference, and Three-party Service features.

Call Waiting

An analog (500/2500 type) set may be assigned both CWA and TSA Classes of Service. The user can establish a Consultation connection by answering Call Waiting during an active established call. If this is done, Control Digit features (CNFD, TGLD, and DISD) are available. Note that Programmable Control Digit TGLD, rather than a switchhook flash, is used to toggle the calls. Operation with XFA Class of Service is unchanged.

The Three-party Service feature changes the operation of Call Waiting for all analog (500/2500 type) telephones as follows (regardless of whether the sets have TSA Class of Service. If an analog (500/2500 type) telephone user activates Waiting during an active call so as to establish a Consultation connection, and if the user goes on-hook during the Consultation connection, the operation is treated as an AOCS mis-operation. This recovery of mis-operation will take place even if the MPO package is not equipped. In this case, the controlling party will be re-rung by the held party regardless of the CCDO and the recovery of mis-operation options.

If an analog (500/2500 type) telephone user attempts to set up a Consultation connection by dialing a busy DN and if the Call Waiting conditions are satisfied, the controlling party will hear ringback tone and the active party will hear Call Waiting tone. If the controlling party goes on-hook before the active party has answered, the held call is disconnected regardless of the MPO options and Call Waiting tone is removed from the active party.

Call Waiting Redirection

Recovery on Misoperation of Call Transfer – Call Transfer with Ring No Answer (RGNA)

With the Call Waiting Redirection feature enabled, if the Controlling Party goes on-hook to complete the call transfer before the Active Party answers the Call Waiting call and before the CFNA timer applied Call Waiting Redirection feature times out, there is no change.

With the Call Waiting Redirection feature enabled, if the CFNA timer applied by the Call Waiting Redirection feature times out before the Call Transfer completes in the Ring No Answer (RGNA) state, CFNA treatment is given by the Call Waiting Redirection feature only if the RGNA option is defined to be Standard (that is, operation as it was prior to the introduction of the Multi-Party Operations feature).

For Call Transfer with Ring No Answer, if the user has selected an option other than Standard treatment, the RGNA option selected has priority over the CFNA option selected in the Customer Data Block. With the Call Waiting Redirection feature enabled, the non-Standard RGNA option will also be enforced. There are no interactions in the functioning of Multi-Party Operations for the Attendant After Recall, Disconnect After Recall, Attendant After Recall, Overflow, and Disconnect RGNA call treatment options.

As the transferred set tries to re-ring the transferring set, if the transferring set is busy, call redirection will again try Call Forward All Calls, Hunting, and Call Waiting in that order. Call Waiting Redirection will not apply CFNA treatment to the unanswered Call Waiting call as the non-Standard RGNA option selected has priority over the CFNA option selected in the Customer Data Block, and thus have priority over Call Waiting Redirection CFNA treatment.

Recovery on Misoperation of Call Transfer – Misoperation of Call Transfer for All Other Cases

This type of misoperation occurs when the transferring party attempts to complete the transfer in several other non-RGNA scenarios. There is no interaction with these Multi-Party Operations scenarios and the Call Waiting Redirection feature.

Camp-on

Camp-on to a controlling party DN which is involved in a Consultation connection is not permitted. However, Camp-on is allowed at non-controlling parties DN's which are involved in the Consultation connection.

Conference

Current Conference feature for analog (500/2500 type) sets with C6A is not affected by conference with TSA Class of Service.

Directed Call Pickup

Analog (500/2500 type) sets with TSA Class of Service, which are actively involved in Three-party Service, are not allowed to dial the Special Prefix (SPRE) code to pickup another call.

Enhanced Music on Hold

Analog (500/2500 type) sets with TSA Class of Service can receive music when put on hold during Three-party Service.

Enhanced Night Service

Enhanced Night Service allows a mis-operated call involving a Direct Inward Dial (DID) trunk to queue at the Night Service DN.

Last Number Redial

For analog (500/2500 type) sets with TSA Class of Service, the first call of a Consultation connection is stored as the last number. Last Number Redial (LNR) is possible whenever Dial Tone or Special Dial Tone is given.

Night Service

If the system is in Night Service mode, mishandled calls which are routed to the attendant are rerouted to the appropriate Night Service DN. External trunk calls, other than DID, are queued till they are answered.

TIE trunk calls are not queued at the Night Service DN. If the Night Service DN is busy, TIE calls are disconnected.

Off-hook Alarm Security

Three-party Service (TSA) and Alarm Security Allowed (ASCA) Classes of Service are mutually exclusive. A set assigned TSA Class of Service cannot also be assigned ASCA Class of Service, and vice versa; a set assigned ASCA Class of Service cannot also be assigned TSA Class of Service.

Ring Again

When a TSA Class of Service analog (500/2500 type) set with a call on hold encounters Busy Tone, Ring Again is not possible.

Stored Number Redial

For analog (500/2500 type) sets with TSA Class of Service, the current LNR number can be stored only after the Consultation connection is completely released. Save Number Redial (SNR) is possible whenever Dial Tone or Special Dial Tone is given.

Supervised Analog Lines

The call type of the first active call determines whether battery reversal or hook flash supervision applies. Also, supervision signaling is not supported for the second call. A disconnect supervision signal is extended only when the last party disconnects.

Tone to Last Party

When the MPO package is equipped, Tone to Last Party is not provided.

Trunk to Trunk Connection

In a standalone environment, the RGNA prompt in the Customer Data Block will be used when an external trunk is transferred on ringing and the called party does not answer. In a network environment, the RTIM timer value in the Customer Data Block will be used for slow answer recall.

Feature packaging

The basic Multi-Party Operations features are packaged under Multi-Party Operations (MPO) package 141.

For enhanced functionality of the Multi-Party Operations feature, the Flexible Tones and Cadences (FTC) package 125 is required.

Feature implementation

To configure Multi-Party Operations the following steps must be followed:

- 1 Configure Multi-Party Operations Parameters in the Customer Data Block (LD 15).
- 2 Configure Recall of mis-operation ringing cadence (PCAD) for analog (500/2500 type) and Meridian Modular (M2000 series) sets and ringing tone (PBCS) for SL-1 and M3000 series sets in Flexible Tones and Cadences (FTC) data block (LD 56), if required.
- 3 Assign Three-party Service (TSA) Class of Service to sets.

The Following prompts are output for the various options in the overlays:

LD 10 – This overlay is modified to allow analog (500/2500 type) sets to be assigned Three party Service Allowed (TSA) Class of Service:

Prompt	Response	Description
REQ	CHG, NEW	...
TYPE	500	...
...		
CLS	TSA	Three-party Service Allowed. TSA and ASCA are mutually exclusive (i.e., if TSA is assigned then ASCA will not be allowed, and vice versa). TSA interacts with XFA in the following manner. If the set has XFA (Call Transfer Allowed) Class of Service and the administrator then assigns TSA (Three-party Service Allowed), XFA (Call Transfer Allowed) is automatically set to XFD (Call Transfer Denied) and Three-party Service is then allowed. Conversely if the set has TSA Class of Service assigned and the administrator then assigns XFA, Three-party Service is removed and Call Transfer is allowed. The last Class of Service entered overwrites the previously entered Class of Service of the same category (i.e., if both XFA and TSA are entered in that order, TSA is the Class of Service that is accepted.)
	(MBXD)	Multi-Party Operation (MPO) Blind Transfer Denied. When CLS = MBXD, blind transfers occur with mis-operation treatment.
	MBXA	Multi-Party Operation (MPO) Blind Transfer Allowed. When CLS = MBXA, blind transfers occur without mis-operation treatment. To configure CLS = MBXA, CLS must first be defined as TSA or XFA. Multi-Party Operations (MPO) package 141 must be equipped to enter MBXD or MBXA.
...		

LD 15 – This overlay is modified to incorporate the following options if the MPO package is equipped:

- mandatory recall
- Control Digit Time Out
- treatment of switchhook flash
- programmable Control Digits
- alternative Consultation connection disconnect treatment, and
- mis-operation options.

To implement these options, the following prompts are added to LD 15:

Prompt	Response	Description
REQ	CHG, NEW	Change, or add.
TYPE	CDB MPO	Customer Data Block. Release 21 gate opener.
...		
- FMOP	(NO), YES	Flexible Mis-Operation Parameters. NO – (default) Do not change Flexible Mis-Operation Parameters. YES – Change Flexible Mis-Operation Parameters.

- - RGNA	xxxyyy	Ring No Answer. Enter treatment for Call Transfer Ring No Answer cases, where: xxx is the treatment for internal parties, and yyy is the treatment for external parties.
	(STD)(STD)	– (default for internal and external parties) Standard treatment
	AARAAR	– Attendant After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles route call to an attendant.
	ATNATN	– Attendant: Route call to an attendant.
	DARDAR	– Disconnect After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles disconnect call.
	DISDIS OVFOVF	– Disconnect: disconnect call. – Overflow tone: Call is given Overflow Tone.
- - AOCS	xxxyyy	All Other Cases. Enter treatment for Call Transfer cases other than Ring No Answer: xxx is the treatment for internal parties and yyy is the treatment for external parties.
	AARAAR	– Attendant After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles route call to an attendant.
	ATN(ATN)	– (default treatment for external parties) Attendant: Route call to an attendant.
	DARDAR	– Disconnect After Recall: Recall transferring (controller) set for RCY1 number of ring cycles. If transferring set does not answer within RCY1 ring cycles disconnect call.
	(DIS)DIS	– (default treatment for internal parties) Disconnect: disconnect call.
	OVFOVF STDSTD	– Overflow tone: Call is given Overflow Tone. – Standard treatment Note: If Entered in response to AOCS in LD 15, responses will be printed as DIS ATN in LD 21.

- - RCY1	1-(6)-15	Ring Cycles 1. Number of ring cycles (default is 6) a transferring (controlling) station is rung before routing to an attendant or disconnect occurs.
- - RCY2	1-(4)-15	Ring Cycles 2. Number of ring cycles (default is 4) target (transferred to) station is rung before Ring No Answer treatment is applied. Does not apply to AOCS.
- - RALL	(NO), YES	Recall NO – (default) Mandatory recall is not required prior to dialing Control Digits. YES – Mandatory recall is required prior to dialing Control Digits.
- - CDTO	2-(14)	Control Digit Time Out. Range is 2 - 14 seconds and inputs must be a multiple of 2, (i.e., 2, 4, 6, 8, 10, 12, or 14). 2 to 12 activates the optional time out treatment. 14 (default) activates the normal time out treatment.
- IFLS	(NO), YES	Ignore switchhook flash. NO – (default) Allows a switchhook flash, or dial “1”, from an analog (500/2500 type) telephone to be interpreted as a Register Recall. YES – A switchhook flash, or dial “1”, from an analog (500/2500 type) telephone will not be interpreted as a Register Recall. Note: If this option is selected, analog (500/2500 type) telephones should be equipped with a special Ground (Earth) Button.
- MHL D	(NO), YES	Manual Hold. NO – (default) Manual hold is not allowed. YES – Manual hold is allowed.

- PCDS	(NO), YES	Program Control Digits. YES – Allows user to alter default settings of Control Digits. NO – (default) Does not allow the alteration of the existing Control Digit settings. CCDO is the next prompt. Programming of control digits is not required. The default is NO. The defaults values for their respective functions are 1, 2 and 3. If YES then:
- - CNFD	0-(1)-9, *,#	Conference Digit. Prompted if response to PDCS was YES. Enter the Control Digit used to create, or add parties to, a conference. Default is 1.
- - TGLD	0-(2)-9, *,#	Toggle Digit. Prompted if response to PDCS was YES. Enter the Control Digit used to toggle, put active party on hold and connect to held party/parties. Default is 2.
- - DISD	0-(3)-9, *,#	Disconnect Digit. Prompted if response to PDCS was YES. Enter the Control Digit used to disconnect the active party and connect to the held party. Default digit is 3.
- CCDO	(NO), YES	Consultation Connection Disconnect Option. NO – (default) Alternative treatment is not applied to Consultation calls where one of the parties disconnects. YES – Alternative treatment is applied to Consultation calls where one of the parties disconnects.
- AFNO	(NO), YES	(Manual) Forced Camp-On Automatic.
- - ACNS		Attendant Clearing during Night Service. Prompted when the MPO package is equipped and MPOP and FMOP = YES.
	(NO) EXT ALL	No automatic treatment. External calls only. All calls.

LD 20 – This overlay is modified to print the Three-party Service (TSA) Class of Service if the MPO package is equipped.

LD 21 – This overlay is modified to print the Multi-Party Operations settings in the Customer Data Block if the MPO package is equipped.

LD 22 – This overlay is modified to print the Multi-Party Operations package (141) if it is equipped.

LD 56 – This overlay is used to specify all Tones and Cadences. LD 56 is modified to allow specification of Control Dial Tone and recall Tones and Cadences cadences for analog (500/2500 type) and Meridian 1 proprietary sets

Prompt	Response	Description
REQ	CHG, NEW, PRT	Change, add, or print.
TYPE	FTC	Flexible Tones and Cadences data block.
TABLE	0-31	FTC table number.
...		
RING	YES	Change the ringing feature definitions.
...		
- PCAD	xxx	Recall of mis-operation ringing Cadence Enter Master Cadence (MCAD) table number that defines the ringing cadence for recall of mis-operation for analog (500/2500 type) telephones and Meridian Modular sets. Default is value assigned to NCAD.
- PBCS		Recall of mis-operation ringing tone and cadence for Meridian 1 proprietary telephones. Define recall of mis-operation tone and cadence for SL-1 and M1000 sets.
TDSH	i bb cc tt	Tone and Digit Switch Hexadecimal code. Prompted if Tone and Digit Switches (TDS) are configured in LD 17. Defaults are values assigned to NBCS.

XTON	0-255	Extended tone code.
XCAD	0-255	Extended cadence code.
...		Respond to the XTON prompt with a value from 0 to 255, for the NT8D17 TDS Tone code.
...		Respond to the XCAD prompt with a value from 0 to 255, for the NT8D17 TDS cadence code for FCAD.
...		Prompted if system configured with Extended Conference and Tone and Digit Switches (XCT) in LD 17.
...		Defaults are the values assigned to NBCS.
HCCT	YES	Hardware Controlled Cadences and Tones.
...		
- CDT		Control Dial Tone.
...		Define tone and cadence for Control Dial Tone.
TDSH	i bb cc tt	Tone and Digit Switch Hexadecimal code.
...		Prompted if Tone and Digit Switches (TDS) configured in LD 17.
...		Defaults are values assigned to DIAL.
XTON	0-255	Extended tone code.
XCAD	0-255	Extended cadence code.
...		Respond to the XTON prompt with a value from 0 to 255, for the NT8D17 TDS Tone code.
...		Respond to the XCAD prompt with a value from 0 to 255, for the NT8D17 TDS cadence code for FCAD.
...		Prompted if system configured with Extended Conference and Tone and Digit Switches (XCT) in LD 17.
...		Defaults are the values assigned to DIAL.

Refer to *X11 data administration input/output guide including supplementary features* (Appendix 1 to 553-2311-311) for complete information regarding the administration of tones and cadences.

LD 81 – This overlay is modified to print the stations associated with Three-party Service Allowed (TSA) Class of Service if the MPO package is equipped.

LD 83 – This overlay is modified to include the TSA Class of Service, when sorting TN by Class of Service, if the MPO package is equipped.

Feature operation

Prior to describing the feature operation the following terms are defined to ensure there is no misunderstanding as to their meaning in terms of the Multi-Party Operations feature.

Active party – The party with which the controlling party has a Consultation connection.

Meridian 1 proprietary set – For the purpose of this document, this term is used to refer to standard SL-1 sets and to digital sets (M2000 series and M3000).

Bridged sets – The “Bridging” feature allows the same DN to appear on more than one single line telephone. Bridged sets share the same TN. Up to eight of these sets can be bridged, and a maximum of five of this group can be equipped with ringers. An incoming call rings all sets that have ringers connected and can be answered by any single line telephone user within the bridged group.

Controlling party – The “Controlling Party” is the party which optionally has the “Held Party” in the hold mode and the “Active Party” in the “Consultation Connection”.

Consultation connection – When the controlling party and the active party are in conversation, they are said to be in “Consultation Connection”.

Dial “1” – A pulse recognized as digit 1.

External party – Any CO, DID or TIE trunk (incoming or outgoing), connected to the system is considered an external party, regardless of the way the connection is established.

Flash Timer – The Flash Timer defines the flash period of a valid Switchhook Flash.

Held party – The Held party is the party put on hold (by the Controlling party).

Analog (500/2500 type) set – For the purpose of this document, this term is used to refer to standard analog (500/2500) sets.

Programmable Control Digit – A digit which is dialed by the controlling party, after the Consultation connection is established, to achieve certain functions of Three-party Service for an analog (500/2500 type) set.

Register Recall – A user request for service produced either by Switchhook Flash or by pressing the Ground Button or the Link button.

Switchhook Flash – An on/off-hook pulse which may be either a Register Recall signal or a Digit 1 depending on the conditions during which it occurs and on the flash timing.

Call Join

Call Join is available on any Meridian 1 proprietary set that is equipped with a Three-party (AO3) or Six-party (AO6) Conference key and at least one secondary DN or Call Waiting key.

The following describes the operation of Call Join:

- 1** If the user presses the AO3 or AO6 key during an active call with party A on DNx (DNx is any DN key, including Call Waiting), party A is placed on hold and Special Dial Tone is returned as normal. The user can dial another DN and conference as normal or the user can conference a held party B on DNy (DNy is any DN key, excluding DNx) by continuing as follows:
- 2** The user presses DNy during Special Dial Tone. This causes party B to be moved to the Conference key. DNy key is idled. The Conference key remains active and the user consults with party B.
- 3** When the user has finished consulting with party B, the user presses the Conference key a second time. Party A, party B and the user form a conference (subject to normal restrictions) on DNx. The Conference key is idled. If the user disconnects during the conference, party A is transferred to party B, subject to normal restrictions.

The conference can be enlarged by operating the AO6 key either as described above to add a held party to the conference, or as normal to conference a dialed party.

Note 1: The DNx or secondary DN key can be any Meridian 1 proprietary key capable of holding an independent Directory Number.

Note 2: If the Call Waiting is a Group Call, that call cannot be joined.

Note 3: M2317 and M3000 set soft keys may not display step “If the user presses the AO3 or AO6 key during an active call with party A on DNx (DNx is any DN key, including Call Waiting), party A is placed on hold and Special Dial Tone is returned as normal. The user can dial another DN and conference as normal or the user can conference a held party B on DNy (DNy is any DN key, excluding DNx) by continuing as follows:” on page 1309 correctly.

Analog (500/2500 type) set features

Multi-Party Operations introduces Three-party Service Allowed (TSA) Class of Service. Analog (500/2500 type) sets can now be assigned TSA Class of Service and either C6D (Conference 6-party Denied) or C6A (Conference 6-party Allowed) Class of Service. Analog (500/2500 type) set operation is not changed for XFD or XFA Classes of Service.

Three-party Service permits the user to toggle, release or form a three-party conference through the use of Programmable Control Digits.

The combination of TSA and Conference 6-party (C6A) Classes of Service extend the operation of Three-party Service so as to permit the user to enlarge the three-party conference by consulting and selectively adding members through the use of Programmable Control Digits.

The following sections describe Three-party Service (TSA Class of Service).

Establishing a Consultation connection

If the user requests a Register Recall during any established two-party connection, excluding calls to Dictation or Paging trunks or to an attendant, the call is placed on hold and Special Dial Tone is returned. The user can dial a second party for Consultation.

If the controlling party goes on-hook before the second call is established (that is, when the transferred station is ringing, the call is treated as per Mis-operation of Call Transfer).

When the second call is established, the user becomes the controlling party of the “Consultation” connection. The user can modify the connection through the use of a Programmable Control Digit.

Dialing a Control Digit from a Dial Impulse Analog (500/2500 type) set with DIP or DTN Class of Service

After the consultation connection is established, the controlling party can dial a Programmable Control Digit. If RALL = NO, both sets with DIP and DTN Class of Service dialing using dial impulses can dial the programmable control digits without performing the recall. However, for a dial impulse sets with DTN Class of Service the mode of dialing control digits depends upon how the set has setup the consultation call. If the set has used pulse dialing, then the control digits are recognized without recall. If the set has used touchtone dialing, Register Recall is mandatory.

If RALL = YES, a register recall must be performed prior to dialing a control digit, regardless of the set’s Class of Service.

- 1** Dialing the Conference (CNFD) Control Digit produces a three-party conference between the user, held and active parties. During the Conference connection, all parties are restricted from using Call Transfer, Three-party Service and Three-party Conference features (unless the user has C6A Class of Service). If the user goes on-hook during the conference, the remaining parties stay connected as a normal two-party call, subject to normal restrictions.
- 2** Dialing the Toggle Control Digit (TGLD) exchanges active and held parties. During the Consultation connection, the controlling party is restricted from adding other parties to the call, and the non-controlling parties are restricted from using the Call Transfer, Conference and Three-party Service features.
- 3** Dialing the Disconnect Active Control Digit (DISD) releases the active party. The connection to the held party is automatically restored as a normal two-party connection. Either party can initiate another Consultation or Conference connection, subject to normal restrictions.

If the user dials any other digit, the connection to the active party is restored and the held party remains on hold.

Dialing a Control Digit from a Dual-tone Multifrequency Analog (500/2500 type) set with DTN Class of Service

After the Consultation connection is established, the controlling party can dial a Control Digit. If the controlling party is a Dual-tone Multifrequency (DTMF) analog (500/2500 type) set with DTN Class of Service, a Register Recall must precede the Programmable Control Digit.

When the controlling party performs a Register Recall, the speechpath to the active party is removed. If no Digitone Receivers (DTRs) are available, no tone is given and the active party is reconnected. If a DTR is found, a new tone, Control Dial Tone, is given to the controlling party. The cadence, level and frequency of Control Dial Tone are flexible and defined on a per-customer basis.

During Control Dial Tone, the user can dial a Programmable Control Digit.

If a disconnect signal is received from the held party during Control Dial Tone, or if the user does not dial a Programmable Control Digit within 15 seconds, the DTR is removed and Overflow Tone is given for 14 seconds. During this time, the controlling party can restore the connection to the active party by performing a switchhook flash. At the end of Overflow Tone, the active party is reconnected and the held party (if still connected) remains on hold.

If the user performs a switchhook flash during Control Dial Tone, the connection with the active party is restored and the held party remains on hold.

Dialing a Control Digit from a Bridged Set

If Dial Impulse analog (500/2500 type) and DTMF analog (500/2500 type) sets are bridged and assigned DTN Class of Service, the operation depends on whether the Consultation connection was set up using Dial Impulse or DTMF.

If the Consultation connection was set up using Dial Impulse, only Dial Impulse analog (500/2500 type) set users can dial a Programmable Control Digit. If the Consultation connection was set up using DTMF, only DTMF analog (500/2500 type) set users can dial a Programmable Control Digit.

Any dial pulses or Register Recalls are recognized only if all other sets on the bridged line are on-hook. A Register Recall performed by using a Ground Button is also recognized.

Controlling party actions

The following table summarizes the affect on Consultation connections when controlling parties with XFA or TSA Class of Service perform the following actions:

Table 100
Control Digit Functions

Controlling party action	System Response	
	Class of Service	
	XFA	TSA
Dial CNFD	Conference	Conference
Dial TGLD	Conference	Toggle
Dial DISD	Conference	Release Active Party
On-hook	Transfer	Disconnect

Note 1: Dial Impulse analog (500/2500 type) sets with DIP Class of Service are required to issue a Register Recall prior to dialing Control Digits if RALL = YES.

Note 2: If Control Dial Time Out is any value other than the default (14), then the time out results in the same action as if DISD had been dialed.

Note 3: If CCDO is YES, Call Transfer takes place when the controlling party goes on-hook during a consultation connection. This is similar to XFA operation.

Consultation Call Disconnect

Active Party Disconnects

If the disconnect during Consultation connection option chosen is the default (CCDO = NO), after a Consultation connection has been established, and the active party disconnects if:

- a** The active party is internal to the PBX or is external and a disconnect signal is received by the PBX, the held party is reconnected for a normal two-party connection.
- b** The active party is external to the PBX and a disconnect signal is not received by the PBX, then the controlling party is able to release the disconnected trunk by dialing the Disconnect Active (DISD) Programmable Control Digit. The connection to the remaining party then becomes a normal two-party connection.

If the disconnect during Consultation connection option chosen is to give the alternative treatment (CCDO = YES), then if the active party goes on-hook during an enquiry call, the controlling party is given Overflow Tone. On tone time out or Register Recall, the held party is reconnected. If the controlling party goes on-hook during Overflow Tone, the call is treated as in Controlling Party Disconnects.

Held Party Disconnects

If the disconnect during Consultation connection option chosen is the default, after a Consultation connection has been established, and the held party disconnects if:

- a** The held party is internal to the PBX or is external and a disconnect signal is received by the PBX, then the connection with the active party becomes a normal two-party connection.
- b** The held party is external to the PBX and a disconnect signal is not received by the PBX, due to the fact that the remaining connection is effectively a two-party connection, the trunk to which the departed party was connected is still on hold. The controlling party can release the disconnected trunk by dialing the Toggle (TGLD) Programmable Control Digit (to hold the active party and activate the connection to the disconnect trunk) and then dialing the Disconnect Active (DISD) Programmable Control Digit (to release the trunk). The connection to the remaining party becomes a normal two-party connection. If the controlling party goes on-hook with the disconnected trunk on hold, the set is rung back.

In the case of “The held party is internal to the PBX or is external and a disconnect signal is received by the PBX, then the connection with the active party becomes a normal two-party connection.” on page 1315, when a Dial Impulse analog (500/2500 type) set with DIP Class of Service user dials a Programmable Control Digit during the active call, Special Dial Tone is returned, indicating that the held party has disconnected. Similarly, when a DTMF analog (500/2500 type) set with DTN Class of Service user performs a switchhook flash during the active call (expecting to receive Control Dial Tone), Special Dial Tone is returned, indicating that the held party has disconnected.

During Special Dial Tone, the controlling party has the option of dialing a DN to set up another Consultation connection, or of resuming the normal two-party connection. The latter is achieved by performing a Register Recall with a duration greater than 150 milliseconds and less than the maximum flash time (a short Register Recall would be mistaken for a digit “1”). A dial “1” from a Dial Impulse analog (500/2500 type) set with DIP Class of Service cannot be used to simulate the flash, as the digit “1” may be the first digit of a DN. The user can do a valid switchhook flash during the middle of dialing a DN and be returned back to the held party. The only restriction is that the switchhook flash must be unambiguous (that is, the duration of the switchhook flash is greater than the digit “1” duration).

If a 2500 set recalls during a consultation connection and the held party has disconnected with the held party being an internal party or the Meridian 1 has received a disconnect signal, special dial tone is returned instead of control dial tone. This is similar to CCDO = NO.

If RALL = YES, the above operation also applies to 500 sets.

With RALL = NO and a 500 set (dial impulse) dials a control digit other than DISD, the set is given overflow tone indicating that the held party has disconnected. If the 500 set dials the DISD control digit, the active party is disconnected and the control party gets overflow tone.

Controlling Party Disconnects

If the disconnect during Consultation connection option chosen is default, then if the controlling party goes on-hook during the Consultation connection, it is considered as a mis-operation of All Other Cases type (AOCS) and the active party is released.

DIS, ATN, AAR, DAR, and OVF options are available for both internal and external parties. If the held party is internal to the PBX, the held party is optionally (DIS) released also. If the held party is external, the controlling set is optionally (AAR) rung back immediately. The external party does not receive Ringback Tone while the controlling set is being rung.

If the controlling party answers, the external party is connected for a normal two-party connection. If the controlling party does not answer within the optional ring cycles (RCY1) for any call (regardless of whether the set has FND or FNA Class of Service), the controlling station is idled while the external party receives Ringback Tone and is optionally routed to the attendant and appears on the CFNA Incoming Call Indicator. Other options are also available.

If the disconnect during Consultation connection option chosen is to give the alternative treatment, then if the controlling party goes on-hook during conversation with the active party, the call is transferred (as current operation with XFA Class of Service on the station).

Six-party Conference

The combination of C6A and TSA Classes of Service, provides an enhancement to the Six-party Conference feature where the user can perform a Register Recall during the Conference connection, dial a consulted party and then dial a Programmable Control Digit to toggle, release, or add the consulted party to the conference. The following describes the sequence of events required of an analog (500/2500 type) set with C6A and TSA Classes of Service to set up a multi-party conference:

- 1** During a normal two-party connection with party A, the user performs a Register Recall and dials party B. The user becomes the controlling party of the Consultation connection.
- 2** The user dials the Conference (CNFD) Programmable Control Digit to form a three-party conference. The Consultation connection becomes a Conference connection.
- 3** The user performs a Register Recall during the Conference connection. The conference is placed on hold (the other parties in the conference remain connected) and Special Dial Tone is returned. The normal timing and mis-operation procedures apply while setting up the Consultation call. The user dials party C. When the Consultation call is established, the user becomes the controlling party of the new Consultation connection.
- 4** The user can dial a Programmable Control Digit which is interpreted as follows:

- Dialing CNFD causes the consulted party to be added to the conference, as shown in Step “The user dials the Conference (CNFD) Programmable Control Digit to form a three-party conference. The Consultation connection becomes a Conference connection.” on page 1317. The Consultation connection becomes a Conference connection.
- Dialing TGLD causes the consulted party to be placed on hold and the conference to be reconnected. The user can toggle between the conference and the consulted party in this manner.
- Dialing DISD causes the consulted party to be disconnected. The Conference connection is restored.

The user can repeat Steps 3 and 4 to add parties to the conference. If the user goes on-hook during the Consultation connection, the consulted party is released and the conference stays connected, subject to normal restrictions. Six-party Conference Enhancement for analog (500/2500 type) sets follows the same operation as the existing Six-party Conference feature with respect to mis-operation, access and connection restrictions.

Recovery of mis-operation during Call Transfer

Call Transfer with Ring No Answer (RGNA)

RGNA is applicable only when the user transfers a call while the active party is still in ringing state. All other types of mis-operation are handled as AOCS mis-operations.

Call treatment is then determined by the response to the RGNA prompt in LD 15. Following is the list of the responses to the RGNA prompt and their resulting treatment:

- a** STD (Standard) – The operation as it was prior to the introduction of the MPO feature.
- b** ATN (Attendant) – The transferred party is routed to the attendant if the target (transferred to) station, after having rung for an optional number of ring cycles (RCY2), has not answered the call. The call is rerouted to the attendant as a Call Forward No Answer (CFNA) and is presented on the FNA Incoming Call Indicator (ICI), the call is then treated as a regular CFNA call to the attendant.
- c** If the transferred call was a Consultation connection the transferred party is disconnected and the held party is routed to an attendant and presented as a Recall on the RLL ICI.
- d** DAR (Disconnect After Recall) – The target station rings for an optional number of ring cycles (RCY2). If the call is not answered during this time, the transferred party recalls the transferring (controlling) station. The transferring station rings for an optional number of ring cycles (RCY1), with recall ringing cadence. If the transferring station does not answer during this time, the transferred party is disconnected.
- e** If the transferred call was a Consultation connection then the held party is retrieved and treated as defined by its type (internal or external) and the treatment selected. If the treatment selected is ATN or AAR the held party is routed to an attendant and presented as a Recall on the RLL ICI. If the treatment selected is DAR or DIS, the party is disconnected.
- f** If the transferring station became busy before recall, the transferred party is disconnected immediately.
- g** AAR (Attendant After Recall) – This option is similar to the DAR option, except that after the optional number of ringing cycles (RCY1) the transferred party is routed to an attendant as a Call Forward No Answer (CFNA) recall and is presented on the CFN ICI.
- h** If the transferred call was a Consultation connection then the held party is retrieved and treated as defined by its type (internal or

external) and the treatment selected. If the treatment selected is ATN or AAR the held party is routed to an attendant and presented as a Recall on the RLL ICI. If the treatment selected is DAR or DIS, the party is disconnected.

- i** If the transferring station became busy before recall, the transferred party is routed to attendant immediately.
- j** OVF (Overflow) – Overflow Tone is given to the transferred party after the optional number of ring cycles (RCY2).
- k** If the transferred call was a Consultation connection, the transferred party is disconnected and the held party is given Overflow Tone.
- l** DIS (Disconnect) – The transferred party is disconnected after the optional number of ring cycles (RCY2).
- m** If the transferred call was a Consultation connection the transferred party and held party are disconnected.

Note: The ring cycles are counted from the time the transfer has been completed (analog [500/2500 type] set has gone on-hook or Meridian 1 proprietary set has pressed the TRN key for the second time).

This feature applies to both external and internal calls, transferred by station users to another station. The feature does not apply to calls transferred to the attendant, or extended by the attendant.

Mis-operation during Call Transfer – All Other Cases (AOCS)

This section describes mis-operation during Call Transfer for All Other Cases (AOCS) and their default options. Similar options as for Ring No Answer (RGNA) are available for AOCS. The only difference being that the ringing cycle (RCY2) is not valid for AOCS.

Call Transfer to a Busy Station

If an analog (500/2500 type) set user tries to transfer a call to a busy station, Busy Tone is returned during the Consultation connection. If the user then goes on-hook to complete the Transfer operation and if the held party is an external trunk, the external trunk is routed automatically to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall call to the attendant.

If the held party is an internal call, it is disconnected.

Call Transfer to Intercept Treatment

While using the Call Transfer feature, the analog (500/2500 type) set user may be intercepted while dialing the third party due to any of the following illegal dialing situations:

- a** Dialing a vacant number.
- b** Dialing a number of a terminal in the maintenance busy or RPE failure state.
- c** Access denied.
- d** Code Restriction or Toll Restriction.
- e** Invalid, restricted, or blocked Network Automatic Route Selection (NARS) or Basic Automatic Route Selection (BARS) calls.

In any of the above cases, while involved in the Consultation connection (according to the selected customer option) the user is:

- given Overflow Tone
- given an intercept recorded announcement
- routed to the attendant

If the user goes on-hook while connected to Overflow Tone or recorded announcement, and if the held party is an external trunk, the external trunk is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

If the MPO package is equipped and the user waits until time out occurs while connected to Overflow Tone or a recorded announcement, the held party is reconnected to the station user, and the call is treated as a regular two-party call again.

If the MPO package is not equipped and the user waits until time out occurs while connected to Overflow Tone or a recorded announcement, both the internal and external calls are disconnected.

Unsuccessful Transfer Connection

While transferring an external trunk to another destination from an analog (500/2500 type) set, if network blocking prevents the completion of the Call Transfer or if the controlling party dials the access code of a busy trunk route, the controlling party receives Overflow Tone during the Consultation connection. If the analog (500/2500 type) set user goes on-hook in spite of the blocking indication, the external trunk is routed to the attendant as an Intercept Recall. At this point, the call is treated as a regular Intercept Recall to the attendant.

Call Transfer on Partial Dialing

If an analog (500/2500 type) set user dials an incomplete number as a third party and attempts to complete the Transfer operation by going on-hook, and if the held party is an external trunk, the external trunk is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

Disconnect Situations during Consultation

If the analog (500/2500 type) set user (the controlling party) disconnects while in the Consultation state, the call is transferred as normal. However, if the new connection is not possible (for example, due to trunk-to-trunk connection restrictions), and if the held party is external, then this external party is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

Also, if the analog (500/2500 type) set user (the controlling party) disconnects while connected to Dial Tone, and if the held party is external, then this external party is routed to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

If one of the other parties in the call disconnects, the following occurs:

- If the held party disconnects, the controlling party receives no indication until the hook switch is flashed to establish a conference. At that time Dial Tone is returned instead of all three parties creating a conference. The call is treated as a normal two-party call from the time the held party disconnects.
- While an external party is in the Consultation hold state, if the party being consulted disconnects followed by the controlling party disconnect, then the held party is routed automatically to the attendant as an Intercept Recall. The call is then treated as a regular Intercept Recall to the attendant.

Mis-operation during Control Dial Tone

The treatment given depends upon the type of active party. If the active party is internal, the internal option is also applied to the held party (for example, if for internal calls AOCS is DIS ATTN, the held call even though external will also be disconnected). The mis-operation option selected in this case is solely dependent upon the type of active call (internal or external), and the related mis-operation option. This option is consistently applied to the held, as well as the active party.

With the Consultation Connection Disconnect Option (CCDO) in LD 15 not selected, if an analog (500/2500 type) set user (the controlling party) disconnects while receiving Control Dial Tone in the Consultation state, internal held parties are disconnected while external parties are routed to the attendant as Intercept Recalls. The external calls are then treated as a regular Intercept Recalls to the attendant.

With CCDO selected, if an analog (500/2500 type) set user (the controlling party) disconnects while receiving Control Dial Tone in the Consultation state the held parties are given treatment as defined by the responses to the All Other Cases (AOCS) prompt in LD 15.

Mis-operation Treatment Options

A number of mis-operation treatment options are made available both for internal and external calls. These treatment options are available for Ring No Answer (RGNA) and for All Other Cases (AOCS). The following are the cases for AOCS:

- Call Transfer to Intercept Treatment for:
 - Call Transfer to busy station
 - Dialing a vacant number
 - Terminal is in maintenance busy
 - RPE failure state
 - Access denial
 - Code or Toll restricted set
 - Network blocking
 - Invalid, restricted and blocked Network Automatic Route Selection (NARS)/Basic Automatic Route Selection (BARS) calls
 - Partial dialing
 - Trunk-to-trunk connection restrictions
 - Inter-tenant blocking
 - During reception of announcements, and
 - During reception of tones (Control, Special),
- Call Transfer while Dial Tone is being heard
- Call Transfer before completing dialing
- Call Transfer during outpulsing of digits on a trunk, and
- Controlling party goes on-hook during Consultation connection (CCDO = NO).

Recall of mis-operation Ringing Cadence Option

When a transferring set is rung back after Call Transfer mis-operation, then Recall of mis-operation ringing cadence is optionally given to this set. Two optional Recall of mis-operation cadences, one for analog (500/2500 type) and Meridian Modular sets (PCAD) and another for SL-1 and M1000 series sets (PBCS), are optionally selectable (in LD 56). The default Recall of mis-operation ringing cadence is the current Ringing Tone or cadence.

Multiple Appearance Directory Number Redirection Prime

With X11 Release 18 and later, Multiple Appearance Directory Number (DN) Redirection Prime (MARF) standardizes call redirection on Multiple Appearance DNs (MADNs) by using a service changeable Multiple Appearance DN Redirection Prime Terminal Number (MARF TN).

Each defined Single or Multiple Appearance DN has only one associated MARF TN. When a call redirection feature activated against a DN needs Terminal Number (TN) specific information, the MARF TN is used to determine feature operation. Call redirection always refers to the MARF TN.

MARF provides consistent operation for the following call redirection features:

- Call Forward All Calls
- Call Forward Busy
- Call Forward No Answer, and
- Hunting.

Operating parameters

Short Hunt takes precedence over MARF TN directions.

MARF is activated in LD 17. If MARF is not active, call redirection occurs according to the pre-X11 Release 18 algorithms. All the MARF prompts and messages appear even if MARF is not active. MARF TNs can still be added, assigned, and changed. Refer to specific call redirection modules in this document for details regarding the pre-X11 Release 18 algorithms.

The MARP TN is defined in LD 10 or LD 11. When activated, only the MARP TN is used to determine call redirection.

If MARP is not activated, the overlays listed have this message printed: "MARP NOT ACTIVATED." The message appears only once, when the overlay is loaded. When MARP is active, no message appears. The overlays affected are: LDs 10, 11, 20, 22, 25, 80, 81, 82, and 83.

When MARP is activated in Service Change (MARF = YES), calls are immediately directed according to the MARP TN. There is no need to SYSLOAD.

Every Single or Multiple Appearance DN has a MARP TN. MARP TNs are also defined for Data DNs, optional incoming two-way Hot Line DNs, and ringing and nonringing Private Line DNs. Automatic Call Distribution (ACD) DNs are not assigned MARP TNs.

New systems are installed with MARP activated. MARP TNs are assigned to all Single and Multiple Appearance DNs. Call redirection follows the MARP TN assignments.

Conversion

When converting pre-X11 Release 18 software to X11 Release 18 or later, a MARP TN is automatically assigned for each Single and Multiple Appearance DN. This conversion does not activate MARP. Call redirection operates according to the pre-X11 Release 18 algorithms. All the MARP prompts and messages appear even if MARP is not active. MARP TNs can still be added, assigned, and changed.

When operating on X11 Release 18, and converting to an up-issue, the MARP TN assignments remain. If MARP was activated, it retains that activity following the up-issue. If MARP was deactivated, that status is also maintained following the up-issue.

MARP TNs assigned at Service Change

Each DN must have an associated MARP TN. After a Service Change or a telephone relocation, the system assigns a MARP TN to the DN in the following situations:

- The MARP TN containing the DN is removed.

- The DN appearance on its MARP TN is changed to another DN.
- The DN appearance on its MARP TN is no longer the redirection prime.

The “TN list” refers to the list of TNs that appears when you print the DN block in LD 20 or LD 22 (TYPE = DNB). To determine the order in which your TNs appear, print out the DN block.

When assigning MARP TNs during Service Change, the system conducts a search beginning at the top of the TN list for the first appearance of the DN as the Prime DN. The MARP TN is assigned based on the following:

- 1 The first TN found with a primary appearance of the DN is assigned as the MARP TN.
- 2 If no primary appearance of the DN is found, the first TN encountered with a secondary appearance of the DN is assigned as the MARP TN.

MARP TNs assigned at conversion and SYSLOAD

When converting to X11 Release 18, a MARP TN is automatically assigned to each DN at SYSLOAD. The MARP TNs are assigned to the DNs based on the following:

- 1 The lowest numerical TN with a primary appearance of the DN is assigned as the MARP TN.
- 2 If no primary appearance of the DN is found, the lowest numerical TN with a secondary appearance of the DN is assigned as the MARP TN.

CAUTION

MARP assignments made during conversion may change the manner in which calls are redirected. Refer to the individual call redirection modules in this document for details of the pre-X11 Release 18 algorithms.

Feature interactions

Attendant Administration

MARP TNs cannot be added, moved, or deleted with Attendant Administration. The DN information that displays on the console includes the MARP designation if applicable.

Attendant administration activities, like changing key assignments or DN appearance, may change MARP TN assignments. If so, CSC102 appears on the teletype (TTY) indicating a new default MARP TN, as follows:

CSC102 DN nnnn NEW MARP l s c u

where

nnnn = the DN associated with the MARP TN

l s c u = the new MARP TN assigned to DN nnnn

Attendant and Network-Wide Remote Call Forward (RCFW)

The RCFW feature operation applies only to one prime DN of a Multiple Appearance DN. If multiple stations are configured with the same prime DN, the set-based network RCFW feature operation is the same as the standalone RCFW feature operation.

If multiple stations are assigned the same prime DN and station control password (SCPW), the RCFW operation applies to the station to which the MARP TN is assigned. If none of the stations is configured as the MARP TN for that prime DN, the Remote Call Forward Activate and Deactivate Flexible Feature Codes (FFCs) apply to all stations matching the DN and SCPW. Remote Call Forward Verify applies to the station according to MADN call presentation priority, placing the station with the last service change at the end of the list.

The attendant-based RCFW operation applies to the station with the MARP TN of the DN entered.

Attendant Break-In

The attendant may get a busy tone if all the telephones with the required DN are busy. Attendant Break-In permits the attendant to break in to the connection with the least restricted TN. Where more than one TN exists that meets this criterion, Break-In chooses the one at the bottom of the DN block.

Automatic Set Relocation and Modular Telephone Relocation

When Automatic Set Relocation is used to move a telephone, the telephone's MARP designations are maintained. During the relocation, a temporary MARP TN is assigned. The original MARP TN is restored when the telephone relocates.

When a telephone leaves the system due to set relocation, the following Customer Service Change (CSC) message appears:

CSC010 x y

where

x = old TN (l s c u) for the telephone

y = ID code entered

The following Service Change (SCH) message appears for any MARP TN reassignment:

SCH5524 DN nnnn NEW MARP l s c u

where

nnnn = the DN associated with the MARP TN

l s c u = the new default MARP for DN nnnn

The History File can be configured to store these messages until a printout is requested.

When a telephone reenters the system, the following message appears:

CSC011 x y

where

x = old TN (l s c u) for the telephone

y = new TN (l s c u) for the telephone

The following message appears again for each changed TN:

SCH5524 DN nnnn NEW MARP l s c u

where

nnnn = the DN associated with the MARP TN

l s c u = the new MARP TN assigned to DN nnnn

Automatic Call Distribution(ACD)

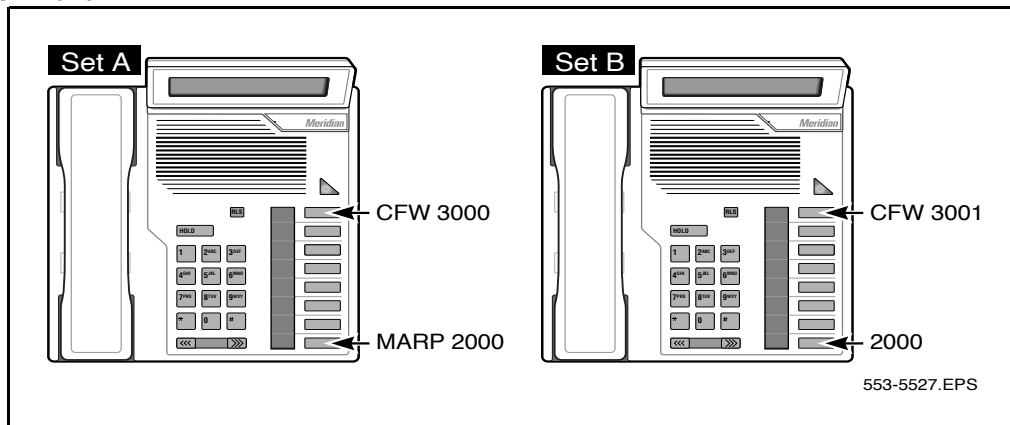
ACD DNs are not assigned MARP TNs. Agent Individual DNs (IDNs) are assigned MARP TNs.

Call Forward All Calls

If CFW is active for a DN, incoming calls are forwarded if a TN is found that has CFW enabled and is a single appearance or a prime multiple appearance of that DN (according to existing operation). The MARP TN is always checked first to meet these criteria. When the requirements are met, the system uses the information associated with the MARP TN to redirect the call.

If the MARP TN is not a prime appearance but does have CFW enabled, a search is made for a telephone with a prime appearance of that DN with CFW enabled. When a TN is found, the call is redirected according to the MARP TN's parameters. If the MARP TN is not a prime appearance and does not have CFW enabled, the system searches for a prime appearance with CFW enabled. The incoming call is forwarded according to the other telephone's instructions (not the MARP TN's), as shown in Figure 54.

Figure 54
CFW and MARP



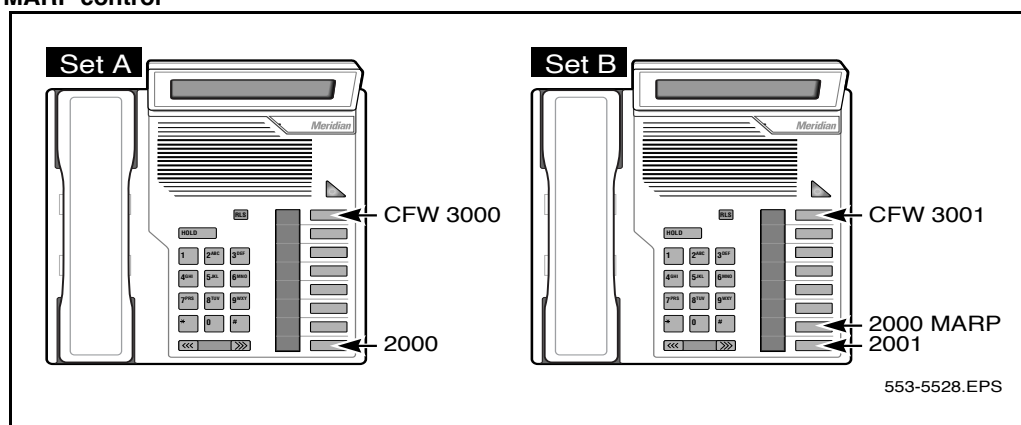
CFW DN on Telephone A is DN 3000. CFW DN on Telephone B is DN 3001.

- If only Telephone A has CFW active, calls to DN 2000 are forwarded to DN 3000.

- If only Telephone B has CFW active, calls to DN 2000 are forwarded to DN 3001.
- If both Telephone A and B have CFW enabled, calls to DN 2000 are forwarded to DN 3000 because Telephone A is the MARP TN.

At times, even though the MARP TN is actually a secondary DN appearance, it can control where a call is redirected. Due to potential confusion, it is recommended that a secondary appearance not be defined as the MARP TN when a prime appearance is available. Refer to Figure 55.

Figure 55
MARP control



CFW DN on Telephone A is DN 3000. CFW DN on Telephone B is DN 3001.

- If both Telephone A and Telephone B have CFW active, all calls to DN 2000 go to DN 3001 because Telephone B is the MARP TN.
- If only Telephone A has CFW active, all calls to DN 2000 go to DN 3000.
- If only Telephone B has CFW active, no calls to DN 2000 are forwarded.

If all DN appearances are secondary, no calls are forwarded.

Call Forward No Answer

The MARP TN always controls the call redirection for Call Forward No Answer.

Call Redirection by Time of Day (CRTOD)

When CRTOD and Multiple Appearance DN Redirection Prime (MARP) are activated, Call Forward or Hunt are dependent on the time of day and follows the MARP feature for Call Forward No Answer or Hunt treatment.

Call Waiting Redirection

If the MARP feature is activated, the CFNA treatment given by Call Waiting Redirection for an unanswered Call Waiting call follows the MARP feature for CFNA treatment of calls to an idle DN.

Electronic Lock Network Wide/Electronic Lock on Private Lines

The same locked or unlocked state applies to all Terminal Numbers with the same primary DN and the same SCPW. Terminal Numbers with the same DN, but not having the same SCPW, cannot be locked or unlocked.

Hunting

The MARP TN always controls the call redirection for Hunting. Short Hunting takes precedence over Hunting and MARP. The MARP TN is referred to until Short Hunting is encountered. Short Hunting is in control until it expires. When short hunting expires, the MARP TN for the first DN in the Short Hunt sequence takes control.

Phantom Terminal Numbers (TNs)

Multiple appearance and MARP cannot be enabled on a phantom TN.

Feature packaging

Multiple Appearance Directory Number Redirection Prime is included in the base X11 system software.

Feature implementation

If MARP is not activated, the overlays listed have this message printed: “MARP NOT ACTIVATED.” The message appears only once, at the very beginning of the overlay. When MARP is active, no message appears. The overlays are: LDs 10, 11, 20, 22, 25, 80, 81, 82, and 83.

When changing or adding a new Single Appearance DN to the system, the MARP TN is automatically assigned. The system indicates this TN is the MARP for the new DN with a MARP message.

When adding or changing a Multiple Appearance DN, the system indicates which TN is the current MARP TN. You can reassign the MARP TN if required.

SCH5524 appears at the end of the Service Change session, when the MARP TN has been changed.

LD 10 – Add an analog (500/2500 type) telephone with a Single Appearance DN.

Prompt	Response	Description
REQ	NEW	Add new data to the system.
TYPE	500	500/2500 telephone.
TN	l s c u	Terminal Number.
DN	xxx...x	Directory Number.
- MARP		MARP prints on the next line indicating this TN is the MARP for DN xxxx.

LD 10 – Add an analog (500/2500 type) telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ	NEW	Add new data to the system.
TYPE	500	500/2500 telephone.
TN	I s c u	Terminal Number.
DN	xxx...x	Directory Number.
- MARP ON TN	I s c u	<i>MARP ON TN I s c u</i> prints on the next line indicating TN I s c u is the current MARP.
- MARP	(NO), YES	(Do not) set the MARP to this new TN.
SCH5524 DN nnnn NEW MARP	I s c u	This message indicates the MARP for the old DN nnnn is changed. The new MARP is TN I s c u.

LD 10 – Changing an analog (500/2500 type) telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	500/2500 telephone.
TN	I s c u	Terminal Number.
DN	xxx...x	Directory Number.
- MARP ON TN	I s c u	This message indicates the current MARP is TN I s c u.
- MARP	(NO), YES	(Do not) set the MARP to this TN.
SCH5524 DN nnnn NEW MARP	I s c u	The message indicates the MARP for the old DN nnnn is changed. The new MARP is TN I s c u.

LD 11 – Add a telephone with a Single Appearance DN.

Prompt	Response	Description
REQ	NEW	Add new data to the system.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx aaa yyyy	xx is the key number aaa is the DN type: MCN (multi-call nonring) MCR (multi-call ring) SCN (single-call nonring), or SCR (single-call ring). yyyy is the DN.
- MARP		<i>MARP</i> prints on the next line indicating this TN is the MARP for DN yyyy.
KEY		Reprompts until <CR> is entered.

LD 11 – Add a telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ	NEW	Add new data to the system.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx aaa yyyy	xx is the key number. aaa is the DN type: MCN (multi-call nonring) MCR (multi-call ring) SCN (single-call nonring), or SCR (single-call ring). yyyy is an existing DN.

- MARP ON TN	I s c u	<i>MARP ON TN I s c u</i> prints on the next line indicating TN I s c u is the current MARP.
- MARP	(NO), YES	(Do not) set the MARP to this new TN.
KEY		Reprompts until <CR> is entered.
SCH5524 DN nnnn NEW MARP	I s c u	This message indicates the MARP for the old DN nnnn is changed. The new MARP is TN I s c u.

LD 11 – Changing a telephone with a Multiple Appearance DN.

Prompt	Response	Description
REQ	CHG	Modify existing data
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
KEY	xx aaa yyyy	xx is the key number. aaa is the DN type: MCN (multi-call nonring) MCR (multi-call ring) SCN (single-call nonring), or SCR (single-call ring). yyyy is the DN.
- MARP ON TN	I s c u	<i>MARP ON TN I s c u</i> prints on the next line indicating TN I s c u is the current MARP.
- MARP	(NO), YES	(Do not) set the MARP to the working TN.
KEY		Reprompts until <CR> is entered.
SCH5524 DN nnnn NEW MARP	I s c u	This message indicates the MARP for the old DN nnnn is changed. The new MARP is TN I s c u.

LD 10/LD 11 – Removing a MARP TN.

Prompt	Response	Description
REQ	OUT	Remove data from the system.
TYPE	aaaa	Telephone type, where: aaaa = 500, 2500, SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	TN I s c u is the MARP for DN nnnn. This is the TN that is being removed.
SCH5524 DN nnnn NEW MARF	I s c u	This message indicates the MARP for the old DN nnnn is changed. The new MARP is TN I s c u.

LD 17 – Activating or deactivating MARP.

Prompt	Response	Description
REQ	CHG	Change data.
TYPE	CFN PARM	Configuration record. Release 19 gate opener.
PARM	YES	Change system parameters.
- MARP	YES, NO	Activate or deactivate MARP. There is no default. <CR> retains the previous system data.

LD 20 or LD 22 – Print MARP information.

Prompt	Response	Description
REQ	PRT	Print information.
TYPE	TNB	Terminal Number data block.
	(DNB, SL1)	(Can also print out DN data block or telephone type.)

The printout will look like the following.

- For the DN data block:
DN 2000
TYPE SL1
TN 018 0 02 00 KEY 00 MARP DES NO DES NO DATE
TN 018 0 02 01 KEY 01 DES NO DES NO DATE
- For a telephone data block:
DES NO DES
TN 001 0 0 00
TYPE SL1
KEY 00 MCR 2000 MARP
01 MRK

Feature operation

No specific operating procedures are required to use this feature.

Multiple Console Operation

The Meridian 1 permits each customer to have up to 63 Attendant Consoles. X11 Release 7 and earlier software permits each customer to have up to 15 Attendant Consoles. Incoming calls are routed in a circular fashion to the first idle attendant. If all consoles are busy, calls are held in the attendant queue and are presented to the first idle attendant. Each console is identified by a customer-defined, two-digit Attendant Console number (01 to 63).

The assignment of Incoming Call Indicators (ICIs) and Trunk Group Busy (TGB) key/lamp pairs is identical for all Attendant Consoles in the customer group, except when Console Presentation Group Level Services, a multi-tenant feature, is configured. The flexible features key/lamp strip can be assigned on a per console basis.

The features that can be assigned to the flexible features strip include the following:

- Attendant Administration
- Autodial
- Automatic Wake Up
- Barge-In
- Busy Verify
- Call Park
- Calling Party Number
- Charge Account
- Controlled Class of Service, Enhanced
- Display Calls Waiting

- Display Date
- Display/Change Date
- Display Destination
- Display Source
- Display Time
- Display/Change Time
- Do Not Disturb (Individual)
- Do Not Disturb (Group)
- End-to-End Signaling
- Malicious Call Trace
- Message Cancellation
- Message Indication
- Mini-CDR Low Tape Alarm (the SL-1M only)
- Paging
- Routing Control
- Speed Call Controller
- System Speed Call Controller, and
- Stored Number Redial.

Operating parameters

Prior to X11 Release 8, only 15 Attendant Consoles per customer were permitted. X11 Release 8 and later software allows 63 consoles to be defined per customer.

Feature interactions

Departmental Listed Directory Number (DLDN)

DLDN supports the assignment of 63 consoles per Departmental LDN.

Multi-Tenant Services

Up to 63 consoles can be defined in a single Console Presentation Group (CPG).

Feature packaging

Multiple Console Operation is included in basic X11 system software.

Feature implementation

The following overlays have been modified to allow input of 63 consoles on X11 Release 8 and later software:

- Attendant Console LD 12
- Customer Data Block LD 15
- Tenant-to-Tenant Access LD 93

Feature operation

No specific operating procedures are required to use this feature.

Multiple Customer Operation

The Meridian 1 system can serve up to 32 (customer numbers 0-31) individual customers from the same machine. X11 Release 14 and later software supports 100 customer groups (numbered 0-99). Customers have their own features, restrictions, numbering plans, trunks, and special services. They are granted access to the system as if they are the sole user.

Operating parameters

Only XN, NT, XT, Option 61, Option 71, and Option 81 systems on X11 Release 14 and later software can implement 100 customer groups.

Feature interactions

System hardware, like Serial Data Interface (SDI), Digitone Receiver (DTR), Tone and Digit Switch (TDS), and Conference, is shared among all the customers on the machine.

The Speed Call list parameter (8191) applies to the machine, not the customer. It is shared among all customers on the system.

Feature packaging

Multiple Customer Operation (CUST) package 2 has no feature package dependencies.

Feature implementation

No change to existing configuration is required to implement the Multiple Customer Operation feature.

Feature operation

No specific operating procedures are required to use this feature.

Multiple Queue Assignment

The Multiple Queue Assignment (MQA) feature enhances the capabilities of Automatic Call Distribution (ACD). This feature allows agents to service multiple queues simultaneously.

MQA will allow Call Center customers to achieve a high level of control over the manner in which agents are assigned to calls in queues (ACD-DNs). Thus, Call Center managers will be able to better direct calls to agents whose skills best meet the needs of the caller. This feature will also allow agents to login to up to five queues, select their priorities within these queues, and choose their supervisor's position ID. Agents will also be able to login at any ACD set and have their non-ACD calls forwarded to the set which they are logged into.

Refer to *ACD Description , Operations and Tests* (553-2671-110) for further details.

Multi-Tenant Service

Multi-Tenant Service feature allows Meridian 1 customers to resell Meridian 1 features and services to other users. The stations belonging to the customer can be divided into customer sub-groups known as tenants. Tenants are separated by programming access restrictions on a tenant by tenant basis.

Access to other tenants, Attendant Consoles and trunk routes can be configured so that tenants can private use of some services and shared use of some services. As well, Multi-Tenant Service can also be configured to denied access to service. Records tenant activity is maintained by Call Detail Recording (CDR).

Telephones that are not assigned tenant status belong to the Meridian 1 customer. These customer resource telephones have access to all other telephones, Attendant Consoles and outgoing trunk routes belonging to the customer.

The number of tenants that can be configured on a per customer basis is dependant on the number of configured customers and the amount of available memory. The maximum number of tenants is 512 per customer.

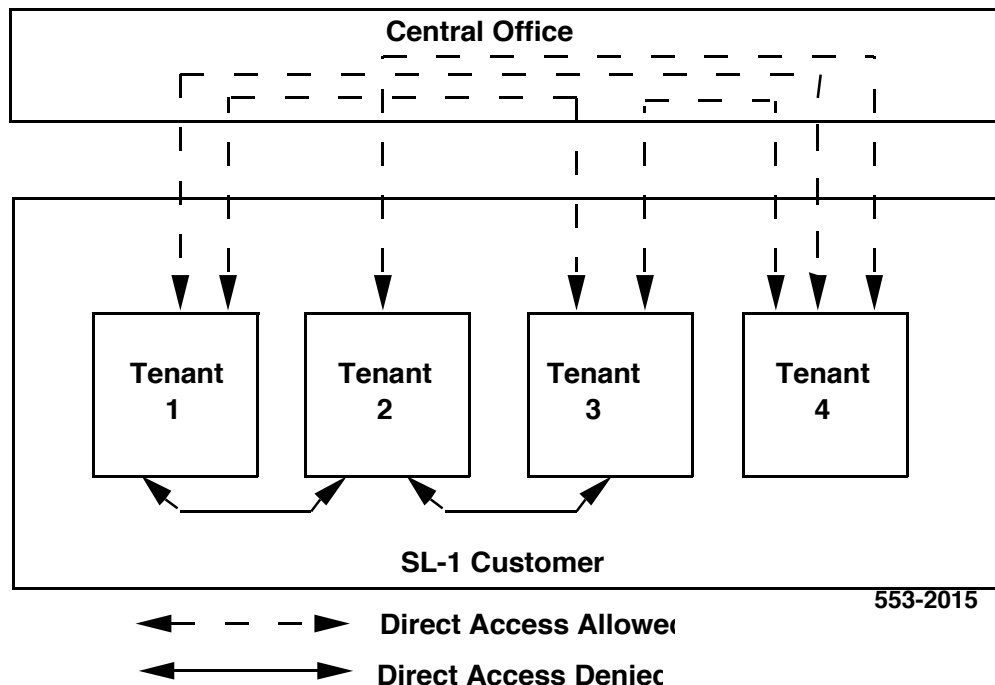
Tenants share the same numbering plan of their service provider. The following capabilities are defined on a tenant by tenant basis: Tenant to Tenant Access, Tenant to Trunk Route Access and Tenant to Attendant Console Grouping.

Tenants receive all the features defined by the Meridian 1 customer. Features that are handled at the tenant level include Incoming Call Indicators, Call Waiting Indicator, Recorded Overflow Announcement, Listed Directory Numbers, Attendant Overflow Position and Night Directory Number.

Tenant-to-Tenant Access

Calls between tenant groups for the same customer are defined by Tenant-to-Tenant Access. A tenant is configured to allow direct internal call access to some or all tenants of the same customer. Likewise, a tenant can be denied direct access to other tenants. To reach these tenants, the caller must dial the tenant's Listed Directory Number. Access is always two-way. Therefore, if Tenant A has direct internal call access to Tenant B, Tenant B also has the same access to Tenant A. Customer telephones not belonging to a tenant have two-way access to all tenant telephones in the customer group.

Figure 56
Tenant-to-Tenant access



As shown in Table 101, Tenant-to-Tenant Access allows or denies tenants of the customer:

Table 101
Tenant-to -Tenant Access allowed or denied

Tenant	Direct access allowed	Direct access denied
1	2	3 & 4
2	1 & 3	4
3	2	1 & 4
4		1,2 & 3

Outgoing Tenant-to-Trunk Route Access

Tenant access applies only to outgoing calls. All tenants have access to incoming calls on any route. Customer telephones have access to all the customer's outgoing routes.

A tenant can have private outgoing trunk routes assigned. This is done by denying all other tenants access to the routes. Figure 57 shows examples of the following.

Table 102
Tenet Access to Private Routes

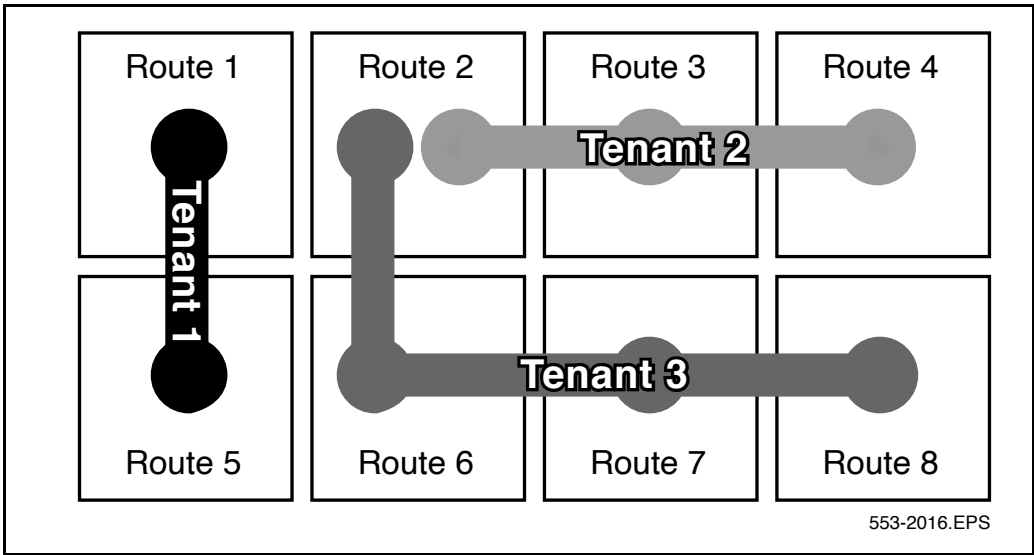
Tenant	Private Access Route
1	1 & 5
2	3 &4
3	6, 7 & 8

A tenant can share outgoing trunk routes with other tenants of the same customer. As shown in Figure 57, Tenants 2 and 3 share access to route 2.

Table 103
Tenant Restrictions to Outgoing Routes

Tenant	Restricted Access to Trunk Routes
1	2, 3, 4, 6, 7 & 8
2	1, 5, 6, 7 & 8
3	1, 3, 4 & 5

Figure 57
Tenant-to-Trunk Route Access



Attendant Console Groups

With Multi-Tenant Service, all Attendant Consoles are placed into groups which are associated with specific tenants and specific incoming trunk routes. The Group Number range is 0 to 511. All Attendant Consoles configured for a customer are automatically members of group 0. The other groups are defined in the software to fit tenant requirements. [Refer to the section on Functions in this document for a description of the structure and functions of the Attendant Console Groups.]

Tenant-to-Attendant Access (Internal Calls)

Tenant-to-Attendant Access specifies which Attendant Console Group receives automatic presentation of a tenant's dial-zero calls.

Trunk Route-to-Attendant Access

Route-to-Attendant access specifies which Attendant Console Group receives automatic presentation of incoming calls from a particular route.

Console Presentation Groups

Console Presentation Groups (CPGs) are assigned to handle attendant calls from one tenant for a customer or for calls originating from certain trunks in a particular route.

Most of the Attendant Console features and parameters apply to CPGs. For a complete description of the functionality for CPGs, please refer to the section on CPGs in this document.

Attendant Console**Internal attendant-DN calls**

When a tenant telephone dials the attendant DN, the call is presented to an idle Attendant Console. The call is routed to an Attendant Group associated with the tenant of the calling telephone, if Attendant Console Groups have been specified for the tenant. Otherwise, calls are presented to any idle Attendant Console belonging to the customer. For example, in Table 104, an attendant DN call from a Tenant 2 telephone is presented to an idle attendant in group 2 (consoles 1 or 2).

Incoming external calls

Incoming external calls are presented only to the Attendant Console Group specified to serve the trunk group. Also from Table 104, incoming calls on route 3 are presented to Attendant Consoles in group 6 (consoles 9 or 10).

Attendant Initiated Calls

All attendants have access to the customer's numbering plan and can initiate calls to any of a customer's tenants.

Attendant Overflow Position (AOP)

The Attendant Overflow Directory Number (AODN) should be accessible to all tenants. Attendant calls from tenants who do not have AODN access will not divert to AODN. They remain in the attendant queue.

Attendant Recall

When a tenant telephone recalls the attendant, the call is presented to an attendant in a group specified for the tenant of the calling telephone.

Attendant Extended Call

When an attendant extends a call from tenant A to tenant B, a 3-way conversation is set up only if tenant A and tenant B are allowed Tenant-to-Tenant Access.

Automatic Timed Recall (ATR)

When Automatic Timed Recall (ATR) alerts the attendant, the call is presented to an attendant within the Tenant group of the originally called number.

Console Presentation Group

A Console Presentation Group (CPG) is a subset of the consoles configured for a customer. A CPG is assigned to handle attendant calls from one tenant for a customer. A CPG can also be assigned to handle calls originated by trunks on a route.

CPG improves functions on the following CPG Level Services:

- **Attendant Overflow Positions** Each CPG can have its own AOP-DN and waiting time threshold specified.
- **Call Waiting Indication** The count thresholds, timers and buzz options for Call Waiting are defined for each CPG.
- **Incoming Call Identification** The ICI keys are defined for each CPG. Attendants see only those ICI key definitions for their own CPG.
- **Listed Directory Numbers** Each CPG allows four (4) LDNs.
- **Night Service** Each CPG can go into Night Service mode regardless of the status of the other CPGs.

Access to incoming trunk routes

Any tenant can access on an incoming call from any incoming trunk route. Attendant Console Groups can be specified to receive automatic presentation of incoming calls from specified routes. This includes calls that terminate at an Attendant Console and calls that intercept to an Attendant Console as well. For example, as seen in Table 104, incoming calls on route 2 are automatically presented to Attendant Console Group 5 (console 7 only).

Table 104
Typical attendant group arrangement

Attendant group number	Attendant consoles	Incoming Trunk routes	Tenant
0	1-10		
1	1		1
2	1, 2	1	2
3	1		3
4	3, 4	4	
5	7	2, 5	
6	9, 10	3	

Access to outgoing trunk routes

Tenants dial the appropriate trunk route Access Code to connect to a trunk route. Access Codes are assigned on a trunk route basis. Therefore, all tenants use the same Access Code to connect to a particular route. Customer telephones have access to all outgoing trunk routes belonging to their customer. Access to specific trunk routes is allowed or denied to individual tenants through service change. Tenants who attempt to access denied routes receive normal intercept treatment.

Operating parameters

Multi-Tenant Service is not supported by Meridian Mail applications.

Traffic data is collected on a per customer basis only.

Tenants may have private or shared access to the Modem Trunk routes configured for their customer.

All tenants have access to their customer's Music trunks.

Tenants may have private or shared access to the Paging routes configured for their customer.

All tenants have access to their customer's recorded Announcement (RAN) trunks.

Individual tenants can be allowed or denied trunk access (private or shared) for the following trunk types: Add-on Data Module, Centralized Automatic Message Accounting, Common Controlled Switching Arrangement, Central Office, Direct Inward Dialing, Dictation trunk, Direct Outward Dialing, Foreign Exchange, Modem, Paging trunk, TIE, Wide Area Telephone Service.

There are no restrictions on calls which are routed to the following trunk types: Automatic Identification of Outward Dialing, Music trunk, Recorded Announcement, Release Link, Main, Release Link, Remote Emergency Recorder

Feature interactions

Access restrictions

Multi-Tenant Access restrictions affect the way that tenants interact with other tenants, trunk routes and Attendant Consoles.

In general, Multi-Tenant Access restrictions take precedence over the Meridian 1 features with which they interact.

For example, when a direct Tenant-to-Tenant call has been made, the called party cannot transfer the call to a different tenant if the first and third tenants are denied access to each other.

In addition to Class of Service and Trunk Group Access Restrictions (TGAR)/Trunk Access Restriction Groups (TARG) restrictions, Multi-Tenant Service may impose the following access restrictions:

- Tenant-to-Tenant,
- Tenant-to-Trunk Group,
- Tenant-to-Attendant Group, and
- Trunk Group-to-Attendant Group.

Attendant Administration

An Attendant can dial the access code and activate the Administration Mode for that CPG group. In this mode, attendants can modify the configuration of any set for this customer.

Internal calls

When the caller's tenant has access to the tenant of the night telephone or trunk route, calls are delivered to the ACD Night Call Forward DN. When the caller's tenant does not have access to the tenant of the night telephone or trunk route, callers receive normal intercept treatment.

Automatic Timed Recall

When Automatic Timed Recall (ATR) alerts the attendant and Multi-Tenant Services are in effect, the call is presented to an attendant in the same tenant group as the originally dialed DN.

Basic Authorization Codes

All tenants share their customer's Authorization Code tables; however, Tenant-to-Tenant and Tenant-to-Trunk Route specifications override Basic Authorization Codes (BAUT).

Call Detail Recording

With the Multi-Tenant Service, all tenants are included in CDR records. The tenant numbers of the originating and terminating parties are added to the CDR records as shown in Table 105.

Table 105
CDR record types and descriptions

CDR record type	Description
A	Authorization Code
C	Charge Account
E	End
L	Internal Record
M	Charge Conference
N	Normal
P	Calling Party Number
Q	Connect Record
S	Start

Tenant and customer numbers are included by the system in the CDR output to provide the customer with data for call billing and chargeback activities.

Call Forward All Calls

Originating Party COS

If the calling party (CFO) option is defined in the Customer Data Block (LD 15), inter-tenant Call Forward is allowed if the calling party's tenant has access to the tenant of the Call Forward DN as well as access to the tenant of the dialed DN. If the Call Forward DN is in a Tenant group inaccessible to the caller, the DN is treated as invalid, and the overflow tone is returned to the caller. An access check is done by the software.

Forwarding Party COS

If the forwarding party (CFF) option is defined in the Customer Data Block (LD 15), inter-tenant Call Forward is allowed if the Call Forwarding party's tenant has access to the tenant of the Call Forward DN. The local Telephone Company decides whether the option is defined.

Call Forward Busy

DID calls to a busy telephone are forwarded to an idle Attendant Console specified for the tenant of the dialed telephone.

Hunting and Call Waiting take precedence over Call Forward Busy.

Call Forward No Answer***Attendant option***

After a customer defined number of rings, an unanswered call is forwarded to an idle Attendant Console specified for the tenant of the dialed telephone.

Any DN option

If the tenant of the calling party has access to the tenant of the Call Forward DN, the unanswered call is forwarded to the Call Forward DN. If Tenant-to-Tenant Access is denied, the call is processed as if no CFNA-DN existed.

Secretarial Filtering

Calls receive Secretarial Filtering only if the tenant of the Call Forward DN is accessible by the tenant of the caller.

Call Forward No Answer, Second Level

All of the same operations apply to the forwarded DN with Second Level CFNA allowed.

Call Forward by Call Type

The originally dialed DN must have access to the tenant of the forwarding DN. This allows external calls to be easily forwarded to the programmed DN.

If the system is forwarding an internal call by CFCT, the originator must have access to the tenant of the programmed forwarding DN.

Call Park

Parked calls recall back to the Attendant who parked them. If that attendant goes into Position Busy mode, then the Parked call recalls to an attendant in the same CPG as the original. Recalls to Attendants going into Night Service mode are returned to the attendant queue until the caller abandons the call.

Call Transfer

A telephone user can transfer its original party to a third party only if the transferred parties can access each other. Software prevents joining tenants who are denied access to each other.

Calls Waiting Indication

The Calls Waiting Indication displays the calls waiting count for the customer. It is not tenant related, but because routes and tenants specify the consoles to which calls are automatically presented, it is possible that a non-zero call waiting count will be displayed. This occurs even though no calls are being presented to the console.

Centralized Attendant Service

Specific Attendant Consoles can be assigned to receive automatic presentation of incoming calls from Release Link-Main (RLM) trunks.

All tenants have access to Release Link-Remote (RLR) trunks.

Code restriction

The code restriction data configured for a customer, applies to all tenants belonging to that customer.

Conference

All members of a conference must have access to each other. Meridian 1 software runs an access check which prevents the addition of access denied tenants.

Controlled Class of Service

The tenant of the Controlled Class of Service Controlling Station must have access to the tenant of the controlled telephone in order to activate CCOS.

Departmental Listed DN

The Departmental Listed Directory Number (DLDN) takes precedence over Multi-Tenant Service. For either Dial-Zero or Recall, initiated from a tenant telephone, two events may occur. First, the call is presented to the DLDN attendant when the telephone has specified DLDN. Second, the call is presented to the console specified by the telephone's tenant when the telephone does not have DLDN specified.

Dial Intercom Group

The tenant of the dialing telephone must have access to the tenant of each telephone reached by Dial Intercom Group (DIG) dialing.

Electronic Switched Network

All tenants have access to the Electronic Switched Network (ESN) features specified at the customer level. Except for Tenant-to-Route access, all ESN features are identical for each tenant belonging to the same customer.

Coordinated Dialing Plan

All tenants are allowed access to all of a Coordinated Dialing Plan (CDP) if they are configured for access to TIE trunk routes that are a part of the CDP.

Flexible Call Back Queuing

The originating tenant must have access to an eligible route in the Call Back Queue (CBQ) route list.

Free Calling Area Screening

Free Calling Area Screening checks occur normally if the originating tenant has access to the selected route.

**Basic Alternate Route Selection
Network Alternate Route Selection**

All tenants have access to the BARS/NARS Access Codes of their customer. Tenants that do not share access to the selected route are denied access to that route.

Network Authorization Code

Network Authorization Code (NAUT) does not override Tenant-to-Route Access restrictions within the call originator's Meridian 1.

Network Speed Call (NSC)

All tenants have access to their customer's NSC lists. Any route selected via NSC must have Tenant-to-Route Access allowed.

Off-Hook Queuing (OHQ)

OHQ is allowed if the tenant has access to a route in the initial route list of their customer that is eligible for OHQ.

Flexible Hot Line

Flexible Hot Line allows designated telephones to place calls to a predetermined destination by going off hook. The Hot Line telephone's tenant must have access to the tenant of the Hot Line DN, or standard intercept treatment is provided.

Group Call

Group Call allows a QSU telephone user to place a call to up to 10 predefined DNs simultaneously by pressing a Group Call key. The tenant of the telephone initiating the Group Call must have access to the tenant of each member in the group. Restricted members are excluded from the group. The Meridian undertakes access checks the originator against each group member.

Hunting

Circular, Linear, Secretarial or Short Hunting routes call from a busy DN to the next idle DN in a prearranged group. If the DN being hunted is not accessible by the dialing telephone, it is handled as an invalid member in the hunting chain. Short Hunting requires that all DNs configured on a QSU telephone belong to the same tenant.

Hunting Route

One step Route Hunting takes place between routes of the same trunk type. Tenants share their customer's route hunting specification and can use the stepped to route if they have Tenant-to-Route Access allowed for the route.

Integrated Messaging System (IMS)

Tenants can share or be denied access to their customer's IMS.

Integrated Voice Messaging System (IVMS)

Tenants can share or be denied access to their customer's Integrated Voice Messaging Service (IVMS). Tenants who do not have direct access to each other can use the IVMS Broadcast capability to leave messages for each other.

Intercept Treatment

All tenants share the customer's intercept specification.

When Tenant-to-Route Access restricts a Basic Alternate Route Selection (BARS)/Network Alternate Route Selection (NARS) call, intercept treatment is the same as any invalid BARS/NARS call.

When an internal call intercepts to an attendant because of defined restrictions or dialing irregularities, it automatically presents the call to one of the Attendant Consoles specified for the calling tenant.

When intercept treatment includes a Recorded Announcement (RN) and Tenant-to-Tenant Access restricts a call, an Access Denied RAN plays.

Field Lamp Array

The Lamp Field Array, located on either an Attendant Console or a QSU telephone, indicates the busy/idle status of 150 consecutive DNs. These DNs are displayed regardless of Tenant-to-Tenant Access specifications of the array equipped tenant telephone. For this reason, the DNs assigned in the array should be accessible by the tenant of the array associated telephone.

Maintenance telephone

QSU telephones with maintenance allowed COS must be allowed access to all tenants, all trunk routes and all Attendant Consoles.

Manual service

When a manual telephone goes off-hook, the call is presented to an idle Attendant Console belonging to a group specified for its tenant.

Manual Trunk service

When an incoming trunk terminates on a DN, there is no access check. Incoming trunks terminate on an Attendant Console only if the console is specified for that manual trunk route.

Tenant-to-Route access checking is completed for outgoing manual trunk calls.

Multiple Appearance DNs

All appearances of a DN should reside on telephones belonging to the same tenant. When a multiple appearance DN is called, the last non-fully restricted Terminal Number (TN) in its TN list determines the terminating tenant number for Tenant-to-Tenant Access checking.

Multiple Listed Directory Numbers

Route-to-Attendant Console Access determines which Attendant Console Group receives automatic presentation of calls from a specific direct inward dialing (DID) trunk route. Each of the four DID LDNs are configured to have its calls presented at the loop key of specific Attendant Consoles by using DLDN.

Night Service

Automatic Call Distribution (ACD) allows special functionality for the system under certain conditions, such as Night Service.

The Night DN should be assigned as a customer resource so that when Night Service is in effect, all tenants have access to the Night DN for internal calls. Otherwise the call is treated as if no Night DN exists.

Position Busy

When all Attendant Consoles designated to receive incoming trunk calls from a particular trunk route are in Position Busy, incoming trunk calls from those routes are directed to the Trunk Night Service DN.

Office Data Administration System

Office Data Administration System (ODAS) does not contain tenant information.

Ring Again

Ring Again is permitted when the originating tenant has access to the destination tenant.

Ringing Number Pickup

Ringing Number Pickup (RNP) enables a telephone to answer calls to other telephones in the same RNP Group. All tenants have access to their customer's RNP Access Code. Members of an RNP group can only answer calls for other members if their tenant has access to the tenant of the calling party. For this reason, members of an RNP group are selected from telephones belonging to the same tenant. The calling party's access is checked against the called party by the Meridian 1.

Route Selection-Automatic Number Identification

All tenants can dial the Route Selection - Automatic Number Identification (RS-ANI) DN. The ANI route selected from the RS-ANI list is used only if the tenant of the originating telephone has access to the route.

Secrecy

The Secrecy option, specified for a customer, applies to all CPG attendants for that customer.

Speed Call

Speed Call allows a telephone user to place calls to specified DNs by dialing a two-digit code. A user of a Speed Call List receives normal intercept treatment if the tenant does not have access to the listed destination tenant.

Supervisory consoles

Supervisory consoles specified for a customer belong to one Console Presentation Group (CPG). In the Supervisory mode, ICI lamps show only the information for ICIs in that CPG. The thresholds specified in the Customer Data Block apply only to the CPG where that console resides, and they do not effect any other CPG.

System Speed Call

All tenants share their customer's System Speed Call (SSC) lists. When a System Speed Call DN is used Tenant-to-Trunk Route access restrictions apply.

Trunk Group Access Restrictions

All tenants share their customer's Trunk Group Access Restrictions (TGAR), but Tenant Service Access restrictions take precedence, even though the telephone COS and TGAR do not restrict access to a route. Normal intercept treatment is provided when Tenant Service Access is denied.

Trunk routes
Voice Call

Tenant-to-Tenant Access must be allowed between the Voice Call originating telephone and terminating telephone.

Feature Packaging

The following packages are required for Multi-Tenant Service:

- Multi-Tenant Service (TENS) is package 86, which requires:
 - Console Presentation Groups (CPGS) package 172.

Other features expected in a Console Presentation Group environment must be packaged for complete functionality. They are as follows:

- Centralized Attendant Service-Remote (CASR) package 26;
- Centralized Attendant Service-Main (CASM) package 27;
- Recorded Overflow Announcement (ROA) package 36;
- Attendant Overflow Position (AOP) package 56;
- The maximum number of route list entries for BARS/NARS is always 64, independent of the CPG Level Services package (172); and
- CPG services are mutually exclusive with Departmentally Listed DN's (DLDN).

Feature implementation

LD 93 – Enable, disable, or print Multi-Tenant Service for a specified customer. Ensure that the customer night DN and the attendant overflow DN (if assigned) are accessible by all tenants.

Prompt	Response	Description
REQ	NEW, OUT, PRT	Add, remove, or print.
TYPE	TENS	Tenant service data block.
CUST	xx	Customer Number.

LD 93 – Allow, deny, or print Tenant-to-Tenant Access for a specified tenant.

Prompt	Response	Description
REQ	CHG, PRT	Change, or print.
TYPE	TACC	Tenant-to-Tenant Access Data Block.
CUST	xx	Customer Number.
TEN	1-511	Tenant number. Tenant 0 is reserved for telephones with a TEND Class of Service.
ACC	DENY ALLOW	Tenants denied access are to be entered. Tenants allowed access are to be entered.
DENY	1-511 1-511 ALL	Tenant numbers denied access to and from this tenant (prompted if ACC = DENY). All tenant numbers denied access to and from this tenant (tenant can only access itself).
ALLOW	1-511 1-511 ALL	Tenant numbers allowed access to and from this tenant (prompted if ACC = ALLOW). All tenant numbers allowed access to and from this tenant.

LD 93 – Allow, deny, or print Tenant-to-Route Access for a specified trunk route.

Prompt	Response	Description
REQ	CHG, PRT	Change, or print.
TYPE	RACC	Tenant-to-Route Access Data Block.
CUST	xx	Customer Number.
ROUT	0-511	Route Number.
ACC	DENY ALLOW	Tenants denied access to the route are to be entered. Tenants allowed access to the route are to be entered.
DENY	1-511 1-511 ALL	Tenant numbers denied access to this route (prompted if ACC = DENY). All tenant numbers denied access to this route.
ALLOW	1-511 1-511 ALL	Tenant numbers allowed access to this route (prompted if ACC = ALLOW). All tenant numbers allowed access to this route

LD 93 – Add Attendant Console group.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	ACG CPG	Attendant Console group data block (Release 7 to 14). Console Presentation Group data block (Release 15 and later).
CUST	xx	Customer Number.
AGNO	1-63	Attendant Console group number. Attendant Console group 0 (AGNO 0) always exists and contains all Attendant Consoles configured for the customer.
ANUM	1-63 1-63	Add attendant console numbers (before X11 Release 8, only 15 Attendant Consoles are allowed).

LD 93 – Assign Tenant-to-Attendant Console access.

Prompt	Response	Description
REQ	CHG, PRT	Change, or print.
TYPE	TACG	Tenant-to-Attendant Console Group data block (Release 7 to 14).
	TCPG	Tenant -to-Attendant Console Group data block (Release 15 and later).
CUST	xx	Customer Number.
TEN	1-511	Tenant number. Tenant 0 is reserved for telephones with a TEND Class of Service.
AGNO	0-63	Attendant Console group number.

LD 93 – Assign Attendant Console access.

Prompt	Response	Description
REQ	CHG, PRT	Change, or print.
TYPE	RACG	Route-to-Attendant Console data block (Release 7 to 14).
	RCPG	Route-to-Attendant Presentation Group data block (Release 15 and later).
CUST	xx	Customer Number.
ROUT	0-511	Route Number.
AGNO	0-63	Attendant Console group number.

LD 10 – Add Multi-Tenant Service assignments on Analog (500/2500) telephones.

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

TN	I s c u c u	Terminal Number. For Option 11.
CLS	(TENA) TEND	Tenant Service Allowed. Tenant Service Denied (station shares customer resources and is a non-tenant). TEND is the default for Release 22.
TEN	1-511	Tenant number (prompted if CLS = TENA). Tenant 0 is reserved for telephones with a TEND Class of Service.

LD 11 – Add Multi-Tenant Service assignments on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u c u	Terminal Number. For Option 11.
CLS	(TENA) TEND	Tenant Service Allowed. Tenant Service Denied (station shares customer resources and is a non-tenant). TEND is the default for Release 22.
TEN	1-511	Tenant number. Tenant 0 is reserved for telephones with a TEND Class of Service. Prompted if CLS = TENA.

Feature operation

No specific operating procedures are required to use this feature.

Multi-User Login

Meridian 1 Multi-User Login (MULTI_USER) package 242 enables up to three users to log in, load, and execute overlays simultaneously. These three users are in addition to an Attendant Console or maintenance terminal. The Multi-User Login capability increases the efficiency of technicians by enabling them to perform tasks in parallel.

For a complete description of Multi-User Login, please refer to *X11 system management applications* (553-3001-301).

Music

The Music Package supports Music on Hold and Automatic Call Distribution (ACD) Music on Delay. One or more music sources can be connected to one or more music trunks on peripheral equipment. Each music trunk is assigned to a music route and to a conference loop. Incoming callers are bridged into a listen-only conference and provided with music when on hold or when waiting for an ACD call to be answered.

Music on Hold

This feature allows incoming calls over a CO, FX, WATS, DID, or TIE trunk to receive music if placed on hold. Music is provided only if the trunk route is defined to receive music. The trunks selected to receive music are provided with a listen-only path to a music conference connection.

Music is provided by a dedicated music trunk by means of the conference circuit.

To minimize blocking of the music conference, at least two conference loops must be assigned in each network group requiring music. The loop with the higher number should not be assigned to music trunks.

Operating parameters

Music is provided by a Recorded Announcement (RAN) or universal trunk circuit card.

Only trunks assigned to a route specified by service change receive Music on Hold.

When a call is held, the system looks for a network path to provide the music. If a path is not found, no music is heard.

When a Universal trunk card is used, Music and RAN trunks can be assigned to the same card.

Connections blocked once are not automatically attempted again.

Simple source-only connections on the Attendant Console receive music; all others do not.

Main Release Link Trunks do not receive music.

Calls to special trunks (such as Paging or Dictation) do not receive music if placed on hold.

The music trunk Terminal Number (TN) must be within the same network group as the conference circuit to which it is assigned.

One music trunk per customer must be located in each network group requiring music.

Music is not supplied across groups (if group 4 does not have a music trunk and groups 0-3 have music trunks, an incoming call to group 4 placed on hold will not receive music).

A single conference loop with one music trunk assigned can support up to 29 simultaneous listeners.

If more than one music trunk is assigned to one conference loop, they must use different routes. The total number of possible listeners is 30 minus the number of assigned trunks. Additional music trunks and conference loops can be configured if required.

The music source must be compatible with the music trunk circuit pack.

Feature interactions

Attendant Trunk Group Busy Indication

A music route that appears on a Trunk Group Busy key on the Attendant Console cannot be controlled by activation of the Trunk Group Busy key. In addition, the associated lamp will not reflect the status of the music trunks.

Call Park

When a call is parked, music is not heard. When a trunk is parked, music plays if music is enabled for the route.

Conference

With basic Music on Hold, when a call is placed on consultation hold while a Conference is being established, music does not play. Enhanced Music (EMUS) package 119 is required for music on consultation hold. For more information on the “Music Enhanced” module refer to “Music, Enhanced” on page 1389 of this document.

Recovery on Misoperation of Attendant Console

Music on Hold, if allowed, is applied to calls put on hold due to AUTOHOLD on the LOOP key option.

Feature packaging

Music (MUS) package 44 requires:

- Recorded Announcement (RAN) package 7.

Music on Delay

Music on Delay presents a listen-only path to a music source for calls waiting in ACD queues. Music on Delay sources are identified separately for each Automatic Call Distribution Directory Number (ACD DN). Complete details are described in *Automatic Call Distribution feature description* (553-2671-110).

Feature implementation

LD 17 – Add or change conference loops for Music on Hold.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN CEQU	Configuration Record. Release 19 gate opener.
CEQU	(NO), YES	Change to CE parameters.
- XCT	0-158	Loop number for NT8D17 Conference/TDS/MFS card. Enter an even network loop number for TDS/MFS functions. The conference function is automatically assigned the next higher (odd) loop number.
- CONF	0-158	Loop number for conference card.

LD 16 – Add or change a music route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
TKTP	MUS	Music route.
ICOG	OGT	Outgoing route only.
ACOD	xxxx	Trunk route access code.
Note: All other prompts can be set to default values.		

LD 14 – Add or change a music trunk.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	MUS	Music trunk.
TN	l s c u	Terminal Number.
CUST	0-99	Customer number.
RTMB	xxx yyy	Route number and member number.
CFLP	0-158	Conference loop assigned to music in LD 17.

LD 16 – Enable/disable Music on Hold for trunk routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	COT, DID, FEX, TIE, WAT	Route type.
MUS	(NO), YES	Music on Hold (is not) or is to be provided for this trunk route.
MRT	xxx	Music route number.

LD 23 – Enable/disable Music for an Automatic Call Distribution Directory Number.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	ACD	Update the ACD data block.
CUST	0-99	Customer number.
ACDN	xxx...x	ACD DN.
MURT	X, 0-511	Music route number. X = remove route.

Feature operation

No specific operating procedures are required to use this feature.

Music Broadcast

The Music Broadcast feature expands existing Music functionality. This feature provides the following enhancements:

- Broadcast Capabilities
- Incremental Software Management limit
- Traffic Study Option

Broadcast Capabilities

Existing Conference-based Music features require that each Music trunk be assigned to a Music route and to a Conference loop. Incoming callers are bridged into a listen-only conference and provided with music while on call hold or call waiting in an Automatic Call Distribution (ACD) environment. The existing Conference-based Music features support intra-group music only. Therefore, each network group must be provided with its own Music trunk.

The Music Broadcast feature allows the Meridian 1 system to broadcast music to several parties at one time via a single Music Broadcast trunk port. This feature supports Music on Hold (MOH). Music is now delivered via X11 software; hence, Conference hardware is not required. It is no longer necessary to share Conference resources with Conference features, such as Conference and Group Call. Music Broadcast supports both intra-group and inter-group music. Therefore, a Music trunk in each network group is not required.

A Music Broadcast call consists of several one-way connections from the Music trunk to each caller. The Music Broadcast feature reduces the number of timeslots required for callers to listen to music while on call hold or call waiting in an Automatic Call Distribution (ACD) environment. One timeslot is required to enable Music trunk broadcasts. In addition, each party listening to music through the broadcasting music trunk requires one broadcast connection. The extra speech path resources that are needed for the existing Conference-based Music are unnecessary for Music Broadcast.

Incremental Software Management

An Incremental Software Management (ISM) limit is introduced for the Music Broadcast feature. This limits the total number of Music Broadcast connections allowed on a system. The ISM limit can be allocated over different Music routes and trunks. ISM allows a total of 64 Music Broadcast connections on one trunk at one time. If one trunk is configured with 64 connections, when the limit is reached, the 65th caller hears silence. The Music trunk is no longer available until a call disconnects. When a call disconnects, the next caller receives one of the Music Broadcast connections and receives music. However, the 65th caller still hears silence, even though a connection has become available.

If a customer has 64 connections configured on one trunk but requires more connections, additional trunks can be added to their system and additional connections can be purchased incrementally to a maximum of 9,999 connections. For example, should this customer require a total of 124 connections, an additional trunk and an additional 60 connections can be added to their original configuration. This provides the customer with a total of 124 connections (64 connections + 60 connections).

Overlay 22 is modified to print the new ISM information for Music Broadcast connections. The existing SLT command prints the ISM information for the system.

The existing ISM header in Overlay 14 is modified to indicate the number of Music Broadcast connections allowed for the system. AVAIL shows the system's ISM limit for Music Broadcast connections. USED shows the number of configured Music Broadcast connections (the total number of Music Broadcast trunks for the system multiplied by the maximum number of connections per trunk). TOT shows the maximum number of Music Broadcast connections that can be supported on one system (AVAIL + USED).

The existing TN information shown in the ISM header in Overlay 14 is not modified by the Music Broadcast feature, as the amount of Music Broadcast trunk TNs is not checked against the ISM limit at SYSLOAD. The Music Broadcast ISM limit pertains to Music Broadcast connections only and not to TNs.

Figure 58 is an example of the updated header:

Figure 58
ISM header in Overlay 14

TNS	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
MUS CON	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

Option 11C and Input-Output Disk Unit with CD-ROM (IODU/C) customers can modify ISM parameters via keycode. A keycode is a machine-generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects ISM parameters.

In order for Option 11C and IODU/C customers to expand ISM limits, they must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in Overlay 143. To make the expansion effective, the customer must sysload. For further information on keycode installation, please refer to *Software conversion procedures*.

For customers without Option 11C or IODU/C, ISM parameters are delivered as per existing operation.

For further information on ISM, refer to the Incremental Software Management feature module in *X11 features and services*.

Traffic Study Option

The Traffic Period Option (TPO) allows a customer to enhance their TFC002 reports to accumulate trunk usage data after every traffic period instead of accumulating usage only after a call disconnects. With this option enabled in Overlay 17, the Common Channel Signaling (CCS) associated with lengthy calls is reported in each traffic report interval throughout the duration of the call.

Previously, this feature did not apply to RAN and Music trunks. With the introduction of Music Broadcast, however, a Music call may last for an extended period of time. Therefore, changes are made to the Trunk Traffic Reporting Enhancement with the introduction of TFC111. The TFC111 report provides information on the usage of broadcasting routes. For the TFC111 report to be output, customer report number **11** must be selected using the SOPC command in Overlay 2. For example, for Customer 0, SOPC 0 11 is entered. To print the TFC111 report, the TOPC command in Overlay 2 is used. For example, for Customer 0, TOPC 0 11 is entered. The TFC 111 report is also printed when automatic traffic reports are scheduled in Overlay 2.

The System Traffic message, TFS 0503, is output each time a music request cannot be completed because the total number of active Music Broadcast connections is equal to the system's ISM limit.

Figure 59 is an example of the customer report, TFC111, for Music Broadcast routes.

Figure 59
TFC111 Report for a broadcasting music route

0200 (System ID)	TFC111	
000 (Customer number)		
030 (Route number)	MUS (Trunk type)	
001132 (Successful broadcast connections peg count)	00016 (Average call duration)	00000 (Unsuccessful broadcast connections peg count)
00000 (Broadcast connections peg count for lowest usage trunk)	00000 (Broadcast connections peg count for second lowest usage trunk)	00002 (Broadcast connections peg count for third lowest usage trunk)

Operating parameters

Music Broadcast requires any Music trunk and an external music source **or** a Meridian Integrated RAN (MIRAN) card (NTAG36). MIRAN has the capability to provide audio input for external music.

A Conference loop is not required for Music Broadcast.

With the Music Broadcast package configured, both existing Conference-based Music and Music Broadcast can co-exist on the same system. The type of Music is dependant upon the BDCT prompt in the Route Data Block.

The Music Broadcast feature is applicable to Music routes only.

To upgrade an existing non-broadcasting Music route to a broadcasting Music route, the REQ prompt must be set to CHG and the BDCT prompt must be set to YES in Overlay 16.

A broadcasting Music route may only be changed to a non-broadcasting Music route if it is first removed in Overlay 16 and then added back into the system as a non-broadcasting Music route by setting the BDCT prompt to NO. In this case, the CFLP prompt in Overlay 14 must be defined, and the Conference loop number for the non-broadcasting Music route must match the loop number that was set previously in Overlay 17.

If more than 64 Music Broadcast connections are required due to high traffic, additional trunks, each with up to 64 Music Broadcast connections, can be added. This same Music source can be cross-connected to all Music trunk TNs within a particular Music Route.

When more than one Music trunk is attached to a broadcasting Music route, a trunk is first sought within the caller's own group. An already active trunk is chosen initially in order to give music to the requesting party. If there is not a Music trunk that is already active or if all active Music trunks already have the maximum number of callers connected, an idle trunk is sought. If an idle trunk is found, the call is connected. If there are no trunks available within the caller's group, trunks in other groups are sought.

Although Music Broadcast supports inter-group music, it is advisable that for multi-group systems with high inter-group traffic, a Music trunk be provisioned in each network group to reduce junctor traffic.

Several routes can be supported via Music Broadcast; hence, different types of Music are also supported. On multi-group systems, however, network group junctor traffic limitations may cause difficulty in supporting several types of music on one system. In this case, additional trunks and additional connections can be added to the system.

If blocking occurs, silence or ringback tone is given by the features requesting music.

When the actual number of Music Broadcast connections in use is equal to the ISM limit, another connection is not allowed. In this case, the Blocking operation is retained. Therefore, silence or ringback tone is given by the features requesting music. This information is output in the Traffic report (TFS 0503).

The total number of Music Broadcast trunks multiplied by the maximum number of Music Broadcast connections per trunk may be greater than the ISM limit. The ISM limit of Music Broadcast connections is shared between different types of Music routes.

When a Music Broadcast trunk port is forced to disconnect through maintenance, all connected callers hear silence but remain on hold.

Only those calls receiving music in an ACD queue are restored by the INIT ACD Queue Call Restore feature following a system initialization. Any other calls receiving music are dropped, and the callers hear silence.

Feature interactions

Call Detail Recording

Due to the number of callers that can be connected to a broadcasting Music trunk at one time, Call Detail Recording (CDR) is not supported on broadcasting Music routes.

Note: CDR is prompted for Music routes in Overlay 16. However, even if CDR is set to YES, a CDR record will not be output for Broadcasting Music routes.

Integrated Call Center Management

The Integrated Call Center Management (ICCM) broadcast capability on a Meridian 1 is independent of the Music Broadcast capability which is applicable only to Music routes. This ICCM broadcast capability applies only to Interactive Voice Response (IVR) voice ports.

The script command GIVE MUSIC <music route number> connects a call to the specified Music route. The Music Broadcast feature is applied if appropriate.

The script command GIVE BROADCAST ANNOUNCEMENT {NOT INTERRUPTIBLE} <acd_dn> {WITH TREATMENT <treatment>} applies to IVR ports only, and the ICCM broadcast capability is applied in this case.

Meridian Interactive Voice Response

Interactive Voice Response (IVR) interacts with the Music Broadcast feature, using the existing functionality of a non-broadcasting Music Route.

Recorded Announcement Broadcast

The Recorded Announcement (RAN) Broadcast feature is applicable to RAN only, and the Music Broadcast feature is applicable to Music only.

Feature packaging

Music Broadcast (MUSBRD) is package 328. The following packages are also required to provide Music Broadcast capability:

- Music (MUS) package 44
- Recorded Announcement (RAN) package 7

To provide Music Broadcast capability to Enhanced Music (EMUS) features, the Enhanced Music (EMUS) package 119 is also required.

Feature implementation

Music Broadcast

LD 16 – Upgrade an existing non-broadcasting Music route to a broadcasting Music route.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	MUS	Music Trunk Data Block.
ICOG	OGT	Outgoing only Trunk.
...		
BDCT	YES	Allow Broadcast capability. NO = Deny Broadcast capability (default). If BDCT = YES, no conference loop is required. Each Music trunk has 64 broadcast connections.

Conference-based Music

LD 16 – Define a Conference-based Music route.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	MUS	Music Trunk Data Block.
ICOG	OGT	Outgoing only Trunk.
...		
BDCT	NO	Deny Broadcast capability. YES = Allow Broadcast capability. If BDCT = YES, no conference loop is required. Each Music trunk has 64 broadcast connections.

LD 14 – Configure new Conference-based Music trunks.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	MUS	Music trunk.
TN	l s c u c u	Terminal number. For Option 11C.
...		
RTMB	0-511 1-254 0-127 1-254	Route number and Member number. For Option 11C. The Route number is specified in LD 16.
...		
CFLP	0 - 158	Music Conference Loop. Prompted only for non-broadcasting Music routes.

Feature operation

No specific operating procedures are required to use this feature.

Music, Enhanced

Enhanced Music (EMUS) provides music for internal and external calls. Music is provided when telephones are placed on Hold, Consultation Hold, and Camp-On and when calls at the Attendant Console are split using the “Exclude Source/Destination” keys.

Enhanced Music (EMUS) provides music in situations described in Table 106.

Table 106
Features vs. no Music, Music, and Enhanced Music

	Without Music		Music		Enhanced Music	
	Sets	Trunks	Sets	Trunks	Sets	Trunks
ROA Waiting	No	No	Yes	Yes	Yes	Yes
Call Park	No	No	Yes	Yes	Yes	Yes
ACD Music	No	No	Yes	Yes	Yes	Yes
Hold Key	No	No	No	Yes	Yes	Yes
Permanent Hold	No	No	No	Yes	Yes	Yes
Consultation Hold	No	No	No	No	Yes	Yes
Splitting	No	No	No	Yes	Yes	Yes
Camp-On	No	No	N/A	Yes	N/A	Yes

Operating parameters

The requirements for Enhanced Music on Hold are the same as for Music on Hold. For more information on this refer to the “Music” on page 1373 module in this document.

Trunks receive Music on a route basis. Telephones receive Music on a customer basis.

Feature interactions

Enhanced Music on Hold has the same feature interactions as Music on Hold. In addition, it has interactions with the following features:

Busy Verify

When the attendant attempts to Busy Verify a telephone receiving Music, the Music is removed. When the attendant releases, Music is returned.

Call Transfer

The held party receives Music when the other party presses the Call Transfer key. The Music connection remains until the Call Transfer key or the DN key is pressed, ending the Consultation Hold state.

Charge Account and Calling Party

The Charge Account (CHG) and Calling Party (CPN) keys place the far end party on Hold while a charge number is entered. The held party receives Music during this period.

Conference

The held party receives Music when the Conference key is pressed, while the conference is being established, and whenever the conference is reduced to two parties with one party on Hold. Once the conference is established, Music is no longer provided.

A Six-party Conference operates the same as a Three-party Conference.

Deluxe Hold

A caller placed on Hold by a member of a multiple appearance group receives Music regardless of whether the call is on Hold or Exclusive Hold.

Privacy Release

When using Privacy Release to add one or more members to a call already receiving Music, the Music is removed.

M3000 Telephones

The Switch Parties key allows Music to the party on Hold and ends Music to the other party each time it is pressed.

Feature packaging

Enhanced Music (EMUS) package 119 requires:

- Music (MUS) package 44, and
- Recorded Announcement (RAN) package 7.

Feature implementation

LD 17 – Add or change Conference loops for Music on Hold.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN CEQU	Configuration Record. Release 19 gate opener.
CEQU	(NO), YES	Change to CE parameters.
- XCT	0-158	Loop number for NT8D17 Conference/TDS/MFS card. Enter an even network loop number for TDS/MFS functions. The conference function is automatically assigned the next higher (odd) loop number.
- CONF	0-158	Loop number for conference card (must be an even numbered loop).

LD 15 – Enable/disable Music for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- MUS	(NO), YES	Enhanced music for telephones.
- MUSR	0-511	Music route for telephones.

LD 16 – Add or change a Music route.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
TKTP	MUS	Music route.
ICOG	OGT	Outgoing route only.
ACOD	xxxx	Trunk route access code.
Note: All other prompts can be set to default values.		

LD 14 – Add or change a Music trunk. At least one Music trunk per network group is required for each customer requiring Music.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	MUS	Music trunk.
TN	l s c u	Terminal Number.
RTMB	xxx yyy	Route and member number.
CFLP	0-158	Conference loop assigned to music in LD 17.

LD 16 – Enable/disable Music on Hold for trunk routes.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route data block.
CUST	0-99	Customer number.
TKTP	COT, DID, FEX, TIE, WAT	Trunk type.
MUS	(NO), YES	Music on Hold (is not) is to be provided for this trunk route.
MRT	0-511	Music route number.

Feature operation

No specific operating procedures are required to use this feature.

N Digit DNIS

Dialed Number Identification Services (DNIS) presents the Automatic Call Distribution (ACD) call to an agent's set or terminal. The incoming call displays the DNIS digits which represent product lines or services. The displayed DNIS digits reduces the time needed to service a call and the additional information helps the agent provide a greater degree of customer service. The ACD Routing by DNIS number routes the call to a specific ACD DN based on the DNIS number dialed.

With the N Digit DNIS feature, the DNIS length expands to a maximum number of 31 digits. Both ACD and Network ACD (NACD) support the N Digit DNIS feature.

Operating parameters

If the system initializes during an active call, DNIS information is lost.

M911 trunks cannot be configured as DNIS trunks.

X11 system messages for the Time Slot Monitor (TSM) supports 31 digits of DNIS.

To use the full functionality of N Digit DNIS with NACD, all systems must be running X11 Release 24 software. Other scenarios are described in the following:

- If an NACD system is running X11 Release 24 software or later on one node and pre X11 Release 24 on another node, the DNIS information display is one to seven digits.
- If a system node is running pre X11 Release 20 software, the DNIS routes are configured for three to four digits.

Applications and features display DNIS in the following ways:

- Meridian MAX 9.0 and later supports up to nine digits of DNIS information. Nine digits of DNIS information are sent over the High Speed Link (HSL). The first or last nine digits of DNIS information is sent depending on the configuration of the WDT prompt in the RDB block.
- Auxiliary Processor Link (APL) supports four DNIS digits. If the DNIS information is longer than four digits, the first or last four digits are sent over the APL depending on the configuration of the WDT prompt in the RDB block.
- Call Detail Recording (CDR) supports up to seven digits of DNIS digits. If more than seven digits of DNIS are received, the first or last seven digits are displayed on the CDR, depending on the configuration of the WDT prompt in the RDB block.
- The CDR format on pre X11 Release 18 software (or NCDR = NO) supports the display of four digits. First or last seven digits are displayed, depending on the configuration of the WDT prompt in the RDB block.
- Call Party Name Display (CPND) supports name configuration up to seven digits of DNIS. If the DNIS information is more than seven digits, a name is not configured.
- Feature Group D supports seven digits of DNIS information.
- The agent's set is limited to 12 digits of DNIS display. If more than 12 digits of DNIS are received, the first 12 or the last 12 digits of DNIS are displayed, depending on the configuration of the WDT prompt in the RDB.

Feature interactions

Automatic Call Distribution DNIS routing through IDC table

The Incoming Digit Conversion (IDC) table converts the DNIS digits to a valid DN. With the N Digit DNIS feature, the DNIS information is expanded to a range of one to 31 digits. The maximum number of DNIS digits that are translated by the IDC tree to an internal DN is limited to 16, due to the DC feature.

Application Module Base

Meridian 1 is connected to Application Module Base (AM Base) through Application Module Link (AML). DNIS information is in AML messages; therefore, the AM Base supports the expanded DNIS information.

Application Module Link (AML) messages

Call presentation and call modification receives DNIS through AML messages. Messages related to DNIS go through the AML to the Meridian Link Module to the Customer Controlled Routing (CCR).

Call Detail Recording

The Call Detail Recording supports up to seven DNIS digits. If the DNIS digits exceeds seven digits, the Call Detail Recorder (CDR) uses the first or last seven digits, depending on the configuration of the WDT prompt in the RDB block.

Customer Controlled Routing

Customer controlled routing (CCR) uses the DNIS number to determine which call processing treatment is used for a DNIS trunk call.

Digit display for DNIS

The agent set is limited to a display of 12 DNIS digits. If the digits exceed the set's display capabilities, the first or last 12 DNIS digits are displayed depending on the configuration of the WDT prompt in the RDB block.

Host Enhanced Routing

The Meridian Link's Host Enhanced Routing allows an incoming call to be routed before call termination. An Incoming Call (ICC) message sent to the Meridian Link Module contains calling party information, DNIS information, and Controlled Directory Number (CDN).

Meridian Link Interactions

Any ringing message sent to the Meridian Link over the AML contains expanded DNIS information. The Meridian Link sends this expanded information to the host application.

Meridian Mail

Meridian Mail receives DNIS digits over the Command Status Link (CSL). The DNIS message contains one to 31 DNIS digits, instead of the previously supported one to seven digits. Since Meridian Mail limits DNIS digits to 30, the AML message uses 30 digits.

Meridian MAX

Meridian 1 communicates with Meridian MAX, ACD MAX, or ACD AUXILIARY through High Speed Link (HSL). Meridian MAX 8.0 or later supports nine digits of DNIS.

Network Automatic Call Distribution

The Network Automatic Call Distribution (NACD) sends and receives DNIS calls to a remote node through an NACD-Call Setup message. The remote node receives and saves the expanded one to 31 digits of a DNIS message.

Symposium Call Center Server

The interaction of N Digit DNIS with Symposium Call Center Server (SCCS) is the same as its interaction with Customer Controlled Routing (CCR) and AM Base. Any AML message sent to the AM Base contains expanded DNIS information. AM Base supports the expanded DNIS information. Symposium supports seven digits of N Digit DNIS information.

Feature packaging

This feature is packaged as part of the existing DNIS package 98.

Feature packages required for the N Digit DNIS are:

- Dialed Number Identification System (DNIS) package 98
- Automatic Call Distribution (ACD A) package 45
- Digit Display (DDSP) package 19
- Incoming DID Digit Conversion (IDC) package 113
- New Format Call Detail Recording (FCDR) package 234
- New Flexible Code Restriction (NFCR) package 49

Feature implementation

The Route Data Block is modified to allow up to 31 digits for a DNIS prompt.

Configure the following overlays for full functionality of DNIS messaging:

- Define SDI port for Auxiliary Processor Link in Load 17.
- Define Incoming Digit Conversion table in Load 49.
and
- Define IDC-DNIS route in Load 16.

OR

- Define a trunk that auto-terminates on ACD-DNIS in Load 14.
and
- Define a route Auto Terminate Route in Load 16.
- Define APL Link number, enable the Incoming Digit Conversion (IDC) operation to include DNIS for a customer in Load 15.
- Define ACD group in Load 23.

LD 17 – Define SDI port for Auxiliary Processor Link.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CFN	Configuration Record.
ADAN	NEW TTY 0-15	Add an APL port.
CTYP	aaaa	Card type. aaaa = DCHI, SDI, SDI2, SDI4.
USER	APL	APL port connects to data link.

LD 49 - Define Incoming Digit Conversion (IDC) table.

Prompt	Response	Description
REQ	NEW	Add new data.
	CHG	Change existing data.
TYPE	IDC	Type of data block (FCR or IDC).
CUST	xx	Customer number xx as defined in LD 15.
DCNO	0-254	Incoming Data Conversion (IDL) tree number.
...	...	...
...	...	...
IDGT	0-99999999 0-99999999	Incoming digits to be converted to ACD DN.
	<CR>	Re-prompt request.

AND

LD 16 - Define Incoming DID Digit Conversion DNIS route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
CUST	xx	Customer number xx as defined in Load 15.
ROUTE		Route number.
	0-127	This range applies to Option 11C.
	0-511	This range applies for machines 51C, 61C, 81, 81C.
...	...	...
AUTO		Auto-terminate.
	NO	YES = The route members terminate on DN defined by response to ATDN prompt in Load 14. NO = The route members terminate normally.
DNIS	YES	ACD DNIS route.
--NDGT	1-(4)-31	Number of DNIS digits required on the route. The extension 31 digits is available only for DID, TIE or IDA routes.
--WDGT	(L)F	First or last DNIS digits to be sent on APL and HSL link. Where: F = First, L = Last (default) WDGT has no effect on AML Links. All DNIS digits are sent for AML. Prompted if NDGT is greater than four. Also used for CDR when the New Format CDR (FCDR) package 234 is disabled. First or last 4 digits for APL. First or last 12 DNIS digits for digit display. First or last 9 DNIS digits for MAX. First or last 7 DNIS digits for CDR.
--IDC	YES (NO)	Incoming DED digit conversion on this route YES = Allow Incoming DID Digit Conversion on this route. (NO) = Deny Incoming DID Digit Conversion on this route.

--DCNO	0-254	IDC translation table for this route in the day mode.
--NDNO	0-254	IDC Conversion Table for the night mode.

OR

LD 14 – Define a trunk that auto-terminates on ACD-DNIS.

Prompt	Response	Description
REQ	NEW	Add a trunk.
TYPE	DID	Direct Inward Dialing trunk type.
RTMB	x y	x = Route number defined in LD 16. y = member number.
ATDN	xxxx	xxxx = ACD-DN defined in LD 23.
CLS	DTN	Digitone signaling.

AND

LD 16 – Define a route with DNIS feature enabled and AUTO-terminate.

Prompt	Response	Description
REQ	NEW	Add a new data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number xx as defined in LD 15.
ROUT	0-127 0-511	Route number. 0-127 = This range applies to Option 11C. 0-511 = This range applies for machines 51, 51C, 61, 61C 71, 81, and 81C. Note: In X11 Release 14 and later, route 31 is no longer reserved as a Private route but can be configured as one.
...	...	
AUTO	YES	Auto-terminate trunk. YES = YES = the route members terminate on DN defined by response to Auto Terminate Directory Number prompt in D 14. (NO) = The route members terminate normally at the console.
DNIS	YES	ACD-DNIS route. YES = allow the ACD DNIS route. (NO) = Deny the ACD DNIS route. Prompted with Automatic Call Distribution Package D. (ACCDD) package 50, and the RTYP = TIE or Direct Inward Dialing (DID).
NDGT	1-(4)-7 1-(4)-31	Number of DNIS digits required on the route. The extension to 31 digits is available only for DID, TIE or IDA routes.

WDGT	(L) F	First or last 4 DNIS digits to be sent on APL and HSL link. WDTG has no effect on AML links. All DNIS digits are sent for AML.. Prompted if NDGTR is greater than 4. Also used for CDR when the New Format CDR (FCDR) package 234 is disabled. Note: The number of (MFX), MFE or MFC digits takes precedence over the number of DNIS digits that are configured.

LD 15 – Define APL Link number, enable the Incoming Digit Conversion (IDC) operation to include DNIS for a customer.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FCR	Disable/Enable New flexible code Restriction. Flexible Code restriction.
CUST:	xx	Customer number.
NFCR	YES	New Flexible Code Restriction. (NO) = Default, disable New Flexible Code Restriction. YES = Enable New Flexible Code Restriction. To build an Incoming Digit Conversion (IDC) table in LD 49, NFCR and Incoming DID Digit Conversion (IDCA) must be set to YES. NFCR is prompted with New Flexible Code Restriction (NFCR) package 49.
-MAXT	1-255	Maximum number of New Flexible Code Restriction (NFCR) tables. Once defined a lower value cannot be entered for MAXT. The sum of the values for MAXT + DCMX $\leq$ 255 per customer.

IDCA	(YES	Incoming DID Digit Conversion. (NO) = Default. Deny Incoming DID Digit Conversion. YES = Allow Incoming DID Digit Conversion. NFCR must = YES before IDCA can = YES. Prompted with Incoming Digit Conversion (IDL) package 113.
-DCMS	1-255	Digit conversion maximum number of tables (DCMS). The sum of the values for MAXT and DCMX cannot exceed 255 or MAXT + DCMX = 255.

LD 23 – Define ACD group.

Prompt	Response	Description
REQ	NEW	Add ACD group.
TYPE	ACD	ACD data block.
CUST	xx	Customer number.
ACDN	xxxx	ACD Directory Number.

Feature operation

No specific operating procedures are required to use this feature.

New Flexible Code Restriction

New Flexible Code Restriction (NFCR) controls the access of Toll Denied terminals to outgoing trunk routes and digits dialed on them. Calls are allowed or denied based on the specific digit sequence dialed.

Toll Denied (TLD, CTD, CUN) telephones and trunks are assigned a Network Class of Service (NCOS) and are allowed or denied calling privileges according to the Facility Restriction Level (FRL) assigned to their NCOS. If, however, a user who has CTD or CUN Class of Service has dialed the call using a Basic Alternate Route Selection (BARS), Network Alternate Route Selection (NARS), Coordinated Dialing Plan (CDP), or Automatic Number Identification (ANI) access code, the NFCR restrictions do not apply. For these users, NFCR applies only on direct trunk access code type calls. TLD users are always affected no matter how their call is dialed.

When a user accesses an outgoing route, the user's assigned FRL determines which digits are allowed or denied on that route. Up to eight FRL codes can be assigned per trunk route. When a user dials denied digits following direct trunk access codes, intercept treatment is given. NFCR can be programmed to deny certain outpulsed digits, not dialed digits, when Electronic Switched Network (ESN) calls are to be denied for TLD users.

Using "code restriction trees," NFCR can be programmed to analyze each digit individually and allow or deny a call on the basis of any digit or digit sequence dialed. There can be up to 255 code restriction trees per customer group. Each trunk route can access up to eight trees, and each tree can be used by more than one route. The code restriction tree corresponding to the terminal user's FRL is defined by the trunk route. Digits can also be bypassed and allowed to process with no restriction; however, certain digits that follow these might be restricted.

NFCR can be programmed to count the number of digits dialed and deny any call exceeding the specified number of digits. If a user dials an octothorpe (#) before NFCR has finished digit counting, the call is disallowed and intercept treatment is given. This prevents digits from 2500 sets or Dual-tone Multifrequency (DTMF) trunks from being outpulsed before being counted or analyzed by code restriction. Up to 50 digits can be analyzed.

Operating parameters

New Flexible Code Restriction (NFCR) can be programmed to count the number of digits dialed and deny any call exceeding the specified number of digits.

Only the digits zero (0) through nine (9) are considered. If a user dials an asterisk (*), it is not counted as a dialed digit. If the user dials an octothorpe (#) before NFCR has finished digit counting, the call is disallowed and the appropriate intercept treatment is provided. This prevents digits from 2500-type telephones or Dual-tone Multifrequency (DTMF) trunks from being outpulsed before being counted or analyzed by code restriction.

As many as 255 code restriction trees are available per customer. Eight code restriction trees can be referenced by each trunk route.

Up to 50 digits can be analyzed by NFCR.

When Code Restriction (LD 19) and NFCR (LD 49) are both enabled for the same customer, NFCR takes precedence. Any parameters required for Code Restriction are ignored.

Feature interactions

Attendant Blocking of Directory Number

When the attendant has a blocked DN on the source side and dials on the destination side, any New Flexible Code Restriction active for the set of the blocked DN will be overridden. This is the same as if the attendant had a normal established call to the DN on the source side and dials the destination side.

Authorization Code

If the Class of Service of the authorization code is Toll Denied (TLD), NFCR is applied. If the Class of Service is Conditionally Unrestricted (CUN) or Conditionally Toll Denied (CTD) and the call is not routed through BARS/NARS, CDP or ANI, NFCR is applied.

Automatic Number Identification (ANI)

Calls from Toll Denied (TLD) stations routed by ANI are subject to NFCR. Calls placed by Conditionally Toll Denied (CTD) and Conditionally Unrestricted (CUN) Class of Service stations subject to ANI are treated as unrestricted calls.

Automatic Redial (ARDL)

ARDL calls must pass New Flexible Code Restriction (NFCR) checks. If the redialed number is restricted, the ARDL request is cancelled.

Basic Alternate Route Selection (BARS)**Network Alternate Route Selection (NARS)****Coordinated Dialing Plan (CDP)**

Only TLD telephones are subject to NFCR when calls are routed by BARS/NARS/CDP. CTD and CUN calls routed by BARS/NARS/CDP are not subject to NFCR treatment.

Direct Inward System Access (DISA)

If the DISA DN has a TLD, CUN, or CTD Class of Service, calls made through DISA are eligible for NFCR treatment.

Electronic Lock Network Wide/Electronic Lock on Private Lines

With NFCR, toll denied stations are allowed or denied calling privileges according to the Facility Restriction Level (FRL) assigned to the NCOS defined in the protected line block. For a locked set, NCFR uses the FRL assigned to the CNCS to determine its calling privileges if one is defined; if no CNCS is defined, the NCOS of the locked set will be used.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Outgoing Call Barring uses NFCR trees to define the digit sequences that are not allowed for each level of barring. However, Outgoing Call Barring (OCB) analyses all dialed digits, whereas NFCR only analyses digits outpulsed on trunks. This means that the same tree will not normally be usable for both features, unless only Coordinated Dialing Plan trunk calls are to be blocked for both features and no digit manipulation is done.

Forced Charge Account

Calls placed through the Forced Charge Account feature are not eligible for NFCR treatment.

Network Class of Service (NCOS)

Toll Denied stations and trunks must have an NCOS assigned to be allowed or denied calling privileges by NFCR. This is because the FRL associated with the NCOS of the user determines which codes are allowed or denied on an outgoing trunk call. The range of NCOS groups varies as follows:

- (0)-3 for standalone CDP
- (0)-7 for BARS/CDP and NFCR
- (0)-15 for NARS and NFCR
- (0)-99 for BARS/NARS/CDP/NFCR in X11 Release 13 and later software.

Scheduled Access Restrictions (SAR)

Associating an FRL with a different NFCR tree affects any Network Class of Service (NCOS) that uses that FRL. Each such NCOS assigned to an SAR group might need to be reconsidered. Also, different facility restriction levels and NFCR trees are used at different times according to the NCOS assigned to the SAR group.

Feature packaging

New Flexible Code Restriction (NFCR) package 49 requires:

- Network Class of Service (NCOS) package 32.

Feature implementation

LD 15 – Enable NFCR for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FCR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
NFCR	(NO), YES	(Disable) enable NFCR.
- MAXT	1-255	Maximum number of code restriction trees.

LD 87 – Define NCOS groups and associated FRL.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
CUST	0-99	Customer number.
FEAT	NCTL	Network Control.
NCOS	(0)-99	NCOS group.
FRL	0-7	FRL is assigned to each NCOS. It determines the entries in a route list (RLI) to which it has access. 0 is the most restrictive, 7 is the least restrictive and can access more entries.

LD 49 – Add, change, or print code restriction trees.

Prompt	Response	Description
REQ	NEW, CHG, PRT	Create new, change, or print data.
TYPE	FCR	NFCR data block.
CUST	0-99	Customer number.
CRNO	(0)-254	Code restriction tree number.
INIT	ALLOW, DENY	Allow or deny all codes.
If INIT = ALLOW the following prompts appear:		
DENY	xx...xx	Digit sequence to be denied.
ALLOW	xx...xx	Digit sequence to be allowed.
BYPS	xx...xx	Digit sequence to be bypassed.
If INIT = DENY the following prompts appear:		
ALLOW	xx...xx	Digit sequence to be allowed.
DENY	xx...xx	Digit sequence to be denied.
BYPS	xx...xx	Digit sequence to be bypassed

LD 16 – Associate an FRL with a code restriction tree.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
FRL	x yyy	x = FRL number (0-7). yyy = code restriction tree number (1-255). FRL is reprompted to allow input of eight FRLs. A carriage return causes the next prompt to appear.

LD 10 – Assign Analog (500/2500 type) telephone a Toll Denied and Network Class of Service.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
NCOS	(0)-99	NCOS.
CLS	TLD	Toll Denied Class of Service.

LD 11 – Assign Meridian 1 proprietary telephones a Toll Denied and Network Class of Service.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.
NCOS	(0)-99	NCOS.
CLS	TLD	Toll Denied Class of Service.

LD 14 – Assign a trunk a Toll Denied and Network Class of Service.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaa	Trunk type, where: aaa = CSA, TIE, or WAT.
TN	l s c u	Terminal Number.
NCOS	(0)-99	NCOS.
CLS	TLD	Toll Denied Class of Service.

LD 24 – Assign a DISA data block a Toll Denied and NCOS.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DIS	DISA data block.
CUST	0-99	Customer number.
SPWD	xxxx	Security password.
DN	xxx....x	DISA Directory number.
NCOS	(0)-99	NCOS.
COS	TLD	Toll Denied Class of Service.

LD 88 – Assign an Authorization code a Toll Denied and NCOS.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	AUB	Authorization code data block.
CUST	0-99	Customer number.
SPWD	xxxx	Security password.
CLAS	(0)-115	Class code to be assigned.
NCOS	(0)-99	NCOS.
COS	TLD	Toll Denied Class of Service.

Feature operation

No specific operating procedures are required to use this feature.

Night Key for Direct Inward Dialing Digit Manipulation

The Night Key for DID Digit Manipulation (NKDM) uses DID Incoming Digit Conversion (IDC) to convert received DID digits into a Night Service Directory Number (DN). NKDM is used to switch between Night and Day modes.

The Day/Night mode is controlled by a DID Route Control (DRC) key on an Attendant Console, or Meridian 1 proprietary telephone. There can only be one DRC key for each DID route.

The Night tree table is invoked in any of the following ways:

- when the attendant goes into Night Service, or the last attendant activates the POS BUSY key (provided that Attendant Overflow Position is not equipped)
- when an attendant activates the DID Route Control (DRC) key
- when a Console Presentation Group (CPD) attendant goes into Night Service, or
- when a Meridian 1 proprietary telephone activates the DRC key.

In each case, only the DID routes controlled by the initiating source (console or telephone) are affected.

Operating parameters

The maximum number of conversion tables per customer is 255. These tables are shared between the Incoming Digit Conversion (IDC) and the New Flexible Code Restriction (NFCR) trees.

The DID Route Control (DRC) key can only be configured on keys with lamp indicators.

When using the Night tree table, the same assumptions that apply to Incoming Digit Conversion (IDC) apply to this feature.

The Night tree table for DID Digit Manipulation (NKDM) applies only to DID routes.

For each DID route, there is only one configured DRC key per telephone.

For a Dialed Number Identification Service (DNIS) route, make sure that the correct table is selected for the conversion of incoming digits.

Feature interactions

Attendant Administration

The DID Route Control (DRC) key is not supported by Attendant Administration.

Attendant Overflow Position (AOP)

When the last attendant activates the POS BUSY key, the system does not go into Night Service if an AOP Directory Number (DN) is available.

Automatic Set Relocation

Delete the DRC key from a telephone before performing Automatic Set Relocation. If this is not done, the DRC lamp is activated on the wrong telephone.

Console Presentation Group (CPG)

The Day/Night table can be activated with the DRC key by any attendant in the CPG group.

Feature packaging

The Night Key for DID Digit Manipulation (NKDM) is part of base X11 system software. The following packages are required:

- Network Class of Service (NCOS) package 32
- New Flexible Code Restriction (NFCR) package 49, and
- Incoming Digit Conversion (IDC) package 113.

Feature implementation

LD 15 – Enable Incoming Digit Conversion for Night mode.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FCR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
NFCR	(NO), YES	Enable New Flexible Code Restriction.
- MAXT	1-255	Maximum number of NFCR trees.
IDCA	(NO), YES	Enable IDC. IDC cannot be disabled if any telephone has a DCR key.
- DCMX	1-255	Maximum number of IDC conversion tables. The sum of the values of MAXT and DCMX cannot exceed 255 per customer.

LD 49 – Add, change, or print code restriction trees.

Prompt	Response	Description
REQ	NEW, CHG, PRT	New, change, or print data.
TYPE	IDC	NFCR data block.
CUST	0-99	Customer number.
DCNO	0-254	IDC tree number.
IDGT	0-9999 0-9999	Directory Number (DN) or range of DNs to be converted. The external DN to be converted is output and the user enters the internal DN. For example, to convert the external DN 3440 to 510, enter 3440. The system prompts 3440 and you enter 510.

LD 16 – Set IDC tree for Night mode. Note that a DID route cannot be removed if it is controlled by a DCR key.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
TKTP	DID	DID route.
IDC	(NO), YES	Enable IDC.
DCNO	0-254	IDC tree for Day mode.
NDNO	0-254 <CR>	IDC tree for Night mode. Set tree to the same number as Day mode (the default).

LD 12 – Define a DID Route Control (DRC) key on an Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx DRC	DID Route Contron key, where: xx = key number 0-9 (0-19 on the M2250).

LD 11 – Define a DRC key on a Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx DRC yyy	DRC, where: xx = key number, and yyy = route number (0-511).

Feature operation

Follow these steps to change one DID route to Day/Night mode from the Attendant Console:

- 1 Select an idle loop key.
- 2 Press **DRC** and dial the access code of the DID route (ACOD).
If the DRC indicator is on steadily, the route is in Day mode.
If the DRC indicator is flashing, the route is in Night mode.
- 3 Press **DRC** again.
If the DRC indicator was on steadily, the route is put into Night mode.
If the DRC indicator was flashing, the route is put into Day mode.

Follow these steps to change all DID routes to Day/Night mode from the Attendant Console:

- 1 Select an idle loop key.
- 2 Press **DRC** and dial the octothorpe (#).
If the DRC indicator is on steadily, all routes are in Day mode.
If the DRC indicator is flashing, one or more routes are in Night mode.

3 Press **DRC** again.

If the DRC indicator was on steadily, all routes are put into Night mode.

If the DRC indicator was flashing, all routes are put into Day mode.

Note: To change from some routes in Night mode to all routes in Night mode, you must first put all routes into Day mode.

Follow these steps to change one DID route to Day/Night mode from a telephone:

1 Check the **DRC** indicator.

If the DRC indicator is on steadily, the route is in Day mode.

If the DRC indicator is flashing, the route is in Night mode.

2 Press **DRC**.

The route toggles between Night and Day mode.

Night Service

Night Service permits incoming calls normally directed to the attendant to be routed to a defined destination. A separate Night key/lamp pair allows the attendant to put the system into Night Service.

Three types of Night Service are provided which the customer can specify separately or in any combination:

- Selected Trunks to Selected Directory Number (DNs): Some or all of the trunks can be assigned to ring selected DN's when the system is in Night Service. The assignment of trunks to stations can be modified by the attendant or by a service change.
- Night Answer Telephone: All calls normally routed to the Attendant Console can be routed to one particular DN that is designated as the night answer destination for the customer. Trunk Answer From Any Station (TAFAS) can be used to pick up calls routed to this number. With TAFAS in effect, incoming calls activate a common alerting device, such as a bell, when the system is in Night Service. Any user can answer the call by dialing the Special Prefix (SPRE) code and then pressing 4.
- Night Service by Time of Day (NSTD): Available in X11 Release 12 and later, NSTD allows one of a group of Directory Numbers (DNs) to be selected for call routing based on the time of day instead of all calls being routed to a fixed Night Service DN. NSTD allows the definition of up to four Night DN's with a time associated with each. Calls are forwarded to the appropriate DN by the associated time.

Operating parameters

Night Service can only be activated from the Attendant Console.

Any restrictions or features assigned to the night answering station apply. Therefore, a fully restricted (FRE) Class of Service should not be used for Night Service Directory Numbers (DNs), unless the FRPT prompt in LD 17 is OLFR (allow FRE telephones to serve as a Night DN).

A bell circuit or alerting device must be provided by the customer for TAFAS. This device must be compatible with the 20 Hz ringing signal (i.e., two seconds on, four seconds off).

If a trunk is assigned a Night DN other than the Night Answer Number defined in the Customer Data Block, incoming calls to that trunk cannot be picked up with the TAFAS feature. Assignment in LD 14 takes precedence over the Customer Data Block.

If an attendant is not assigned to a customer, the customer is automatically in Night Service upon system start-up.

The following tables show how calls are directed during Night Service, depending on the time of day:

Call is directed to Night DN	Between times:
NIT1 DN	TIM1 and TIM2
NIT2 DN	TIM2 and TIM3
NIT3 DN	TIM3 and TIM4
NIT4 DN	TIM4 and TIM1

It is possible to remove a defined night DN without modifying the other DN's. For example, if NIT3 is removed, calls are directed as follows:

Call is directed to Night DN	Between times:
NIT1 DN	TIM1 and TIM2
NIT2 DN	TIM2 and TIM4
NIT4 DN	TIM4 and TIM1

Feature interactions

Call Waiting Redirection

Night Service has the same interaction with the Call Waiting Redirection feature as attendant-extended calls. Since the Call Waiting Redirection feature applies CFNA treatment to a Call Waiting call, the Call Waiting Redirection feature also has precedence over the Call Waiting recall timer.

Directory Number Expansion (DNXP)

If the DNXP package is equipped, the Night DNs can be up to seven digits; otherwise, the DN can be a maximum of four digits.

DPNSS1 Diversion

If a diverted call encounters an attendant in night service, the call receives Night Service Diversion if available.

Multi-Party Operations

During Night Service, mishandled calls are routed to the night DN. External calls, other than DID calls, are queued until answered. TIE calls are disconnected if the night DN is busy.

Night Service enhancements

When the Night Service key is pressed on any Attendant Console, the customer enters Night Service and all Attendant Consoles are made Position Busy. It is then necessary to check all consoles for presented but unanswered calls, which must be cleared and requeued.

Position Busy

When all attendants activate the Position Busy key, Night Service is in effect unless the Attendant Overflow Position (AOP) feature is equipped. If AOP is equipped, the Night key must be pressed to invoke Night Service. A call that is rerouted due to AOP is not redirected to the Night DN if the system is subsequently put into Night Service.

The following interactions apply to Night Service by Time of Day (NSTD):

Call Park Recall

Calls parked by the attendant recall on the Night Service DN that is current at the time of recall.

Calls Waiting in Attendant Queue

Incoming calls ringing at the Attendant Console at time changeover are routed to the Night DN that just expired. New calls are routed to the new Night DN. If the attendant cancels Night Service, new calls are presented to the Attendant Console.

Once a call begins ringing at a Night DN, it stays there even if Night Service is cancelled or the timer expires.

Multi-Tenant Night Service

The same conditions that apply to the customer night number also apply to the Multi-Tenant Night Service. In X11 Release 15 and later software, Console Presentation Group (CPG) allows separate night treatment for each tenant.

Meridian 911 Call Abandon

Abandoned calls are part of the transition mode when agents go to Night Service and the supervisor selects transition mode.

Series Call

If the attendant extends a Series Call and goes into Night Service before it recalls to the attendant, the call recalls to the night DN and Series call treatment is canceled.

Trunk Answer from Any Station (TAFAS)

When a DN changeover occurs while an incoming call is ringing the current Night DN and a new incoming call is ringing the new Night DN, a user activating TAFAS picks up the call from the Night DN that just expired. However, if the ringing call is not picked up within one minute after the Night DN time changeover, the user can no longer pick up the call using TAFAS.

Trunk to Trunk Connection

If an attendant is placed in Night Service, calls to the attendant are directed to a station with the Night DN. Recalls are not directed to the Night DN. Recalls are put in the attendant call waiting queue when in Night Service.

Feature packaging

Night Service is included in base X11 system software.

Feature implementation

LD 15 – Add or change Night Service for a customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB NIT	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
NITE	xxx...x, X	Night Service DN (prior to X11 Release 12 only).
- NIT1	xxx...x, X	Night Service DN 1 (enter X to remove). Night Service DN times must be defined in ascending order.
- TIM1	0-23 0-59	DN 1 time (hour and minute).
- NIT2	xxx...x, X	Night Service DN 2 (enter X to remove).
- TIM2	0-23 0-59	DN 2 time (hour and minute).
- NIT3	xxx...x, X	Night Service DN 3 (enter X to remove).
- TIM3	0-23 0-59	DN 3 time (hour and minute).
- NIT4	xxx...x, X	Night Service DN 4 (enter X to remove).
- TIM4	0-23 0-59	DN 4 time (hour and minute).

LD 14 – Add or change Night Service DN for trunks.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	COT	Trunk type.
TN	l s c u	Terminal Number.
NITE	xxx...x, X	Night Service DN for this trunk (enter X to remove).

Feature operation

To place a customer into Night Service:

- Press **Shift** plus  at any console, or unplug all handsets and headsets.

To cancel Night Service when all handsets and headsets are unplugged:

- Plug in at least one handset or headset.

To cancel Night Service at a console when a handset or headset is plugged in:

- Press **Shift** plus 

Note: If all Attendant Consoles are put in Position Busy, the system automatically goes into Night Service.

Night Service Enhancements

Night Service Enhancements introduces the following capabilities:

- All Calls Remain Queued for Night Service,
- Recall to Night DN,
- Requeuing of Attendant Presented Calls, and
- Camp-on from Inquiry Call (Station Camp-on).

All Calls Remain Queued for Night Service

This capability ensures that when Night Service is activated all calls in the attendant queue remain queued for Night Service treatment. Depending on the call type, the call may be presented to the Night DN, or continue waiting for the called party to answer. This includes Call Forward No Answer calls, recalls, and transfers to the attendant.

This capability applies to both standalone and networking environments. Within a networking environment, if Network Attendant Service (NAS) is equipped at all nodes, the calls are presented to a remote attendant, remote Night DN, or local Night DN, depending on the NAS configuration. This treatment applies to external calls only, since internal calls are not queued against a remote Night DN. If NAS routing is not involved, external calls are presented to the local Night DN.

Recall to Night DN

If the attendant camps-on party A to a busy set B, then goes into Night Service, the recall goes to the Night DN only if A is an external party (that is, CO, DID, FEX, WATS). This happens for a local camp-on.

For a Meridian Customer Defined Network (MCDN) camp-on with A at the far end of the MCDN NAS network and for a DPNSS1 camp-on with A at the far end of the DPNSS1 network the situation is as follows. If A is an internal party, the recall is left in the attendant queue, and can be answered by the attendant if the attendant returns to day service.

This internal/external difference does not hold true if the International Supplementary Features (SUPP) package 131 is equipped.

Requeuing of Attendant Presented Calls

The Requeuing of Attendant Presented Calls is an enhancement to the Attendant Forward No Answer feature. If a call presented to an Attendant Console is not answered, pressing the Position Busy key causes the call to be placed in the attendant queue.

If the console is the customer's last-active console, and Attendant Overflow Position (AOP) is active, a ringing call or a Call Waiting recall on the Destination side is disconnected. This ensures that any queued call will be presented at the AOP.

Any call presented at the AOP is not removed from the console and requeued if the Position Busy key is pressed.

The call is removed unanswered only if the Attendant Forward No Answer feature is active. In this case, after the Attendant Forward No Answer time out expires, the call is requeued and the AOP is idled.

All consoles will enter the Position Busy state if the Night Service key is pressed on any of the customer's consoles. Therefore, all consoles should be checked for presented, but unanswered calls, which have been requeued.

Camp-on from Inquiry Call (Station Camp-on)

Camp-on from Inquiry Call allows an internal station to camp an external call on to another internal station that is busy. Prior to the introduction of this capability attendants were the only parties that could camp calls on to busy internal stations. The term internal station includes stations on other nodes within an Meridian Customer Defined Integrated Services Digital Network (MCDN).

When a transferring party reaches a busy desired internal party, the transferring telephone will receive ringback tone (providing certain conditions are met). When the transferring party completes the transfer, the external (calling) party will Camp-on to the desired party and the external party (an external party is any CO, DID, FEX, or WATS call) will receive ringback tone or announcement.

This feature applies to both standalone and network environments.

Within a network environment, the transferring and Camped-on to stations may be on the same or different nodes, as long as all nodes are configured with Network Station Camp-on.

Operating parameters

Camp-on Indication

When a call is extended from an attendant to a busy station there is a specific combination of tones and indicator states to identify the Camp-on state.

When an inquiry call is made from a station, there is only one way for the user to distinguish between a busy set and an idle ringing set. That way is to ensure that the response to the STCB prompt in the Customer Data Block (LD 15) of the Camped-on to (desired) set is YES. Otherwise, ringback tone is provided in both cases.

Recall to Night Directory Number

When the customer goes into Night Service, if the Night DN is idle, only the first call is presented to it.

The Night DN may be defined as a multiple appearance DN with multiple call arrangement; all sets assigned the Night DN should be on the same node.

According to NAS routing, the Night DN defined on a node must be on the given node (local). If for any reason the Night DN is not on the local node Night Service Enhancements (NSE) are no longer supported.

In any case, NAS routing takes precedence over NSE, so if NAS routing is involved the call will be presented to the Night DN defined according to the NAS configuration.

If NAS routing is not involved and the Night DN defined on this node is located at a remote node (NSE no longer supported), the Night DN must be a remote Attendant DN to ensure calls are queued.

Night Service Network Environment

In network configurations with NAS routing, the Night Service Enhancements feature must be configured on each node in the network.

Camp-on from Inquiry Call (Station Camp-on)

The restrictions which currently apply to the operation of the Camp-on feature from an Attendant Console also apply to Camp-on from Inquiry Call (Station Camp-on).

These restrictions are:

- Camp-on will not be permitted if the desired station is in a state other than established (for instance, ringing or dialing).
- Only one call at a time may be Camp-on a busy station.
- Calls cannot Camp-on to a station with the Call Waiting feature configured.
- The station camped-on to will be given Warning Tone only if the customer has Camp-on Tone Allowed (CTA) in the Customer Data Block (LD 15) and the station has Warning Tone Allowed (WTA) Class of Service assigned. If the station has Warning Tone Denied (WTD) Class of Service assigned the Camp-on will take effect without giving any Camp-on Tone to the camped-on to (desired) party.
- The transferring station will receive Busy Tone only if the response to the STCB prompt in the Customer Data Block (LD 15) of the Camped-on to (desired) set is YES. Otherwise, the transferring station will receive ringback tone.

Feature interactions

Attendant Overflow Position

If a call with a ringing party on the destination side is presented at the last-active Attendant Console, and there is an active Attendant Overflow Position, then the ringing destination will be disconnected when the call is requeued. Likewise, if the call is a Call Waiting recall, Call Waiting will be canceled.

Call Waiting

Call Forward All Calls

Hunting

Call Forward Busy

Call Waiting, Call Forward All Calls, Hunting, and Call Forward Busy (for DID calls only) all take precedence over Camp-on.

Call Waiting Redirection

Night Service has the same interaction with the Call Waiting Redirection feature as attendant-extended calls. Since the Call Waiting Redirection feature applies CFNA treatment to a Call Waiting call, the Call Waiting Redirection feature also has precedence over the Call Waiting recall timer.

Centralized Attendant Service

Centralized Attendant Service (CAS) takes precedence over Night Service. If a user in a remote node in Night Service deactivates CAS and Camps-on an external call from the night station to a busy DN, and then reactivates CAS, any subsequent Camp-on recalls will be routed to the remote DN.

Dial Impulse Analog (500/2500 type) Set

A Dial Impulse Analog (500/2500 type) station must have TSA Class of Service to perform a station Camp-on.

Interposition Attendant Calls

This enhancement does not apply to interposition calls, which remain on the console until answered. The requeuing of interpositional calls is not allowed.

Network Attendant Service

Centralized Attendant Service

Attendant Overflow Position

Network Attendant Service (NAS) is mutually exclusive with Centralized Attendant Service and Attendant Overflow Position. The routing configuration for NAS will apply during Night Service. External calls and recalls may be queued to a remote Night DN, if defined. Internal calls and internal recalls queued during Day Service will be dropped, if the Night DN has been defined on a remote node.

For Camp-on from Inquiry Calls, NAS must be equipped at each node of the network.

Night Service

When the Night Service key is pressed on any Attendant Console, the customer enters Night Service and all Attendant Consoles are made Position Busy. It is then necessary to check all consoles for presented, but unanswered calls which must be cleared and requeued.

Position Busy

Attendant Forward No Answer

Any call which has been presented to the Attendant Overflow Position cannot be not be removed from the set and requeued by pressing by Make Set Busy (MSB) key. The call will only be removed if the Attendant Forward No Answer feature is active, and the Attendant Forward No Answer Timer has timed out. In this case, the call is requeued and the Attendant Overflow Position is idled.

Trunk to Trunk Connection

Recalls made while the attendant is in Night Service are routed to the Night DN, if the original call is an external call. In such a case, the destination party is disconnected, the internal network trunk is released and the original extended call is presented to the Night DN. If the original call is internal, recalls are put in the attendant call waiting queue when in Night Service.

Feature packaging

The All Calls Remain Queued for Night Service, Recall to Night DN, and Requeuing of Attendant Presented Calls Night Service Enhancements are packaged as part of the International Supplementary Features (SUPP) package 131 for standalone applications. For network applications, the requirements are the International Supplementary Features (SUPP) package 131 and the Network Attendant Service (NAS) package 159 and its prerequisites.

For standalone Camp-on from Inquiry Call (Station Camp-on) applications the requirements are the Station Camp-on (SCMP) package 121 and the International Supplementary Features (SUPP) package 131.

For network Camp-on from Inquiry Call (Station Camp-on) applications the requirements are the Station Camp-on (SCMP) package 121, the International Supplementary Features (SUPP) package 131 and the Network Attendant Service (NAS) package 159 and its prerequisites.

Feature implementation

LD 15 – This overlay is modified to prompt and accept responses to STCB (Station Camp-on Busy Tone) and NSCP (Network Station Camp-on). In response to the STCB prompt, enter YES or NO to allow or deny Station Camp-on Busy Tone. In response to the NSCP prompt, enter YES or NO to allow or deny Network Station Camp-on in a particular node.

The prompt STCB will be output only if the SCMP (121) package is equipped. The prompt NSCP will be output only if the SCMP (121) and NAS (159) packages are equipped. By default, these two prompts will be set to NO.

Prompt	Response	Description
REQ	CHG, NEW	Change, or add.
TYPE	CDB FTR	Customer Data Block Release 21 gate opener.
...		

- STCB	(NO), YES	Station Camp-on Busy tone. Enter NO if Busy Tone is not to be given to the transferring (controlling) party when the desired station is busy. Enter YES if Busy Tone is to be given to the transferring (controlling) party when the desired station is busy. The default is NO.
- NSCP	(NO), YES	Network Station Camp-on. Enter NO if sets on this node are not allowed to have calls camped-on by sets in other nodes. Enter YES if sets on this node are allowed to have calls camped-on by sets in other nodes. The default is NO.

LD 21 – This overlay is modified to print the STCB and NSCP prompts and their responses when the Customer Data Block is printed

The STCB prompt and its response will be output only if the SCMP (121) package is equipped. The NSCP prompt and its response will be output only if the SCMP (121) and NAS (159) packages are equipped.

LD 22 – This overlay is modified to print the SCMP package mnemonic if the Station Camp-on package (121) is equipped.

Feature operation

Prior to describing the operation of the Night Service Enhancements the following terms are defined in terms of these feature operations:

Night DN

The Night DN pertains to Night DNs defined on a customer basis.

According to NAS routing the Night DN defined on a node must be on the given node (local).

External Call

Any call originated by the Public Switched Telephone Network (PSTN) is said to be an external call. This includes the following cases:

- Calls originating on a Public Exchange (Central Office [CO]), Foreign Public Exchange (FEX), Direct Inward Dial (DID), or Wide-area Telephone Service (WATS) trunk and terminating on the local node, and
- Calls originating on a CO, FEX, DID, or WATS trunk on a remote node, Integrated Services Digital Network (ISDN) TIE trunks, and NAS routed Public Switched Telephone Network (PSTN) or ISDN TIE trunks which are handled at the NAS node.

Non ISDN TIE trunks (local and remote) are said to be private trunks and are not treated as carrying external calls, although we may have a PSTN call involved at the originating node.

This definition includes both the standalone and network cases.

Requeuing of Attendant Presented Calls

Prior to the introduction of the Requeuing of Attendant Presented Calls, when a call had been presented to an Attendant Console it remained presented on the console, even if the Position Busy key was pressed.

The Requeuing of Attendant Presented Calls capability changes the system operation such that, if the Position Busy key is pressed on the console when an unanswered call has been presented to it the call will be returned to the attendant queue as if an AFNA time out had occurred.

This capability will not apply if the call is an interposition attendant (attendant to attendant) call. In this case, the call will remain on the console until answered.

In cases where the console is the last active console of the customer and there is an active AOP, if the call involves a ringing party on the destination side, the ringing will be disconnected. Similarly if the call is a Call Waiting recall, the Call Waiting will be canceled. This ensures that the required call will be presented on the AOP, irrespective of normal call type restrictions.

Note that all consoles will enter the Position Busy state if the Night Service key is pressed on any one of a customer's Attendant Consoles. In this case, all consoles must be checked for presented, but unanswered calls which must be cleared from the console and requeued.

Call Handling in Night Service

Calls already Queued when Night Service is Entered

Standalone case

Any external call which is queued, waiting to be serviced by an Attendant Console, when a customer goes into Night Service will continue to be queued until it can be presented to the appropriate Night DN.

Network case

As NAS takes precedence over NSE, if NAS routing is involved, the call will be presented to a remote attendant, or remote Night DN, or local Night DN, according to the NAS configuration.

If NAS routing is not involved, the call will be presented to local Night DN.

External Calls already Queued when Night Service is Entered

Operation Prior to Night Service Enhancements

The treatment of queued external calls was as follows:

- Dial "0" calls from DIDs or incoming CO calls remained queued for the Night DN.
- Call Forward Busy calls remained queued for the Night DN.

- Call Forward No Answer calls were not queued for a busy Night DN. If a call could not be presented immediately it was removed from the queue and the originating party was given Busy Tone.
- Attendant Recalls (ARC) and transfers to the attendant DN were removed from the attendant queue. The consultation call was “canceled”, if the held call was an external party it was reconnected to the transferring (controlling) party.
- All intercepts involving an external party were queued for the Night DN.
- Timed reminder recalls remained queued, but were not presented to the Night DN.

Operation with Night Service Enhancements

The NSE capabilities change the operation such that Call Forward No Answer calls, ARCs, and transfers to the attendant will remain queued for the Night DN. In addition to these call types, timed reminder recalls will also be presented to the appropriate night DN.

Timed reminder recalls treatment is the following:

- Ringing stops for slow answer recalls when the recall occurs.
- Call Waiting is canceled when the recall occurs.
- Camp-on is canceled when the recall occurs.

Internal Calls already Queued when Night Service is Entered

Operation Prior to Night Service Enhancements

Any internal call that was already queued for the attendant was not queued for the Night DN.

When a customer went into Night Service, if the Night DN was idle, the first call was presented to the Night DN. Any internal calls not presented in this way were given busy tone and removed from the queue.

Operation with Night Service Enhancements

Standalone case

With NSE the operation is changed such that all internal calls which should be presented to the Night DN will remain queued until the customer Night DN becomes available.

Network case

If the call was extended by the attendant over MCDN with NAS active, and the call is camped-on or call waiting at the remote node, the call will remain queued at the local node waiting for an answer at the remote node.

Timed Reminder Time Outs during Night Service

When a timed reminder time out occurs during Night Service, depending on the call type, the call may be presented to the Night DN or continue waiting for the called party to answer. External (PSTN originated) calls will be presented to the Night DN or, if the Night DN is busy will wait in the queue until the Night DN becomes available.

In the case of a timed reminder Camp-on recall, the Camp-on is canceled when the recall occurs (time out).

In case of a slow answer recall, the desired set will be disconnected when the recall occurs (time out).

In case of a timed reminder Call Waiting recall, the Call Waiting will be canceled when the recall occurs (time out).

According to NAS routing these calls may be presented to a remote attendant or a remote Night DN. When the NAS routing starts, the destination (desired party) is released and the call is presented or queued to the appropriate terminal (i.e., remote attendant or local Night DN or remote Night DN).

External calls that recall will be presented to, or queued for, the Night DN.

Internal calls that recall will be dropped when NAS routing is involved and the Night DN is at a remote node, because when NAS routing takes place internal call recalls are not queued for the Night DN.

The station to which the call is being transferred (i.e., the station on which the call is ringing, Call Waiting or camped-on) does not have to be located on the same node as the transferring (controlling) station.

If the attendant on the same node as the Night DN comes back to Day Service, timed recalls queued for the Night DN will be presented to the attendant as recalls.

Camp-on from Inquiry Call (Station Camp-on)

Standalone case

Any station, not necessarily the Night DN, attempting to transfer an external call, may, during the associated inquiry call, camp the trunk on to a busy station.

The camp-on will take affect from the moment the transferring station has completed the transfer to the desired DN.

The transferring station will hear Ringback Tone or Busy Tone depending on the option entered in response to the STCB prompt in the Customer Data Block (LD 15). This prompt applies to any set, not just the Night DN. By default (STCB is set to NO), the transferring party will hear Ringback Tone.

The desired station will hear Camp-on tone if it has WTA Class of Service assigned. Otherwise, if it has WTD Class of Service, the Camp-on will take affect without the desired party being informed a call is camped-on.

When the transfer is completed, the external party is camped-on to the desired station and receives either ringback tone or an announcement.

Network case

Any station, not necessarily the Night DN, attempting to transfer an external call across an ISDN network may, during the associated inquiry call, Camp-on the trunk on to a busy station.

The location of the transferring party has no effect on the Station Camp-on capability.

The Camp-on will take Affect from the moment the transferring station has completed the transfer to the desired DN.

The transferring station will hear ringback tone or busy tone depending on the option entered in response to the STCB prompt in the Customer Data Block (LD 15). This prompt applies to any set, not just the Night DN. By default (STCB is set to NO), the transferring party will hear ringback tone. The tone given, either ringback tone or busy tone, is determined by the node in which the desired (Camped-on to) party resides.

The desired station will hear Camp-on tone if it has WTA Class of Service assigned. If it has WTD Class of Service, the Camp-on will take affect without the desired party being informed a call is camped-on.

When the transfer is completed, the external party is camped-on to the desired station and receives either ringback tone or an announcement.

Recall Timing on Camp-on Calls

When any station extends an external call, recall timing will be initiated if the call is camped-on to a busy station.

The recall timing will start from the moment that the extending station “releases” the call. The value of the recall timer is set by the prompt RTIM in the Customer Data Block (LD 15).

At the recall, the Camped-on call will be routed to the attendant. If the attendant is in Night Service, night treatment is given, and if NAS routing is active, the call will be routed according to the NAS configuration.

Standalone case

When the recall to the attendant occurs, the Camp-on is canceled. If the attendant is busy during the recall, the recall will be queued.

Network case

When the recall occurs and the attendant has answered the recall, the call will still be camped-on to the desired party. If during the recall the attendant is busy, the recall will be queued.

Night Service, Enhanced (X11 Release 20 and later)

This feature modifies the existing Night Service operation by allowing Public Network (Central Office [CO], Direct Inward Dialing [DID], Foreign Exchange [FEX], and Wide Area Telephone Service [WATS]) trunks to be assigned to specific Directory Numbers (DN) during Night Service.

With this feature each customer will be able to assign Public Network trunks to one of nine Night Groups. Each Night Group will allow the customer to define up to nine Night DNs. During Night Service, incoming calls will be routed to one of the Night DNs defined for the group. The actual DN the call will be routed to is determined by the Night Service Option number selected at that time.

The customer will also be able to define whether Night Call Waiting tone will be given to Night stations. With Night Call Waiting tone allowed, busy Night stations are notified when an incoming call is terminating on them. The incoming call will be queued on the Night station until it becomes idle. When the Night station becomes idle, the incoming call will be presented.

This enhancement allows incoming DID trunks to be queued against busy Night stations, thereby making their operation the same as all other Public Network trunks.

Normal Night Service

With the feature active, the existing Night Service feature is enhanced by providing a night (NITE) prompt for DID trunks. Night numbers for DID trunks can be defined in their respective trunk blocks against the prompt. Attendants will be able to change their night numbers by specifying their corresponding access codes and member numbers using the existing Night Service feature.

Group Night Service

The customer is allowed to assign individual Public Network trunks to one of nine Night Group numbers (1 to 9). Each Night Group has up to nine Night Directory Numbers associated with it. During Night Service, incoming calls on a trunk will be routed to one of the Directory Numbers associated with that trunk. The actual number called is determined by a Night Service Option number corresponding to the Night Group number programmed by the attendant during Day service.

When an incoming call is routed to a busy directory number, an optional Night Call Waiting tone may be applied to that number to notify the user that a call is waiting. The call on the trunk will be queued until the night directory number becomes free.

Operating parameters

The same feature requirements apply as for Night Service.

Enhanced Night Service does not apply to auto-terminate trunks.

Enhanced Night Service is permanently activated if the system has no attendant and the ENS option is set to “YES.” In this case, the Night Service Option number can only be programmed in the Customer Data Block (LD 15).

Enhanced Night Service uses one Speed Call list as the Night Number Table.

The operation of the optional Night Call Waiting Tone is the same as Call Waiting Tone.

Night Service Option 0 and Night Service Group 0 are reserved for the customer Night number and should not be programmed in LD 18.

Feature interactions

Call Waiting (CWT)

This feature will terminate incoming Night calls to busy Night DN's by applying Call Waiting. This will still be done even if the Night DN is an analog (500/2500 type) (500/2500) telephone with Call Waiting Denied (CWD) Class of Service, or if the Night DN is a Meridian 1 proprietary telephone without a Call Waiting (CWT) key assigned.

All telephones – both analog (500/2500 type) and Meridian 1 proprietary – will be given Night Call Waiting tone, if the NWT prompt in LD 15 was responded to with “YES,” regardless of the Warning Tone (WTA/WTN) Class of Service setting of the telephone. Meridian 1 proprietary telephones will be given Night Call Waiting tone in the handset, instead of the speaker buzz given for Call Waiting.

Direct Inward System Access (DISA)

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.

Multi-Party Operations

During Night Service, mishandled calls are routed to the night DN. External calls, other than DID calls, are queued until answered. TIE calls are disconnected if the night DN is busy.

Multi-Tenant service

Any restrictions that exist in the system preventing individual Tenant access to certain routes will not be checked when the Night Number Table is programmed. It will be up to the technician to ensure all such restrictions are taken into consideration.

The tenant to route restrictions will be enforced when an attempt is made to terminate an incoming call on a Night DN via the Night Number Table. If the termination to the Night DN is not allowed, Overflow tone (Fast Busy) will be given to the incoming trunk.

Trunk Barring (Telephones)

Any incoming trunk call that is routed by Enhanced Night Service to a telephone from which it is barred will not be connected. Overflow tone (Fast Busy) will be given to the incoming trunk instead.

Trunk to Trunk Barring

Any incoming trunk call that is routed to an outgoing Public Network trunk will be barred if Enhanced Night Service is active. Overflow tone (Fast Busy) will be given to the incoming trunk instead. This restriction is in addition to the configured Trunk Barring for the system.

Warning Tone

All telephones – both analog (500/2500 type) and Meridian 1 proprietary – will be given Night Call Waiting tone, if the NWT prompt in LD 15 was responded to with “YES,” regardless of the Warning Tone (WTA/WTB) Class of Service setting of the telephone.

Feature packaging

Enhanced Night Service (ENS) is package 133.

Feature implementation

LD 18 – Configure Night Number Table.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	SCL	Speed Call List number
LSNO	xxx	List number. Enter list number; this number will be entered in response to the NNT prompt in LD 15 (Customer Data Block).
DNSZ	xx	Enter maximum excepted length required.
SIZE	100	Enter 100 to ensure that definitions for Options 1-9 and Groups 1-9 may be input.
STOR	xy z...z	Define Night Number Table entry, where: x is the Night Service Option number (1-9) y is the Night Service Group number (1-9), and z...z is the DN to which calls will be routed. This must be a valid station DN within the system. Network Access Codes are not allowed. Note: Night Service Option 0 and Night Service Group 0 are reserved for the customer Night number and should not be programed, (i.e., 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 20, 30, 40, 50, 60, 70, 80, and 90).

LD 15 – Configure Enhanced Night Service.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	CDB	Customer data block.
...		
ENS	(NO), YES	(Disable) enable Enhanced Night Service.
- NWT	(NO), YES	(Disable) enable Night Call Waiting tone.

- NNT	0-253	Enter the Speed Call List (LSNO) number of the Night Number Table defined in LD 18.
- NSO	0-9	Night Service Option number.

LD 14 – Configure Enhanced Night Service for trunks.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	DID	Direct Inward Dial.
...		
NGRP	(0)-9	Night Service Group number.

Feature operation

Night number assignment from Night Number Table

A Speed Call List (SCL) is specified in the Customer Data Block (CDB), LD 15, for the purpose of storing night DNs against each Night Service Group and Option.

The designated SCL consists of 100 two-digit translations. The first digit represents the Night Service Option number, while the second digit represents the Night Service Group number. Night Service Option zero (0) and Group zero (0) are reserved for the customer Night number, and therefore should not be defined, (i.e., 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 20, 30, 40, 50, 60, 70, 80, and 90). The following is a sample Night Number Table with an explanation of how calls are terminated:

Option	Group	Number
.	.	
.	.	
.	.	
2	5	4311
2	6	4011
2	7	3893
.	.	
.	.	
3	5	3400
3	6	4321
3	7	4780
.	.	
.	.	

Night stations 4311, 4011, 3893 are assigned to Night Service Option 2 for Night Service Groups 5, 6, and 7 respectively.

If Night Service Option 2 is active, night calls from trunks designated in LD 14 as Night Service Group 5 will be routed to 4311, night calls from trunks designated in LD 14 as Night Service Group 6 will be routed to 4011, and night calls from trunks designated in LD 14 as Night Service Group 7 will be routed to 3893.

If the attendant selects Night Service Option 3, night calls from trunks designated in LD 14 as Night Service Group 5 will be routed to 3400, night calls from trunks designated in LD 14 as Night Service Group 6 will be routed to 4321, and night calls from trunks designated in LD 14 as Night Service Group 7 will be routed to 4780.

Attendant Console

This section describes the sequences to be followed by the attendant to select and query the Night Service Option and to activate Enhanced Night Service.

ACTION	RESPONSE
1 Press Shift key	
2 Press Loop key	Indicator is activated.
3 Press Night key	Indicator flashes. Dial tone is received. Current Night Service Option number is displayed.
4 A) <u>QUERY ONLY</u>	
i. Press RLS key	Indicator next to Loop and Night keys deactivates. Display is cleared.
OR	
B) <u>SELECT</u>	
i. Dial a one-digit (0-9) option number.	Dial tone is removed. Old Night Service Option number (X) is shifted, new Option number (Y) is displayed, and X and Y are separated by a hyphen, (e.g., Y-X).
ii. Press RLS key	Indicator next to Night and Position Busy keys deactivates. Night Service Option is stored. Display is cleared.
5 <u>ACTIVATE</u> <u>Enhanced Night Service</u>	
Press Night key or Position Busy key if you are last active Attendant.	Indicators next to Night and Position Busy keys are activated. Current (active) Night Service Option number is displayed.

No Hold Conference

Combined with Conference, Speed Call, System Speed Call, Autodial, and Hot Line, No Hold Conference (NHC) allows you to establish a Conference call without placing the current caller on hold.

This feature is available in four forms, merging No Hold Conference (NHC) with Autodial, Speed Call, and Hot Line into a single key. The new combined keys are the Conference-Autodial (CA), Conference-Speed Call (CS), and Conference-Hot Line (CH) feature keys. A No Hold Conference (NHC) key can also be configured, acting as a simple Conference key.

Conference-Hot Line can be used in the following two ways:

- The Direct CH option has the number stored with the key.
- The List CH option has a pointer that selects an entry from a Hot Line list.

When a telephone is connected to another party, you can originate a Conference-Autodial (CA), Conference-Speed Call (CS), or Conference-Hot Line (CH) call by pressing the CA, CS, CH, or NHC key. The system determines the destination as if it were a regular Autodial, Speed Call, or Hot Line call. The parties are conferenced in without holding. For example, a call comes in to the customer notifying the customer of a fire. The user wishes to notify the fire department of the emergency without placing the original caller on hold, and the number is stored on the Conference-Autodial key. By pressing the CA key, the customer establishes a Conference call. The fire department is notified and the original connection is maintained.

When you press the feature key, one of the following occurs:

- If the destination is an idle internal Directory Number (DN), that DN rings and the CA, CS, CH, or NHC lamp flashes (60 ipm). You hear no ringback tone.
- If the destination is a trunk with answer supervision, the trunk is seized and the key lamp flashes. The voice path is not established until an answer signal is received.
- When the destination is a trunk without answer supervision, the trunk is seized, the voice path is established, and the key lamp flashes. All tone signals provided by the far end (e.g., ringback) are heard by all parties involved in the Conference call. Calls on trunks without answer supervision are treated as answered after digit outputting is completed.
- When the intended destination is a busy internal DN, trunk, or route, the key lamp fast flashes (120 ipm). Press the active call key to cancel the attempt. The active call key is the key on which the call is established. It can be any key on which a regular Conference call can be made, including the DN key, Call Waiting, and Automatic Call Distribution (ACD) Incalls keys.
- In the case of network blocking, or if a conference port is unavailable, the key lamp fast flashes. Press the active call key to cancel the attempt.
- When the destination is an invalid entry (e.g., a vacant number, or an illegal list entry) the key lamp fast flashes. Press the active call key to cancel the attempt.

Pressing the active call key at any time before the called party responds cancels the attempt, returning the telephone to the state prior to pressing the CA, CS, CH, or NHC key.

If the call is answered, the key lamp goes off, and the called party is added to the existing conversation. By pressing the active call key, the last added party is released. These operations can be repeated as often as necessary, according to your network configuration, to add new parties to an existing conversation.

If the CA, CS, or CH keys are pressed at any time other than during a Conference call, they operate as a regular Autodial, Speed Call, or Hot Line key.

Pressing the NHC key allows the user to dial the number desired for the Conference call.

Operating parameters

Assignable keys are limited to the number of keys available on your telephone.

NHC is available on Meridian 1 proprietary telephones with the CA, CS, CH, and NHC keys. It is not available on the M3000, analog (500/2500 type) telephones, or Attendant Consoles.

The Release (RLS) key has no effect while the key lamps are flashing or fast flashing. Other than during these stages, it can be used to abort the Conference call.

The CA key, like the regular Autodial key, is programmable from the telephone.

The CS and CH keys must have the Speed Call and Hot Line numbers assigned in LD 18.

Data calls are not supported.

All four keys can coexist with each other as well as with other Conference, Autodial, Speed Call, and Hot Line features.

Feature interactions

500/2500 Line Disconnect

If one of the parties in the conference is connected to a 500/2500 port that is in turn connected to a Voice Response Unit (VRU), dial tone is provided to the 500/2500 port when all the other parties in the conference disconnect. This feature enhancement applies in the same way to Call Transfer and Hunting.

Automatic Redial (ARDL)

When an ARDL call is not accepted by the calling party, the No Hold Conference (NHC) key is ignored if pressed.

Call Page Network Wide

A station set or Attendant Console that conferences an external PAGENET uncontrolled call is not blocked. However, an external PAGENET controlled call is blocked.

Centralized Attendant Service

Centralized Attendant Service (CAS) attendants are not supported.

Conference-6

This feature can be enabled at any time that a regular Conference-6 feature can be activated.

Hot Line

The CH key supports only one-way Hot Line calls.

Meridian 911

No Hold Conference calls are treated as internal calls and are linked to the low priority queue of the ACD DN.

Meridian 911 Call Abandon

M911 abandoned calls cannot be No Hold Conferenced.

Recorded Announcement Trunk

A Recorded Announcement (RAN) Trunk cannot No Hold conferenced.

System Speed Call list

Whenever the CS key is programmed for a System Speed Call list, all calls made with that key are System Speed Calls.

Feature packaging

No Hold Conference capability is available when the following features are equipped:

- Autodial (ADL) for CA key configuration
- Speed Call User (SCU) if the CS key is configured
- Enhanced Hot Line (HOT) package 70 for the CH key, and
- System Speed Call (SSC) package 34 to configure CS or CH keys.

Feature implementation

LD 18 – Provision Speed Call or Hot Line numbers for CS and CH keys.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change a Speed Call list.
TYPE	SCL, SSC, HTL	Speed Call, System Speed Call, Hot Line.
CUST	0-99	Customer number (when TYPE = HTL).
LNSO	0-8190	Speed Call list number.
NCOS	(0)-99	NCOS (when TYPE = SSC or HTL).
DNSZ	xx	Maximum number of digits in a list entry, where: xx = 4, 8, 12, (16), 20, 24, 28, or 31.
SIZE	1-1000	Maximum number of entries in the Speed Call list.
WRT	(YES), NO	Data is correct and list can be updated.
STOR	xxx	xxx = list entry number (0-9, 00-99, or 000-999).
	yy...yy	yy = digits to be stored against the entry (must be equal to or less than DNSZ).
WRT	NO, (YES)	Data is correct and list can be updated.

Note: The WRT prompt follows the SIZE and STOR prompts asking you to confirm the correctness of the data just entered. If data is correct, enter YES or <CR>. A response of NO after the SIZE prompt causes all data entered to be ignored. A response of NO after the STOR prompt generates a warning message (SCH3213) indicating that the data was not stored and must be reentered.

A response of (*), aborts the program. Only the last STOR value is lost. All previous values to which WRT was YES are saved.

In X11 Release 17 and later, the following information is displayed with the WRT prompt, following SIZE:
 ADDS: MEM: xxxxx DISK: yy.y

Where xxxxx is the amount of protected memory and yy.y is the number of disk records required for the new speed call list. Check the MEM AVAIL and DISK REC AVAIL values displayed before the REQ prompt.

LD 11 – Add or change No Hold Conference for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx CA 4-(16)-23 y...y	Combined NHC and Autodial key, where: xx = key number, and y...y = target number stored in the key (maximum 23 digits).
	xx CH D yy z...z	Combined NHC and Direct Hot Line key, where: xx = key number yy = number of digits in the target number, and z...z = target number stored within the key.
	xx CH L 0-999	Combined NHC and Hot Line key, where: xx = key number, and 0-999 = Hot Line list entry.
	xx CS yyy	Combined NHC and Speed Call key, where: xx = key number, and yyy = Speed Call list number.
	xx NHC	NHC key, where: xx = key number.

Feature operation

No Hold Conference (NHC)

To establish an NHC call using the NHC key:

- 1** Establish a call.
- 2** Press **NHC**. The indicator goes on steadily.
- 3** Dial the number for the conference. The indicator flashes until the call is answered.
- 4** The conference is complete.

Conference-Autodial (CA)

To store an Autodial number:

- 1** Press **CA** (Conference-Autodial). The CA indicator flashes.
- 2** Enter the number.
- 3** Press **CA**. The indicator goes off.

To use Conference-Autodial:

- 1** Establish a call.
- 2** Press **CA**. The indicator flashes until the call is answered.
- 3** The conference is complete.

Conference-Hot Line (CH)

To establish an NHC call using the CH key:

- 1** Establish a call.
- 2** Press **CH** (Conference-Hot Line). The indicator flashes until the call is answered.
- 3** The conference is complete.

Conference-Speed Call (CS)

To establish an NHC call using the CS key:

- 1** Establish a call.
- 2** Press **CS** (Conference-Speed Call). The indicator goes on steadily.
- 3** Enter the Speed Call list entry number for the conference number. The indicator flashes until the call is answered.
- 4** The conference is complete.

Note: To disconnect the last NHC conference caller in any of the above procedures, press the DN key once.

North American Numbering Plan

The North American Numbering Plan (NANP), established in 1947 and currently administered by Bellcore, governs the telephone numbering system throughout Bermuda, Canada, the Caribbean, and the United States.

Two components of the NANP are Interchangeable Numbering Plan Areas (INPAs) and Carrier Access Codes (CACs). NPAs are the three-digit prefixes commonly known as area codes. CACs permit telephone users to access any interexchange carrier or operator service provider. CACs must be supported by any entity, such as a hotel, motel, hospital, university, airport, gas station, or pay telephone owner, that makes telephone services available to the public.

Interchangeable Numbering Plan Area

The Interchangeable NPA codes plan was developed in the 1960s to manage the inevitable depletion of available codes. Prior to 1995, all area codes had an N(0/1)X format, where N was any digit from 2 to 9 inclusive and X was any digit, 0 to 9. As of January 1995, area codes have an NXX format, increasing the available codes to 640.

Modifications to X11 software, including changes to LDs that accept NPA or Home NPA codes, have eliminated dependencies and limitations associated with the old NPA code format.

The introduction of Interchangeable NPAs means that an area code (NPA) can appear identical to a Central Office prefix or a private network Location Code (LOC).

It is important to avoid conflicts among NPAs, Central Office prefixes, and LOCs. It is recommended that customers implement 1+ dialing to eliminate ambiguity.

Customers who use Autodial, Speed Call, or the Hot Line feature may need to modify the lists and tables associated with these features to accommodate the new prefixes or to reflect changes to numbers resulting from implementation of 1+ dialing.

The remainder of this section discusses the procedure that Basic Alternate Route Selection (BARS)/Network Alternate Route Selection (NARS) customers need to follow to handle the NPA changes. Although Alternate Route Selection (ARS) and Direct Trunk Access customers need not modify their databases, those who use Call Detail Recording and/or Toll Denied Class of Service should consider the effect of NPA changes on their operations.

BARS/NARS

BARS/NARS prohibits the entry of identical NPAs, Central Office prefixes, or LOCs. Typically, customers construct translation tables with NPA and LOC codes associated with one Access Code and Central Office codes associated with a second Access Code. Now that LOC and NPA codes may be identical, this option no longer guarantees that codes will not conflict.

Table 107 summarizes the options.

Table 107
Access Codes and 1+ dialing

# of Access Codes	Need LOC?	Use 1+?	Results
2	yes	yes	no conflicts
2	yes	no	may need to check that no LOC is identical to any NPA (depends on access code arrangement)
2	no	yes	no conflict
1	no	yes	no conflict
1	no	no	not recommended
1	yes	yes	not recommended

The ideal dialing plan continues to use two Access Codes, with 1+ dialing for NPA calls. (Digit Manipulation can remove the “1” for customers whose Central Office does not support 1+ dialing.)

Customers with two Access Codes that do not want to use 1+ dialing must ensure that no LOCS in the database are identical to existing NPAs. The database needs to be checked whenever a new NPA is introduced.

Customers who do not need LOCs can use a single Access Code and 1+ dialing or two Access Codes, one for NPA and one for the Central Office code.

Software modifications enable users to enter the new interchangeable NPAs in the following tables:

- Customer Data Block, LD 15. Changes allow the interchangeable NPA entry.
- Electronic Switched Networking (ESN) Translation tables, LD 90. Changes allow the interchangeable NPA format to be entered in response to NPA and HNPA prompts. Responses are compared to NARS/BARS call digits to determine call routing.
- Free Calling Area Screening (FCAS) tables, LD 87. Changes allow users to enter the interchangeable NPA format in response to the NPA prompt. Prompt values are compared to dial digits to determine if FCAS should screen calls.
- Feature Group D (FGD) Code Restriction tables, LD 19. Changes allow entry of the interchangeable NPA format in response to the NPA prompt. Feature Group D uses the response to restrict certain calls that terminate at, or tandem through, a given node.
- Meridian 911 (M911) Numbering Plan Digit/Information Digit (NPID) tables, LD 16. Changes allow entry of the interchangeable NPA format.

This software is available beginning with X11 Release 19. Upgrades may also require hardware modification depending on route selection capabilities, system type, and software release.

Direct Trunk Access and Alternate Route Selection

Direct Trunk Access and Alternate Route Selection customers need not update software to support interchangeable NPAs. Customers using Direct Trunk Access should continue to monitor local dialing procedures to ensure correct toll call recognition.

System upgrades

Upgrade requirements can include hardware and software. For specific information, consult *Upgrade system installation* (553-3001-250).

Feature implementation

The following prompts have been modified to accept NPA input in the new interchangeable format:

LD 15 – Home Numbering Plan Area modification.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB NET	Customer Data Block. Release 21 gate opener.
...		
- ISDN	YES	Change ISDN options.
- HNPA	200-999 1200-1999	Home Numbering Plan Area code.

LD 16 – NPA code definition for the M911 feature.

Prompt	Response	Description
...		
TYPE	NPID	Numbering Plan Digit/Information Digit table.
IDTB	0-7	NPID table number.
NPID	0-9	NPID to be translated.
TRMT	NPA	NPID treatment.
NPA	200-999	Numbering Plan Area code.

LD 19 – NPA input for incoming Feature Group D ANI screening.

Prompt	Response	Description
...		
TYPE	ANI	Feature Group D data block.
ANIT	(OVF), RAN xxx, DN xxx, NCOS xxx	Invalid Automatic Number Identification (ANI) treatment.
NPA	200-999	Three ANI digits in NPA format (prompt accepts only three digits even if 1+ dialing is in effect).

LD 87 – Free Call Area Screening definition.

Prompt	Response	Description
...		
FCI	xxx	Free Call Area Screening table index number.
NPA	200-999 200-999 200-999	Area code or extended NPA code translation (only three digits accepted even if 1+ dialing is in effect).

LD 90 – NARS/BARS.

Prompt	Response	Description
...		
TRAN	AC1, AC2, SUM	Access code 1, 2, or summary tables.
NPA	200-999 200-999 200-999 1200-1999 1200-1999 1200-1999	Area code or extended NPA code translation.
HNPA	200-999 1200-1999	Home Numbering Plan Area code.

Carrier Access Codes

A Carrier Access Code (CAC) gives a caller access to any interexchange carrier or Operator Service Provider (OSP). FCC regulations require that Call Aggregators, such as hotels, motels, hospitals, universities, airports, gas stations, and pay telephone owners, provide selective access to the public. Callers dial the CAC to reach their desired carrier or OSP before dialing the telephone number.

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.

Northern Telecom provided an up-issue of X11 Release 14 in 1992 to conform to Federal Communications Commission (FCC) Equal Access requirements. Beginning with X11 Release 17, all software releases support Equal Access. X11 Releases 15 and 16 do not support Equal Access. Support for expanded codes, as described in the following paragraph, is available beginning with X11 Release 19.

The CAC has included a “10” identifying prefix followed by a three-digit Carrier Identification Code (CIC) for a total of five digits. New FCC regulations, reflected in X11 Release 19, require that the CAC expand to seven digits: a “101” identifying prefix followed by a four-digit CIC. The regulations require that both the old five-digit format and the new seven-digit format be supported for an 18-month permissive period during 1995 and 1996. After this period, only the longer format will be supported.

Feature packaging

Equal Access compliance is included in base X11 system software. The Network Class of Service package (NCOS) package 32 is required to configure Equal Access.

Feature implementation

Current Equal Access users who install new software prior to the end of the 1995/1996 FCC interim period must set the Original Carrier Access Code (OCAC) flag in LD 17 to YES when they upgrade their software or begin using a release that supports the CAC expansion feature.

For complete information on implementation and configuration, refer to the Equal Access Compliance feature description in this document.

Feature operation

X11 software allows the following operator-assisted North American and international dialing sequences:

- CAC + 0
- CAC + 0 + (NPA) + NXX + XXXX
- CAC + 01 + CC + NN

X11 software allows or denies these direct-dialed calls:

- CAC + 1 + (NPA) + NXX + XXXX
- CAC + 011 + CC + NN

where

CAC = Carrier Access Code (10XXX or 101XXXX)

NPA = Numbering Plan Area (area code)

NXX = Central Office code format

(N = any digit except 0 or 1; X = any digit 0–9)

XXXX = any four digits

CC = Country Code, and

NN = National number.

Office Data Administration System

The Office Data Administration System (ODAS) package provides a method for retrieving administrative information stored in Meridian 1 memory. This feature can expedite administration and billing activities by significantly reducing the need for manual records.

The Station Line Designator (DES) code is any alphanumeric code of one to six characters. The customer selects this number, which can help the customer group telephones according to users, floor location, or any other category.

The following table lists the types of data that can be printed using the Office Data Administration System (ODAS) and the overlay program to use for each task:

Type of data required	LD
Count telephones with specified feature(s)	81
List Directory Number (DN) blocks by DATE entry	22
List DN blocks by station line designator (DES) entry	22
List Terminal Number (TN) alphabetically by DES	83
List TN with specified DATE entry	20
List TN with specified DES entry	20
Print Multiple Appearance Groups	82
Print TN to DES correlation for specified feature(s)	81
Print TN data blocks with specified DATE entry	20
Print TN data blocks with specified DES entry	20

Refer to the Northern Telecom Publication *Office Data Administration System description and engineering* (553-2721-100) for a complete description of the Office Data Administration System (ODAS).

Operating parameters

It is recommended that 1200 baud printers be used on larger systems to reduce the time required to obtain ODAS printouts. When a system is equipped with a 1200-baud printer, a 300-baud device must not be assigned to perform the same function.

Feature interactions

Set Based Administration Features

Changes to data blocks made by using Set-Based Administration will also cause the ODAS time stamps to be updated.

Refer to *Office Data Administration System description and engineering* (553-2721-100).

Feature packaging

Office Data Administration System (ODAS) is package 20 and has no feature package dependencies.

Feature implementation

LD 84/85 – Assign or change station line designator (DES) entry for telephones.

Prompt	Response	Description
TN	l s c u	Terminal Number.
DES	a...x	DES (one to six alphanumeric characters).

LD 10 – Assign or change DES entry for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
DES	a...x	DES (one to six alphanumeric characters).

LD 11 – Assign or change DES entry for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
DES	a...x	DES (one to six alphanumeric characters).

Feature operation

No specific operating procedures are required to use this feature.

Off-Hook Alarm Security

With X11 Release 18 and later, Off-Hook Alarm Security (OHAS) allows locked out calls to be intercepted to a customer-defined Directory Number (DN) other than an attendant (for example, a security DN). OHAS treatment is determined on a telephone basis by assigning a Class of Service called Alarm Security Allowed (ASCA). By enhancing line lockout, telephones with Alarm Security Allowed (ASCA) Class of Service are intercepted to customer-defined Directory Numbers (DNs) when the dial tone/interdigit timer expires or the telephone is Forced Out of Service (FSVC). Telephones without ASCA continue to use the existing line lockout treatment; refer to the Line Lockout module in this document.

An Off-Hook Alarm Security (OHAS) DN can be a Single Appearance Directory Number (DN), a Multiple Appearance DN, or an Automatic Call Distribution (ACD) DN. The OHAS DN cannot be an attendant DN, Listed DN, SPRE, Virtual ACD Agent, or Trunk Access Code.

To associate a telephone with an OHAS DN:

- Associate the OHID and FSVC (if necessary), and the Alarm Security Timer (ASTM) to an OHAS DN through the ODNx prompt in LD 15.
- Assign the ASCA Class of Service in LD 10 or LD 11.

If the ASCA Class of Service is assigned, but the telephone is not associated to an OHAS DN, an error message appears on the maintenance TTY when the system tries to redirect the call.

The Alarm Security Timer (ASTM) provides dial tone and interdigit timing for telephones with ASCA Class of Service. The ASTM does not apply to telephones being Forced Out of Service (FSVC).

Dial tone and interdigit timeout – call treatment

A telephone associated with an OHAS DN that receives a dial tone or interdigit timeout intercepts to the OHAS DN specified by the telephone's Off-Hook Interdigit OHAS number (OHID).

Forced Out of Service (FSVC) – call treatment

A digital telephone is considered FSVC when the line is cut, damaged, or unplugged.

The FSVC OHAS treatment applies only to digital telephones. A telephone associated with an OHAS DN that is FSVC intercepts to the OHAS DN specified by the telephone's FSVC number.

Multiple OHAS DNs

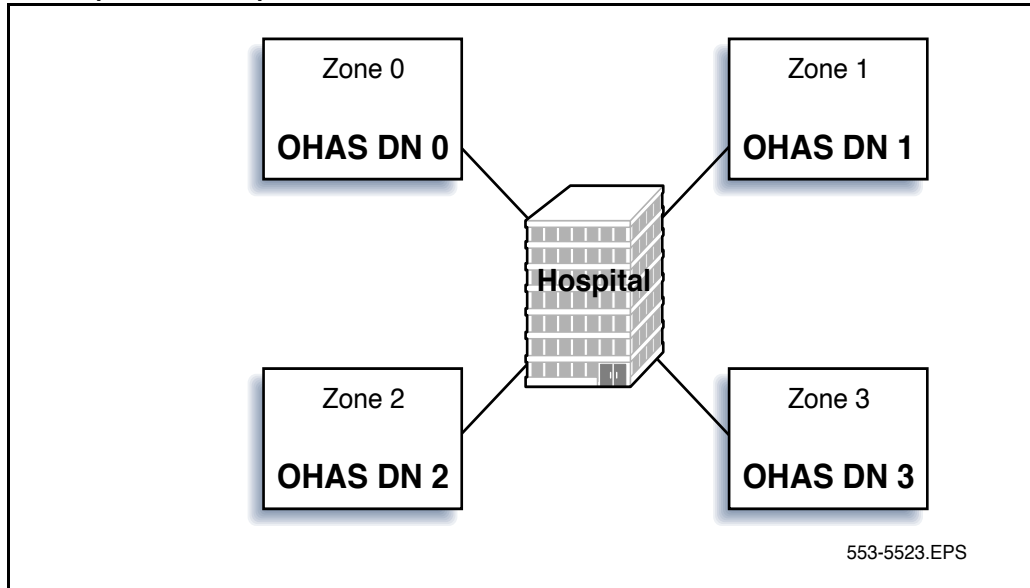
The two methods for handling multiple OHAS DNs are zone and event dependent, and are described in the following sections.

Multiple OHAS DNs – zone dependent

OHAS allows for multiple OHAS DNs within a single customer group, enabling the customer to create multiple zones.

For example, a hospital with several locations can define separate OHAS DNs for each location and define each distinct location as a zone. In Figure 60, the hospital has four zones. A separate OHAS DN is defined for each of the four zones. Zone 0 uses OHAS DN 0, Zone 1 uses OHAS DN 1, and so on. Each telephone in Zone 0 defines the OHID and FSVC numbers to 0; each telephone in Zone 1 defines the OHID and FSVC numbers to 1, and so on.

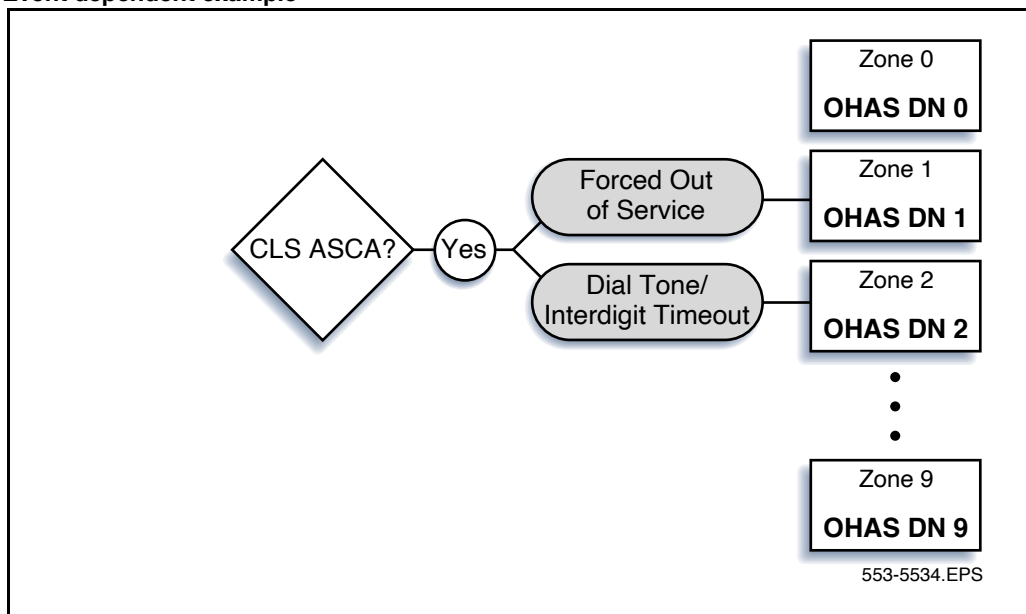
Figure 60
Zone dependent example



Multiple OHAS DNs – event dependent

OHAS can distinguish between OHID timeout and FSVC events by having a single telephone with separate OHAS DNs for OHID timeout and FSVC events (e.g., a telephone can be defined with a FSVC number 1 and OHID number 2. If a dial tone/interdigit timeout occurs, the telephone intercepts to OHAS DN 2. If the same telephone is FSVC, OHAS DN 1 is notified).

Figure 61
Event dependent example



OHAS TTY display

Every time an OHAS intercept treatment takes place, a message is sent to all maintenance TTYs. This message contains an OHAS message indicator, the originating DN and TN, and a time stamp.

Format			
OHASxxxx	<dn>	l s c u	time stamp
Output example			
OHAS0000	5003	1 0 1 0	04:30:21
Note: The two possible OHAS messages are: OHAS0000OHAS treatment due to dial tone/interdigit timeout, and OHAS0001OHAS treatment due to Forced Out of Service call treatment.			

Operating parameters

OHAS is not supported for attendants or networks.

OHAS intercept treatment for FSVC telephones is provided only for the following telephones:

- the M2009, M2112, and M2018
- the M2317
- the M3000, and
- the M2006, M2216, M2616, M2008, and M2016.

The Alarm Security Timer (ASTM) does not apply to telephones being FSVC.

The timing for recognizing a FSVC condition depends on the type of card that the system is using:

- The Integrated Services Digital Line Cards (ISDLs) take approximately six seconds to recognize an FSVC condition.
- Peripheral Controller cards take approximately one second to recognize an FSVC condition.

Once a trunk is seized, OHAS treatment does not apply.

Feature interactions

Call Redirection

Call Redirection features defined for telephones with ASCA Class of Service work as currently defined in the system. The Call Redirection features include the following:

- Call Forward All Calls
- Call Forward No Answer
- Call Forward Busy
- Call Forward by Call Type
- Call Pickup, and
- Hunting.

Call Transfer

A telephone receives the OHAS treatment if the telephone has ASCA Class of Service and attempts to transfer a call and the ASTM expires.

Conference

The OHAS line lockout treatment occurs when a telephone associated with an OHAS DN initiates a Conference call and the ASTM expires. Only the Conference initiator receives the OHAS treatment; other conferees remain in Conference. If the initiator of the Conference call presses the Conference key, the OHAS DN is conferenced in with the other conferees.

Electronic Switched Network (ESN) and Trunk Access Codes

If an ESN or Trunk Access Code is dialed, the dial tone/interdigit timer is stopped and the telephone will not recall to the designated OHAS DN after the specified time period has elapsed.

Enhanced Flexible Feature Codes

The Busy Number Redial feature cannot be used on a set with Off-Hook Alarm Security Allowed, since ADL cannot be configured on these sets.

Last Number Redial

Stored Number Redial

OHAS treatment may apply to these features if the ASTM expires.

Line Lockout

OHAS treatment occurs when a telephone with ASCA Class of Service receives an interdigit or dial tone timeout. The ASTM is used instead of the dial tone and interdigit timers (DIDT and DIND, respectively) normally used for LLT and DLT line lockout treatment.

Multi-Party Operations

The Off-Hook Alarm Security feature is mutually exclusive with Multi-Party Operations.

No Hold Conference (NHC)

OHAS treatment occurs when a telephone with ASCA Class of Service attempts an NHC call and the ASTM expires. The OHAS DN is conferenced in with the other conferees.

Room Status

OHAS takes precedence over the off-hook detection method of the Room Status feature. If a telephone is defined with the Alarm Security Allowed (ASCA) Class of Service, the off-hook detection method does not work.

**System Speed Call
Speed Call**

OHAS treatment may apply to these features if the ASTM expires. The Alarm Security Timer may expire for the following reasons:

- A dial tone or interdigit timeout occurs while dialing the speed call access code.
- The Speed Call being accessed has an asterisk (*) causing a three-second delay. If the ASTM is three seconds or less, the OHAS intercept treatment may occur.

Feature packaging

Off-Hook Alarm Security is included in base X11 system software.

Feature implementation

LD 15 – Define the Off-Hook Alarm Security (OHAS) Directory Numbers (DNs). OHAS DN must have ASCA Class of Service assigned in LD 10 or LD 11.

Prompt	Response	Description
REQ	NEW, CHG	Add or change.
TYPE	CDB INT	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- LLT	(OVF), ATN, OFA	Flexible line lockout treatment.
...		
TYPE	OAS	Release 21 gate opener.
OHAS	(NO), YES	(Do not) change OHAS parameters. OHAS is prompted with X11 Release 20 and earlier.
The following prompts occur only if OHAS = YES.		
- ODN0	xxx...x	OHAS DN 0.
- ODN1	xxx...x	OHAS DN 1.
- ODN2	xxx...x	OHAS DN 2.
- ODN3	xxx...x	OHAS DN 3.
- ODN4	xxx...x	OHAS DN 4.
- ODN5	xxx...x	OHAS DN 5.
- ODN6	xxx...x	OHAS DN 6.
- ODN7	xxx...x	OHAS DN 7.
- ODN8	xxx...x	OHAS DN 8.
- ODN9	xxx...x	OHAS DN 9.
- ASTM	1-(30)-63	The timer applies to all OHAS DN and is programmable in one-second increments.

LD 10 – Assign Alarm Security Allowed (ASCA) Class of Service.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Telephone type.
CLS	(ASCD), ASCA	Alarm Security (denied) allowed. When ASCA is assigned, the OHAS DN must be defined in LD 15.
OHID	(0)-9	Off-Hook Interdigit OHAS number.

LD 11 – Assign Alarm Security Allowed (ASCA) Class of Service.

Prompt	Response	Description
REQ	NEW, CHG	Add or change.
TYPE	aaaa	Telephone type, where: aaaa = 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
CLS	(ASCD), ASCA	Alarm Security (denied) allowed. When ASCA is assigned, the OHAS DN must be defined in LD 15.
OHID	(0)-9	Off-Hook Interdigit OHAS number.
FSVC	(0)-9	FSVC OHAS DN number. The FSVC prompt is given only to digital telephones.

Feature operation

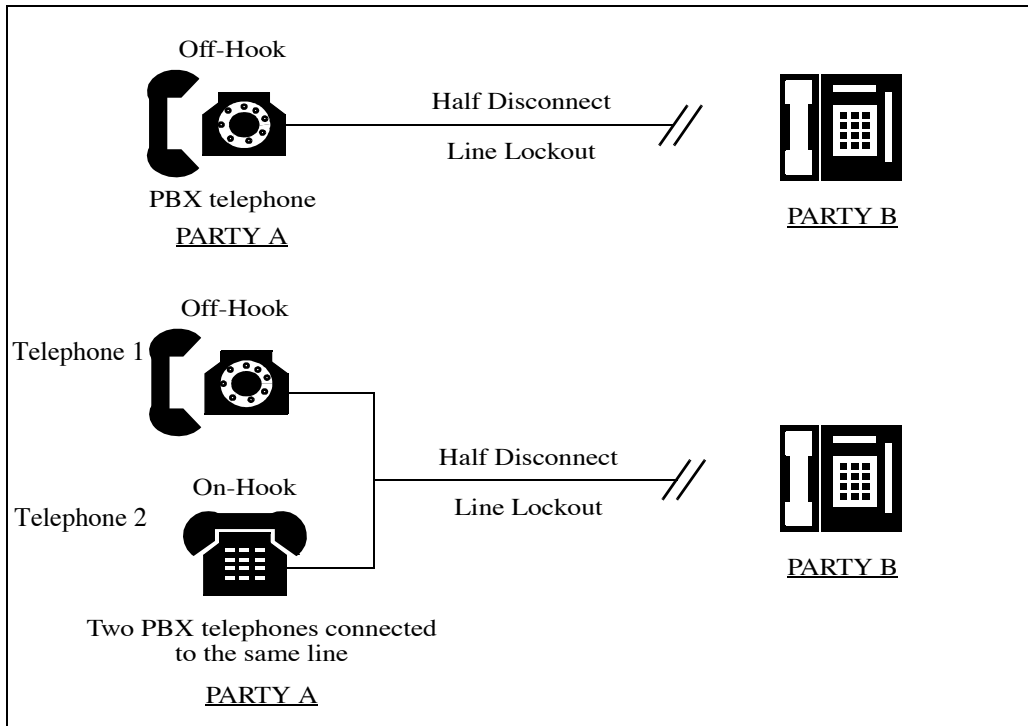
No specific operating procedures are required to use this feature.

Off-Hook Alarm Security Half Disconnect Enhancement

The Off-Hook Alarm Security Half Disconnect Enhancement (OHAS HD) feature, enhances the functionality of the existing Off-Hook Alarm Security (OHAS) feature, (X11 Release 18). The existing Off-Hook Alarm Security (OHAS) feature allows a user to indicate an emergency by going off hook. The security DN programmed for the off-hook telephone rings after the dial tone/interdigit timer expires.

Where two telephones share one TN, the need for an enhancement addressing the Half Disconnect condition arose. The scenario is as follows. A user initiates a call on telephone 1 and then continues the call on telephone 2, in a different location. When the user completes the call, but only hangs up telephone 2, (telephone 1 remains off hook) the line (Party A) remains in the Half Disconnect/Line Lockout state until the user remembers to put telephone 1 on hook. (See Figure 62.)

Figure 62
OHAS HD Scenario



When the OHAS HD feature is enabled you can define, on a customer basis, the length of time before the OHAS HD treatment is given. When this timer expires the programmed security DN rings. If a telephone goes on-hook before the OHAS Half Disconnect Timer (HDTM) expires, the OHAS Half Disconnect treatment is canceled, as the telephone has completed its disconnect.

The OHAS Half Disconnect Option, (HDOPT) determines the number of OHAS Half Disconnect treatments that can be given to telephones that remain in the Half Disconnect state. This is programmed on a customer group basis.

There are three OHAS HD options for Half Disconnected telephones with OHAS enabled.

- **HDOPT = 0** is the existing treatment without the OHAS Half Disconnect Enhancement. It is the default option and disables the Off-Hook Alarm Security Half Disconnect feature. Line Lockout treatment occurs after the normal Half Disconnect timer expires and Half Disconnect state is recognized.
- **HDOPT = 1-10** indicates the maximum number of OHAS HD treatments given to the half disconnected analog (500/2500) type telephone. This option allows a limited number of OHAS HD treatments. If the telephone remains off-hook in the half-disconnect state after the maximum number of treatments has expired, Line Lockout occurs when the security DN disconnects after the last OHAS Half Disconnect treatment.
- **HDOPT = CONT** provides a continuous application of the OHAS HD treatment, while the analog telephone remains in the half disconnected state. This option continues to call the security DN every time the HDTM expires until the analog (500/2500) type telephone goes on-hook.

Class of Service

To enable the OHAS HD feature the telephone must have CLS = Alarm Security Allowed (ASCA). Therefore when the HDTM timer expires, instead of giving the Line Lockout treatment, the OHAS HD treatment is given.

OHAS security DN

On a telephone basis an HDID is assigned. The HDID is the OHAS HD Index number. The values are 0 - 9. The Index number refers to the ten OHAS DNs you can program in the Customer Data Block. For example, if a telephone has HDID 1 assigned, OHAS HD treatment calls the security DN programmed for OHAS DN 1 (ODN1), in the Customer Data Block.

The OHAS HD Index can be configured to send calls to the same security DN as the existing OHAS Off-Hook Index (OHID) or a different security DN. This flexibility allows you to distinguish between regular OHAS dial tone/interdigit time-out treatment calls (emergency situations) and OHAS HD treatments for half disconnect calls.

OHAS Half Disconnect Timer

With the OHAS Half Disconnect Enhancement feature enabled, the administrator can define the length of time before the OHAS HD treatment is given. The OHAS HD timer (HDTM) gives the average user enough time to complete the disconnect of the previous call by placing all the analog telephones on-hook. The length of the OHAS Half Disconnect timer can be defined from 1 to 600 seconds (10 minutes). The timer is programmable in one second increments. The HDTM starts after the half disconnect state is detected. The default for the HDTM is 30 seconds.

OHAS TTY record display

As with the existing OHAS feature, a message also prints out on the TTY terminal indicating the telephone which is receiving OHAS treatment. The message is the same for regular OHAS and OHAS Half Disconnect.

Each occurrence of an OHAS HD intercept treatment results in a message printout on the service change TTY or the active TTY. The content and the format of the OHAS HD message is the same as the regular OHAS off-hook or interdigit time-out message.

The following is an example of the record content:

OHAS000 2010 1 0 1 3 5:04:04 7/09/1998

The definitions of the fields are as follows:

OHAS000 = OHAS message indicator

2010 = DN (the DN of the analog (500/2500) type telephone receiving OHAS or OHAS Half Disconnect treatment)

1 0 1 3 = l s c u (the TN of the analog (500/2500) type telephone receiving OHAS or OHAS Half Disconnect Treatment)

Note: The TN of the Option 11 is only two digits (c u).

5:04:04 = time stamp (when the OHAS or OHAS Half Disconnect Treatment is given)

7/09/1998 = date stamp

Operating parameters

While a 500/2500 telephone is in the half disconnect/Line Lockout state, the OHAS feature for emergencies cannot be triggered. OHAS will not work until the off-hook 500/2500 telephone goes on hook to disconnect the previous connection.

When OHAS Half Disconnect occurs, new calls cannot be initiated from the half-disconnected telephones.

If Party A goes on-hook at any time, the OHAS Half Disconnect treatment is canceled, since the disconnect is completed.

The OHAS Half Disconnect Timer is separate from the existing OHAS timer.

Digital telephones do not go into the half disconnect state. Digital telephones cannot share a TN with other telephones.

The feature does not apply to digital telephones since the half disconnect state does not apply to them.

The OHAS HD treatment is not provided for Attendant Consoles.

If the telephone remains off-hook in the half-disconnect state after the maximum number of OHAS HD treatments has expired, Line lockout occurs when the security DN disconnects after the last OHAS Half Disconnect treatment.

OHAS HD calls can be directed to a separate security DN to enable the user who answers the calls to distinguish between an Off Hook Alarm Security call and an Off Hook Alarm Security Half Disconnect Call.

Ringback tone can be heard at the off-hook analog telephone when the security DN is ringing. Anyone who uses one of the half-disconnected 500/2500 telephones can speak to the person who answers the security DN.

If Party A goes on-hook at any time, the OHAS Half Disconnect treatment is canceled, since the disconnect is completed.

If the connection is a trunk call and the far end does not disconnect completely, Party A will not go into the half disconnect state. The system treats Party B and Party A as if they are still on an active call.

The OHAS HD feature applies only to a single switch. It is not supported in a networking environment.

The OHAS HD security DN cannot be an Attendant DN.

The operation of the OHAS HD timer is impacted on systems with high traffic.

Feature interactions

Call Redirection

Call Redirection features defined for OHAS Half Disconnect security DN work as currently defined in the system. Call Redirection features include:

- Call Forward All Calls
- Call Forward No Answer
- Call Forward Busy
- Call Forward by Call Type
- Call Pickup
- Hunting

Conference

If an analog 500/2500 telephone user with the ASCA Class of Service is in a conference and all the other parties disconnect from the call while the user's telephone remains off hook, the OHAS Half Disconnect Enhancement feature applies to the half-disconnected telephone.

Line Lockout

If an analog telephone has the ASCA Class of Service, and it is in the half disconnected state, the OHAS HD treatment occurs if the customer-based OHAS Half disconnect option (HDOPT) is enabled. Choose HDOPT 1-10 or HDOPT = CONT. If HDOPT= 0 is selected, Line Lockout will occur.

If the telephone stays in the half disconnected state and the number of the OHAS HD treatments given to the telephone exceeds the maximum defined number, Line Lockout is given to the telephone after the last OHAS Half Disconnect treatment is given.

No Hold conference

The OHAS HD treatment works the same for a conference call initiated using No Hold Conference as for Conference.

Feature packaging

The Off-Hook Alarm Security Disconnect Enhancement is included in base X11 system software.

Feature implementation

This section contains the overlay procedures required to configure the Off-Hook Alarm Security Half Disconnect Enhancement feature on a Meridian 1.

The required procedures are as follows:

- 1 Configure OHAS Directory Numbers, the OHAS Half Disconnect treatment option and the OHAS HD timer in the Customer Data Block (LD 15).
- 2 Assign an ASCA Class of Service to the telephone (LD 10). Associate the telephone with one of the ten OHAS DNs configured in LD 15.

Note: The telephone is also programmed with an OHID, related to the OHAS feature.

LD 15 – Configure Off-Hook Alarm Security (OHAS) Directory Numbers (DNs), Half Disconnect treatment option, and the OHAS Half Disconnect timer.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	OAS	Off-Hook Alarm Security (OHAS) options.
CUST	xx	Customer number.
ODN0	xxxx	OHAS DN 0.
...		
ODN9	xxxx	OHAS DN 9.

ASTM	1 - (30) - 63	OHAS off-hook or interdigit timeout timer in seconds.
HDOPT	(0) 1-10 CONT	OHAS Half Disconnect treatment options: No OHAS HD treatment given. Maximum number of OHAS HD treatments. Continuous OHAS HD treatments.
HDTM	1- (30) - 600	OHAS Half Disconnect timer in seconds (in increments of 1 second).

LD 10 - Assign an ASCA Class of Service to the telephone. Associate the telephone with one of the ten Off-Hook Alarm Security Directory Numbers (ODN0-9) configured in LD 15.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	500/2500 telephones.
TN	I s c u c u	Terminal Number Options 51-81C. Option 11C
CUST	xx	Customer Number.
DES	d..d	Office Data Administration System Station Designator.
...	...	
DN	x...x	Directory Number.
....		
CLS	ASCA	Alarm Security Allowed. (ASCD) = Alarm Security Denied is the default.
...		
OHID	(0) - 9	OHAS ID index to OHAS security DN.
HDID	(0) - 9	OHAS Half Disconnect Index to OHAS HD security DN.

Feature Operation

No specific operating procedures are required to use this feature.

Off-Premise Extension

The Off-Premise Extension (OPX) feature allows a single line telephone serving as an extension to be located away from the customer premises. The loop limit is 1400 ohms to the station or equivalent long-line circuit interface. Distance varies depending on the gauge of wire used.

Refer to Northern Telecom Publication *500/2500 line cards description and operation* (553-2201-183) for additional information.

Operating parameters

The Off-Premise Extension (OPX) feature applies only to single line telephones. A QPC192 line circuit pack must be equipped.

Feature interactions

Refer to *500/2500 line cards description and operation* (553-2201-183).

Feature packaging

Off-Premise Extension (OPX) is included in base X11 system software.

Feature implementation

LD 10 – Add or change Off-Premise Extension Class of Service for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	(ONP), OPX	Telephone is an on-premises or off-premises extension.

Feature operation

There are no specific procedures required to operate this feature.

On-Hook Dialing

The On-Hook Dialing feature enables a Meridian 1 proprietary telephone user to make a call without lifting the handset. Signaling tones and the voice of the called party are heard over the loudspeaker. For two-way communication, the user must lift the handset or activate the Handsfree unit if equipped.

Operating parameters

The On-Hook Dialing feature does not apply to analog (500/2500 type) telephones.

Feature interactions

There are no interactions with other features.

Feature packaging

On-Hook Dialing is included in base X11 system software.

Feature implementation

No change to existing configuration is required for the On-Hook Dialing feature.

Feature operation

No specific operating procedures are required to use this feature.

Optional Outpulsing Delay

The Optional Outpulsing Delay (OOD) feature increases to three seconds the Start of Dialing Delay used for automated dialing on loop start Central Office (CO) trunks. This feature is required for Meridian 1 connection in some countries.

Operating parameters

There are no feature requirements.

Feature interactions

Features that automatically dial digits onto a loop start CO trunk are provided with an additional delay. These features include the following:

- Stored Number Redial
- Autodial
- Speed Call
- Call Forward All Calls
- Basic Alternate Route Selection/Network Alternate Route Selection (BARS/NARS)
- System Speed Call
- Network Speed Call, and
- Flexible Hot Line.

Feature packaging

Optional Outpulsing Delay (OOD) package 79 has no feature package dependencies.

Feature implementation

No change to existing configuration is required for the Optional Outpulsing Delay feature.

Feature operation

No specific operating procedures are required to use this feature.

Overlay Cache Memory

With X11 Release 18 and later, Overlay Cache Memory uses Protected Data Storage (PDS) as a cache area for storing overlays loaded from disk. The cache memory overlays are accessed much faster than those on disk, reducing the load time to approximately one second.

A maximum of 32 overlays can reside in Overlay Cache Memory at one time. The CACH prompt in LD 17 defines the number of cache memory buffers allocated in protected memory. Each overlay resides in a buffer. A zero entry deactivates this feature and requires all overlays to be loaded from disk.

Each buffer requires 19K of Protected Data Storage (PDS). If there is insufficient memory to store the number of buffers requested, a warning message follows the LD 17 prompt sequence. The message indicates that more memory is required to store all the caches requested.

If a small number of cache memory buffers are allocated, frequently used overlays may be removed from protected memory by seldom used overlays. The PRTY prompt in LD 17 sets an overlay priority flag. A priority flag prevents the removal of an overlay from cache memory. The number of priority flags set cannot exceed the number of cache memory buffers specified.

When an LD xx command is entered, the cache memory is checked for the requested overlay. If the requested overlay is in cache memory, its data portion is rapidly copied to the regular overlay area.

A requested overlay that is not in cache memory is loaded from the disk into the normal overlay area and simultaneously stored into a cache memory buffer, if one is available. If one is not available, the new overlay overwrites another in the cache memory.

If an overlay is loaded from disk and no unused buffer area exists, the overlay used longest ago without its priority flag set is removed and replaced by the new overlay.

Operating parameters

If the feature is deactivated with a zero (0) entry at the CACH prompt in LD 17, no cache memory exists and all overlays are loaded from disk.

Cache memory is not affected by a system initialization. After a system initialization, it is not necessary to reload overlays from the disk.

Each buffer requires 19K of PDS. The number of cache memory buffers allocated to the system is limited by the availability of spare memory. If enough memory exists, a maximum of 32 cache memory buffers is allowed. Each buffer stores one overlay.

The number of overlay priorities (PRTY) that can be set is dependent upon Release.

- Release 18 - The number of overlay priorities cannot exceed the number of cache memory buffers allocated.
- Release 19 and 20 - The number of cache memory buffers (CACH) allocated must exceed the number of overlay priorities (PRTY) by three. (CACH = PRTY +3)
- Release 21 and later - The number of cache memory buffers (CACH) allocated must exceed the number of overlay priorities (PRTY) by four. (CACH = PRTY+4)

To load an overlay from disk, use the command LD xx D. This is necessary for the system to determine which overlay to read. The LD xx D command loads the overlay from disk and overwrites the same overlay existing in cache memory.

Using the LD xx D command to force load an overlay from disk does not simultaneously support the peripheral download SUSP command.

When overlays are stored in cache memory, the ENLT and DIST commands are not supported.

The system automatically stores and retrieves overlays from cache memory. If the cache area is full when a new overlay is requested, the overlay gone unused the longest without a priority flag set is removed and replaced by the new overlay. Daily routines and background-loaded overlays are not stored in cache memory.

The Overlay Cache Memory feature does not apply to Option 51C, 61C, 81, and 81C systems.

Conversion and upgrades

Due to memory requirements, installing a new issue of software or the same issue with additional features may reduce the number of cache buffers that can be allocated. A warning message indicates this reduction has occurred.

If this reduction causes the number of overlay priorities to exceed the maximum number of cache buffers, the overlay priorities are reduced to equal the number of cache buffers. The priorities are automatically reduced by beginning with the highest overlay number and working downward.

Feature packaging

Overlay Cache Memory is included in the base X11 system software.

Feature implementation

LD 17 – Change system configuration record.

Prompt	Response	Description
REQ	CHG	Change data.
TYPE	CFN OVLY	Configuration Record. Release 19 gate opener.
OVLY	YES	Change overlay area.
- CACH	(0), 2-32	Number of overlay buffers held in cache memory. Entering 0 disables the feature.
- PRTY	xx xx xx xx...	Set priority for the stored overlays. Priority can be set only for the number of overlays specified in CACH. xx = the overlay number. An X preceding the number deletes the priority flag for that overlay.

Feature operation

No specific operating procedures are required to use this feature.

Override

The Override feature provided in base X11 system software allows a user to enter into an established connection. A warning tone notifies the talking parties that a third party is about to enter the conversation. The warning tone is an initial one-second burst, followed by a 256 millisecond burst repeated every 16 seconds. The Override feature can be used after a user has dialed a busy Directory Number (DN).

Forced Camp-On and Priority Override

With X11 Release 20 and later software, the Forced Camp-On and Priority Override features provide enhancements to the basic Camp-On feature. 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. 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 telephones or the Enhanced Override Flexible Feature Code on analog (500/2500 type) telephones.

Priority Override allows an established call to be broken into and another call to be presented to the desired party. Before break-in occurs, a warning tone is given to all parties involved in the established call. The telephone performing the override must have a priority level equal to or higher than the telephone being overridden. Priority Override is activated by dialing the Override Flexible Feature Code on analog (500/2500 type) telephones, or by pressing the Override key (OVR) on Meridian 1 telephones.

For detailed information on the Forced Camp-On and Priority Override features, refer to the Camp-On, Forced, and Override, Enhanced feature descriptions contained in this document.

Operating parameters

On Meridian 1 proprietary telephones, a separate Override key must be assigned. An associated lamp is not required.

On analog (500/2500 type) telephones, a Flexible Feature Code (FFC) is required to override a call.

Override cannot be used to enter an established connection if any party (telephone or trunk) has Warning Tone Denied Class of Service. In this case, overflow tone is heard.

The system must have a conference loop.

Feature interactions

Attendant Break-In

When one Meridian 1 telephone has overridden an existing call to establish a Conference call, Break-In is temporarily denied. The attendant is notified via the Override tone.

Automatic Redial (ARDL)

An ARDL call cannot be overridden. This is done to avoid creating a conference when a tone detector is involved.

Conference

Override cannot be used to enter a Conference call.

Enhanced Override

If Priority Override is equipped, it replaces Override when using the OVR key or OVRD FFC. However, Override can be simulated by using the default PLEV, 2, for all trunk routes and sets.

Phantom TNs

Call Forward

Call Forward cannot be overridden on phantom TNs. The overflow tone occurs if an Override is attempted.

Priority Override

If Priority Override is equipped, it replaces Override when the OVR key or OVRD FFC is used. However, Override can be simulated by using the default PLEV, 2, for all trunk routes and sets.

Feature packaging

Override is included in base X11 system software.

For analog (500/2500 type) telephones, Flexible Feature Code (FFC) package 139 must be equipped.

Forced Camp-On/Priority Override (POVR) is package 186.

Feature implementation

LD 10 – Allow Override for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	I s c u	Terminal Number.
CLS	(OVDD), OVDA (XFD), XFA (WTA), WTD	Override (denied) allowed for this telephone. Transfer (denied) allowed. Warning Tone (allowed) denied (WTA is required to be overridden).

LD 11 – Add or change Override for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = Meridian 1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u	Terminal Number.

CLS	(WTA), WTD	Warning Tone (allowed) denied (WTA is required to be overridden).
KEY	xx OVR	Override key (must be key 34 for the M3000).

LD 14 – Define Warning Tone Allowed for trunks to permit Override.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaa	Trunk type, where: aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, or WAT.
TN	l s c u	Terminal Number.
CLS	(WTA), WTD	Warning Tone (allowed) denied (WTA is required to be overridden).

LD 57 – Configure Flexible Feature Code (FFC) for Override on an analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Codes.
CUST	0-99	Customer number.
CODE	OVRD	Change Override access code.
OVRD	xxxx	Override access code.

Feature operation

To override a call in progress from a Meridian 1 proprietary telephone:

- 1 Dial the number. You hear a busy tone.
- 2 Press **Override**. Everyone hears a one-second tone burst.
- 3 You are connected to the call.

To cancel Override from a Meridian 1 proprietary telephone:

- 1 Press **Rls** or hang up.
- 2 You are disconnected. The original call remains active.

To override a call in progress from an analog (500/2500 type) telephone:

- 1 Dial the number. You hear busy tone.
- 2 Flash the switchhook or press **LINK**.
- 3 Dial the Flexible Feature Code (FFC) for Override. Everyone hears a one-second tone burst.
- 4 You are connected to the call.

To cancel Override from an analog (500/2500 type) telephone:

- 1 Press **Rls** or hang up.
- 2 You are disconnected. The original call remains active.

Override, Enhanced

The use of the Forced Camp-On and Priority Override features together results in Enhanced Override (EOVR).

Forced Camp-On

Forced Camp-On allows a call to be camped on and a warning to be given before the Priority Override operation. It differs from normal Camp-On in that both internal and external calls can be camped on, rather than just external calls as with the Camp-On feature. The Forced Camp-On may be automatic or manual. The manual operation requires the use of the Enhanced Override (EOVR) feature.

Forced Camp-On can be used as a feature by itself or in conjunction with Priority Override. The combination of the two features is referred to as Enhanced Override (EOVR).

For manual Forced Camp-On an analog (500/2500 type) telephone, the user has to dial the EOVR Flexible Feature Code (FFC), while a Meridian 1 proprietary telephone user has to use the EOVR key.

A second operation of the EOVR key or FFC executes Enhanced Override.

Forced Camp-On is similar to Station-to-Station Camp-On, except that Forced Camp-On can be done with either no call on hold or an external or internal call on hold. It can be done automatically or manually, which is determined by the response to the Automatic Forced Camp-On (AFCO) prompt in LD 15.

For manual operation, once a busy telephone has been reached, the first depression of the EOVR key or the first dialing of the EOVR FFC attempts Forced Camp-On. If successful, Forced Camp-On introduces Camp-On tone into the connection. If unsuccessful, overflow (fast busy) tone is returned to the party attempting the Forced Camp-On.

For Forced Camp-On to be allowed, all other methods of call termination must have been tried, and the last one must be Camp-On. If Station-to-Station Camp-On or Automatic Forced Camp-On has occurred, or Forced Camp-On has been excluded by the new telephone options, then the first depression of the EOVR key or first dialing of the EOVR FFC introduces Enhanced Override. If, however, Forced Camp-On is denied by existing Camp-On restrictions, Enhanced Override is also denied.

Priority Override

The Priority Override (POVR) feature allows users to break in to an established connection. To do this, analog (500/2500 type) telephone users use the OVRD Flexible Feature Code (FFC), and Meridian 1 proprietary telephone users use the Override (OVR) key before Camp-On.

The Priority Override Level (PLEV) restrictions apply to both Enhanced and Priority Override.

For Priority Override, the overriding telephone must have a Priority Override Level (PLEV) greater than or equal to the PLEV of the telephone or trunk to be overridden.

For analog (500/2500 type) telephone, a recall followed by dialing the Priority Override FFC, (Override FFC with Priority Override package 186 equipped), breaks into the connection and establishes a conference between all three parties and sends an override tone. For a Meridian 1 proprietary telephone, the OVR key is used in place of the FFC.

In order for Priority Override to be allowed, all telephones and trunks involved must have Warning Tone Allowed (WTA) Class of Service. Each telephone and trunk route (TIE, DID, and COT) is assigned a PLEV where:

PLEV 0	Indicates that this telephone or route cannot be overridden; if assigned to a telephone, the telephone cannot override.
PLEV 1	Indicates that this telephone or route can be overridden; if assigned to a telephone, the telephone cannot override.
PLEV 2	Indicates that this telephone or route can be overridden by telephones assigned level 2 through level 7; if assigned to a telephone, the telephone can override level 1 and level 2.
PLEV 3-6	Similar to level 2, indicates that this telephone or route can be overridden by telephones assigned an equal or higher level; if assigned to a telephone, the telephone can override lower and equal levels, except level 0.
PLEV 7	Indicates that this telephone or route can be overridden by another level 7 telephone only; if assigned to a telephone, the telephone can override level 1 through level 7.

Several combinations of the Forced Camp-On and Priority Override are highlighted in the following list:

- Responding to the Automatic Forced Camp-On (AFCO) prompt in LD 15 with “NO,” configuring Meridian 1 proprietary telephones with only Override (OVR) keys, and defining the Override (OVRD) Flexible Feature Code (FFC) disallows the use of Forced Camp-On.
- Responding to the Automatic Forced Camp-On (AFCO) prompt in LD 15 with “NO” and setting the Priority Level (PLEV) to 0 and the Camp-On Classes of Service to Camp-On From Another Telephone Denied (CPFD) and Camp-On To Another Telephone Denied (CPTD) gives manual Camp-On only.
- Configuring the EOVR FFC for analog (500/2500 type) telephone users and equipping Meridian 1 proprietary telephones with EOVR keys gives the users the ability to use only Priority Override (via OVR key or OVRD FFC) or Forced Camp-On followed by Priority Override (pressing the EOVR key twice or using EOVR FFC).

- Responding to the Automatic Forced Camp-On (AFCO) prompt in LD 15 with “YES,” configuring Meridian 1 proprietary telephones with only Override (OVR) keys, and defining the Override (OVRD) Flexible Feature Code (FFC) automatically applies Forced Camp-On in situations where it is allowed, and allows the use of the OVR key and FFC to implement Priority Override.
- Using an EOVR key or FFC with a response of “YES” to the AFCO prompt in LD 15 simulates the Override (OVR) key or FFC unless Forced Camp-On was denied initially, in which case the Forced Camp-On would be re-attempted.

The following table summarizes the various combinations:

	AFCO = NO	AFCO = YES
OVR FFC or key	Attempts Priority Override.	Attempts Priority Override whether Forced Camp-On occurred or not.
EOVR FFC or key	First use attempts Forced Camp-On, unless station is camped on, then Priority Override is attempted. Second use attempts Priority Override.	If automatic Forced Camp-On was denied, re-attempts Forced Camp-On; otherwise Priority Override is attempted.

Operating parameters

The Flexible Feature Codes (FFC) package 139 must be equipped for Forced Camp-On and Priority Override to be available from analog (500/2500 type) telephones.

For analog (500/2500 type) telephone activation, the Multi-Party Operations (MPO) package 141 must be equipped, with the “YES” as the response to the RALL prompt in LD 15 to ensure that register recalls are required before dialing control digits. The OVRD and EOVR FFCs defined must not start with the same digit as one of the control digits. The control digits are defined in LD 15 and are printed as part of the Customer Data Block (LD 21).

If Priority Override is equipped, it replaces Override when the user uses the OVR key or OVRD FFC. However, Override can be simulated by using the default value, 2, for all trunk routes and telephones.

Telephones or trunks involved in any of the following cannot be camped on or overridden:

- Non-established call
- Conference call
- Attendant call
- Attendant call via Centralized Attendant Service (CAS), Primary Rate Interface (PRI), or Integrated Services Digital Network (ISDN) trunk
- Make Set Busy
- Do Not Disturb
- Automatic Call Distribution (ACD) call
- Operator Call Back
- Hold
- Data call
- Release Link call, or
- Parked call.

Call Forward and Hunting take precedence over Call Waiting. If Call Waiting is allowed, Camp-On is not attempted. If Call Waiting is not allowed, Station-to-Station Camp-On is automatically attempted. If this succeeds, Priority Override can still follow. If Camp-On fails because there is no external call, Forced Camp-On and Priority Override may still work. However, if Camp-On fails because of other limitations, Forced Camp-On and Priority Override will also not work.

Even though Camp-On will still function when Warning Tone Denied (WTD) Class of Service is defined, Forced Camp-On and Priority Override require Warning Tone Allowed (WTA) Class of Service.

Priority Override is not allowed on analog (500/2500 type) telephones unless the Override Allowed (OVDA) Class of Service is defined. This Class of Service is also used for Override. This Class of Service does not affect Camp-On.

Camp-On requires an external call on hold. Forced Camp-On can be done without a call on hold, or with both internal or external calls on hold.

Trunks cannot perform Priority Override. They also cannot be overridden unless they are the unwanted party of a connection. It is for this exception that trunks are given a Priority Level.

New Camp-On Classes of Service (Camp-On From Another Telephone Allowed [CPFA], Camp-On From Another Telephone Denied [CPFD], Camp-On To Another Telephone Allowed [CPTA], and Camp-On To Another Telephone Denied [CPTD]) apply to Forced Camp-On and Automatic Forced Camp-On (AFCO) only. They do not apply to Station or Attendant Camp-On.

If a telephone is denied Forced Camp-On by Class of Service, Priority Override may still be attempted.

Feature interactions

Attendant calls

Telephones involved in attendant calls cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Automatic Call Distribution (ACD)

Telephones involved in ACD calls cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Camp-On

Station-to-Station Camp-On and Attendant Camp-On are not affected by Forced Camp-On or Priority Override. The following new Classes of Service affect only Forced Camp-On:

- Camp-On From Another Telephone Allowed (CPFA)
- Camp-On From Another Telephone Denied (CPFD)

- Camp-On To Another Telephone Allowed (CPTA)
- Camp-On To Another Telephone Denied (CPTD)

The Station Camp-On (SCMP) package 121 is required to return busy tone instead of ringback tone to the party camping on.

Conference calls

Telephones involved in conference calls cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Data calls

Data calls have Warning Tone Denied (WTD) Class of Service, and cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting Forced Camp-On or Priority Override.

Digit Display

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

Do Not Disturb (DND)

Telephones with DND enabled cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Hold

Neither held calls nor telephones with calls on hold may be camped on or overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Make Set Busy (MSB)

Telephones with MSB active cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Multi-Party Operations (MPO)

With Priority Override (POVR) equipped, there is a slight change in Multi-Party Operations functionality. When a consultation call is made without POVR equipped, and the telephone being called is busy, a recall returns to the party on hold without dialing a control digit. However, if POVR is equipped, a control digit must be dialed. Any control digit releases the busy call and returns to the call on hold.

Operator Call Back

Telephones involved in an Operator Call Back call or Toll Operator Break-In cannot be force camped on or priority overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Override

If Priority Override is equipped, it replaces Override when using the OVR key or OVRD FFC. However, Override can be simulated by using the default PLEV, 2, for all trunk routes and telephones.

Ring Again

Ring Again (RGA) is the only other feature currently available once a busy telephone has been encountered. RGA is not allowed on a analog (500/2500 type) telephone making a Multi-Party Operations consultation call.

Feature packaging

To provide the Enhanced Override capabilities, the following packages are required:

- Station Camp-On (SCMP) package 121
- Flexible Feature Codes (FFC) package 139
- Multi-Party Operations (MPO) package 141, and
- Priority Override/Forced Camp-On (POVR) package 186.

Feature implementation

LD 15 – Configure the customer for Automatic Forced Camp-On and Station Camp-On tone.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	CDB MPO	Customer Data Block. Release 21 gate opener.
...		
- AFCD	(NO), YES	Automatic Forced Camp-On. Enter YES if Forced Camp-On is to be applied automatically. Enter NO if Forced Camp-On is to be applied manually.
TYPE	FTR	Release 21 gate opener.
...		
- STCB	(NO), YES	Station Camp-On Busy tone. Enter NO if Busy Tone is not to be given to the transferring (controlling) party when the desired station is busy. Enter YES if Busy Tone is to be given to the transferring (controlling) party when the desired station is busy.

LD 57 – Configure Override and Enhanced Override FFCs.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	FFC	Flexible Feature Codes.
...		

CODE	x...x	Code to be programmed. Where x...x may be one of the following: OVRDOVERRIDE (OVRD is used for Priority Override when the Priority Override [POVR] package 186 is equipped.) EOVREnhanced Override (Is programmable only when the Priority Override [POVR] package 186 is equipped.)
X...X	y...y	The user is prompted with X...X, where X...X is the FFC code entered in response to the CODE prompt. y...y is a one-to-seven character input that the user must dial to use the FFC. Valid inputs are digits 0 through 9, asterisk (*), and octothorpe (#).

LD 10 – Configure Analog (500/2500 type) telephones for Forced Camp-On, Priority, and Enhanced Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Telephone type.
...		
CLS		Class of Service.
	(CPFA), CPFD	Forced Camp-On from another telephone to this telephone (allowed) denied.
	(CPTA), CPTD	Forced Camp-On to another telephone from this telephone (allowed) denied.
	OVD A	Override allowed.
	WTA	Warning Tone allowed.

...		
PLEV	0-(2)-7	Priority Override Level 0Indicates that this telephone cannot be overridden or override. 1Indicates that this telephone can be overridden but cannot override. 2Indicates that this telephone can be overridden by telephones assigned level 2 through level 7 and that the telephone can override level 1 and level 2. 3-6Similar to level 2, indicates that this telephone can be overridden by telephones assigned an equal or higher level and that it can override lower and equal levels, except level 0. 7Indicates that this telephone can be overridden by another level 7 telephone only and that it can override level 1 through level 7.

LD 11 – Configure Meridian 1 proprietary telephones for Forced Camp-On, Priority, and Enhanced Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	aaaa	Telephone type, where: aaaa = Meridian 1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
...		
CLS		Class of Service.
	(CPFA), CPFD	Forced Camp-On from another telephone to this telephone (allowed) denied.
	(CPTA), CPTD	Forced Camp-On to another telephone from this telephone (allowed) denied.
	WTA	Warning Tone allowed.
...		

PLEV	0-(2)-7	Priority Override Level. 0 Indicates that this telephone cannot be overridden or override. 1 Indicates that this telephone can be overridden but cannot override. 2 Indicates that this telephone can be overridden by telephones assigned level 2 through level 7 and that the telephone can override level 1 and level 2. 3-6 Similar to level 2, indicates that this telephone can be overridden by telephones assigned an equal or higher level and that it can override lower and equal levels, except level 0. 7 Indicates that this telephone can be overridden by another level 7 telephone only and that it can override level 1 through level 7.
...		
KEY	xx OVR	Define keys. Override (If Priority Override [POVR] package [186] is equipped, the OVR key is used for Priority Override.)
	xx EOVR	Enhanced Override (Allowed to be programmed only if Priority Override [POVR] package [186] is equipped.)

LD 16 – Configure Route for Forced Camp-On, Priority, and Enhanced Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route Data Block
...		
PLEV	0-(2)-7	Priority Override Level. 0Cannot be overridden. 1-7Can be overridden by a telephone with a Priority Level that is equal to or greater than the level assigned to this route. Note: Trunks cannot override, but the levels of all parties in a connection are examined to determine if the connection may be overridden.

LD 14 – Configure trunks for Forced Camp-On, Priority, and Enhanced Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
...		
CLS		Class of Service.
	WTA	Warning Tone Allowed.

Feature operation

Forced Camp-On and Priority Override can be used when making either a simple call or consultation call (i.e., having a call on hold while calling another party) call. The following feature operation descriptions use telephone A (analog (500/2500 type) telephone) or telephone E (a Meridian 1 proprietary telephone) to call telephone B, which is connected to party C. Party D is used as the party on hold when either A or E is making a consultation call.

The telephones are configured as follows:

- 1 Telephone A is an analog (500/2500 type) telephone with Warning Tone Allowed (WTA) and Override Allowed (OVDA) Classes of Service.
- 2 Telephone B has Warning Tone Allowed (WTA) Class of Service.
- 3 Party C has Warning Tone Allowed (WTA) Class of Service and can be any telephone type or a Direct Inward Dial (DID), TIE, or Central Office (Public Exchange) (COT) trunk.
- 4 Party D can be any telephone or trunk.
- 5 Telephone E is a Meridian 1 proprietary telephone with Warning Tone Allowed (WTA) Class of Service and both an Override (OVR) and Enhanced Override (EOVR) key equipped.

For examples 1 to 4, assume the following:

- 1 Telephones A and E have a Priority Override Level (PLEV) of greater than "1".
- 2 Telephones A and E both have Camp-On From Another Telephone Allowed (CPFA) Class of Service.
- 3 Telephone B and party C both have PLEVs greater than "0", but less than or equal to those of telephones A and E.
- 4 Both telephone B and party C are involved in a simple call, not a conference call.
- 5 Telephone B has Camp-On To Another Telephone Allowed (CPTA) Class of Service.
- 6 Call Forward, Hunting, and Call Waiting are not in use.

Examples 1 to 4 are done with various combinations of Forced Camp-On and Priority Override. Forced Camp-On may be denied by responding “NO” to the Automatic Forced Camp-On (AFCO) prompt in LD 15, by configuring telephone E with only an Override (OVR) key and defining only the Override (OVRD) FFC in LD 57, or by setting the Classes of Service for both telephone A and E to Camp-On To Another Telephone Denied (CPTD) and Camp-On From Another Telephone Denied (CPFD). Both of these methods of disabling the Forced Camp-On feature do not affect the Priority Override feature. However, any conditions that would prevent Forced Camp-On from occurring also prevent Priority Override.

In the following feature operation descriptions, the term “recall” refers to a register recall, which may be performed in a number of different ways. Some typical examples are:

- Flashing the switchhook. This is the equivalent of hanging up the handset and picking it back up. This on hook, off hook action is performed in a time less than what the system would consider to be a valid disconnect.
- Pressing the flash or LINK button if equipped.

The Camp-On tone is always provided for Forced Camp-On, since Warning Tone Allowed (WTA) Class of Service is a prerequisite. This tone can be a buzz for Meridian 1 proprietary telephones or a single burst of tone for an analog (500/2500 type) telephones if the customer option Periodic Camp-On Tone Denied (CTD) is selected in LD 15. If the customer option Periodic Camp-On Tone Allowed (CTA) is selected in LD 15, the Camp-On Tone as defined in the Flexible Tones and Cadences (FTC) LD 56 in response to the CAMP prompt will be used. The Priority Override tone used is the same tone as used for Override; this tone is defined in response to the OVRD prompt in the FTC LD 56.

While camping on, the party attempting the Camp-On, either telephone A or E, receives ringback if the Station Camp-On (SCMP) package 121 is not equipped, or receives either ringback or busy tone, as defined by the response to the Station Camp-On Busy tone (STCB) prompt in LD 15 if the SCMP package is equipped.

Override will take place on any established call when the Flexible Feature Code (FFC) is dialed or the Override (OVR) key is pressed. That means if telephone A calls telephone B while telephone B is busy and telephone B disconnects from that call and is established on another call when telephone A activates Override, the new call will be overridden.

Example 1
Enhanced Override with an Analog (500/2500 type) telephone

With automatic Forced Camp-On turned off; Response to AFCO in LD 15 was “NO”:

ACTION	RESPONSE
1 B and C are connected in a simple call.	
2 A dials B.	A receives busy tone.
3 A performs a recall.	A receives special dial tone (SDT).
4 A dials OVRD FFC to attempt Priority Override.	If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise, a conference is established between A, B, and C with Override tone given.
<i>– or –</i>	
a) A dials EOVR FFC to attempt Forced Camp-On.	If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise B receives Camp-On tone and A receives ringback or busy tone depending on the options equipped. A is manually forced camped on to B.
b) B disconnects from the call.	Telephone A rings telephone B.
<i>– otherwise –</i>	
b) A performs a recall.	A receives SDT.
c) A dials EOVR FFC to attempt Priority Override.	If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise, a conference is established between A, B, and C with Override tone given.
5 If any party disconnects...	A simple two-party call is established.

With automatic Forced Camp-On turned on; response to AFCO in LD 15 was “YES”:

ACTION	RESPONSE
1 B and C are connected in a simple call.	
2 A dials B.	A attempts Forced Camp-On to B.

a) If Forced Camp-On was successful...	A receives ringback or busy tone depending on the options equipped. A is automatically forced camped on to B.
b) B disconnects.	A rings B.
<i>– otherwise –</i>	
a) A performs a recall and dials the OVRD or EOVR FFC to attempt Priority Override.	If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise, a conference is established between A, B, and C with Override tone given.
<i>– or –</i>	
a) If Forced Camp-On was unsuccessful due to Class of Service restrictions...	A receives busy tone.
b) A performs a recall and dials OVRD or EOVR FFC to attempt Priority Override.	If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise, a conference is established between A, B, and C with Override tone given.
<i>– or –</i>	
a) If Forced Camp-On was unsuccessful due to other limitations, then Priority Override is also restricted.	A receives busy tone.
b) A performs a recall and dials OVRD or EOVR FFC to attempt Priority Override.	A receives overflow (fast busy) tone.

Example 2**Enhanced Override with a Meridian 1 proprietary telephone**

With automatic Forced Camp-On turned off; response to AFCO in LD 15 was “NO”:

ACTION	RESPONSE
1 B and C are connected in a simple call.	
2 E dials B.	E receives busy tone.
3 E presses OVR key to attempt Priority Override.	If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, a conference is established between E, B, and C with Override tone given.
– <i>or</i> –	
a) E presses EOVR key to attempt Forced Camp-On.	If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, B receives Camp-On tone and E receives ringback or busy tone depending on the options equipped. E is manually forced camped on to B.
b) B disconnects from the call.	Telephone E rings telephone B.
– <i>otherwise</i> –	
b) E presses EOVR key to attempt Priority Override.	If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, a conference is established between E, B, and C with Override tone given.
4 If any party disconnects...	A simple two-party call is established.

With automatic Forced Camp-On turned on; response to AFCO in LD 15 was “YES”:

ACTION	RESPONSE
1 B and C are connected in a simple call.	
2 E dials B.	E attempts Forced Camp-On to B.
a) If Forced Camp-On was successful...	E receives ringback or busy tone depending on the options equipped. E is automatically forced camped on to B.
b) B disconnects.	E rings B.

– *otherwise* –

a) E presses OVR or EOVR key to attempt Priority Override.	If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, a conference is established between E, B, and C with Override tone given.

– *or* –

a) If Forced Camp-On was unsuccessful due to Class of Service restrictions...	E receives busy tone.
b) E presses OVR or EOVR key to attempt Priority Override.	If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, a conference is established between E, B, and C with Override tone given.

– *or* –

a) If Forced Camp-On was unsuccessful due to other limitations, Priority Override is also restricted.	E receives busy tone.
b) E presses OVR or EOVR key to attempt Priority Override.	A receives overflow (fast busy) tone.

Example 3
Enhanced Override from a consultation call with an Analog (500/2500 type) telephone

With automatic Forced Camp-On turned off; Response to AFCO in LD 15 was "NO"; Station-to-Station Camp-On is denied or Station-to-Station Camp-On is equipped and D is a station; Multi-Party Operation active:

ACTION	RESPONSE
1 A is connected to D and B and C are connected in a simple call.	
2 A performs a recall.	A receives special dial tone (SDT). D is held.
3 A dials B.	A receives busy tone.
4 A releases.	Treated as misoperation of call transfer.
– or –	
a) A performs a recall and dials any control digit.	A releases from B and returns to D.
– or –	
a) A performs a recall.	A receives control dial tone.
b) A dials OVRD FFC to attempt Priority Override.	Conference is established between A, B, and C with override tone given.
– or –	
a) A performs a recall.	A receives control dial tone.
b) A dials EOVR FFC to attempt Forced Camp-On.	B receives Camp-On tone. A receives ringback or busy tone depending on the options equipped. A is manually forced camped on to B.
– if –	
c) A releases...	D is camped on to B.
– if –	
c) B disconnects.	A rings B.
– if –	
c) A performs a recall and dials any control digit.	A releases from B and returns to D.
– if –	

A performs a recall and dials the POVR FFC again.

If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise, a conference is established between A, B, and C with Override tone given.

With automatic Forced Camp-On turned off; response to AFCO in LD 15 was “YES”; Station-to-Station Camp-On is allowed and D is an external call; Multi-Party Operation active:

ACTION

RESPONSE

1 A is connected to D and B and C are connected in a simple call.

2 A performs a recall.

A receives special dial tone (SDT). D is put on hold.

3 A dials B.

B receives Camp-On tone. A receives ringback or busy tone depending on the options equipped. A is automatically forced camped on to B.

4 A releases.

D is camped on to B.

– or –

B disconnects

A rings B.

– or –

A performs a recall and dials any control digit.

A releases from B and returns to D.

– or –

a) A performs a recall.

A receives control dial tone.

b) A dials OVRD or EOVR to attempt Priority Override.

If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise, a conference is established between A, B, and C with Override tone given.

Example 4
Enhanced Override from a consultation call with a Meridian 1 proprietary telephone

With Automatic Forced Camp-On turned off; Response to AFCO in LD 15 was "NO"; Station-to-Station Camp-On is denied or Station-to-Station Camp-On is equipped and D is a station; Multi-Party Operation active:

ACTION	RESPONSE
1 E is connected to D and B and C are connected in a simple call.	
2 E presses Conference or Transfer key.	E receives dial tone. D is put on hold.
3 E dials B.	E receives busy tone.
4 E releases or presses Conference or Transfer key again.	Treated as misoperation of call transfer.
– or –	
E presses the DN key that D is held on.	E is reestablished with D.
– or –	
E presses OVR key to attempt Priority Override.	Conference is established between E, B, and C with Override tone given.
– or –	
a) E presses EOVR key.	B receives Camp-On tone. E receives ringback or busy tone depending on the options equipped. E is manually forced camped on to B.
– if –	
b) E presses Transfer key.	D is camped on to B.
– if –	
b) B disconnects.	E rings B.
– if –	
b) E releases.	Camp-On is cancelled and E must press DN key to reconnect to D.
– if –	
b) E presses Conference or Hold key.	Key operation is ignored.
– if –	
b) E presses the DN key that D is held on.	E is reestablished with D.

– if –

b) E presses EOVR key again.

If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, a conference is established between E, B, and C with Override tone given.

With Automatic Forced Camp-On turned off; response to AFCO in LD 15 was “YES”; Station-to-Station Camp-On is allowed and D is an external call; Multi-Party Operation active:

ACTION

RESPONSE

1 E is connected to D and B and C are connected in a simple call.

2 E presses Conference or Transfer key.

3 E dials B.

E receives dial tone. D on hold.

E receives ringback or busy tone depending on the options equipped. E is automatically Forced Camped on to B.

4 E presses Transfer key.

D is camped on to B.

– or –

B disconnects.

E rings B.

– or –

E releases.

Camp-On is canceled and E must press DN key to reconnect to D.

– or –

E presses Conference or Hold key.

Key operation is ignored.

– or –

E presses the DN key that D is held on.

E is reestablished with D.

– or –

E presses EOVR or OVR key to attempt Priority Override.

If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, a conference is established between E, B, and C with Override tone given.

Operation with various combinations of Forced Camp-On and Priority Override

The following tables show what happens when either Forced Camp-On or Priority Override are denied.

Forced Camp-On is denied by the new Camp-On From Another Telephone Denied (CPFD) and Camp-On To Another Telephone Denied (CPTD) Classes of Service.

Priority Override is denied for analog (500/2500 type) telephones by setting the Override Denied (OVRD) Class of Service, or for all telephones by setting their Priority Override Levels (PLEV) to 0.

Both Forced Camp-On and Priority Override are denied by the Warning Tone Denied (WTD) Class of Service, or if any of the limitations described in the Operating parameters or Feature interactions section is encountered.

The following table highlights the various combinations and the results of different actions for a simple call:

Setup						
AFCO setting in LD 15	NO	NO	NO	YES	YES	YES
Forced Camp-On Allowed	NO	NO	YES	NO	NO	YES
Priority Override Allowed	YES	NO	NO	YES	NO	NO
Action	Result					
A dials B B is busy	BT	BT	BT	BT	BT	BT or R
A recalls Analog (500/2500 type) telephones only	SDT	SDT	SDT	SDT	SDT	SDT
A uses OVR key or OVRD FFC	POVR	O&L	O&L	POVR	O&L	BT or R
<i>OR</i> A uses EOVR key or FFC	BT	BT	BT or R	POVR	BT	BT or R
A uses EOVR key or FFC again	POVR	O&L	BT or R	POVR	O&L	BT or R

Legend:

BT – Busy tone returned to A.

BT or R – Busy tone or ringback returned to A; A camped on to B.

O&L – Overflow (fast busy) returned to A for 30 seconds, then A is locked out.

POVR – Priority Override is attempted.

SDT – Special dial tone is returned to A.

The following table highlights the various combinations and the results of different actions for a consultation call:

Setup						
AFCO setting in LD 15	NO	NO	NO	YES	YES	YES
Forced Camp-On Allowed	NO	NO	YES	NO	NO	YES
Priority Override Allowed	YES	NO	NO	YES	NO	NO
Action	Result					
A connected to D A recalls Analog (500/2500 type) telephones only	SDT	SDT	SDT	SDT	SDT	SDT
A dials B D is held. B is busy.	BT	BT	BT	BT	BT	BT or R
A recalls Analog (500/2500 type) telephones only	CDT	CDT	CDT	CDT	CDT	CDT
A uses OVR key or OVRD FFC	POVR	O&R	O&R	POVR	O&R	BT or R
<i>OR</i> A uses EOVR key or FFC	BT	BT	BT or R	POVR	BT	BT or R
A uses EOVR key or FFC again	POVR	O&R	BT or R	POVR	O&R	BT or R
A recalls Analog (500/2500 type) telephones only	CDT	REC	CDT	CDT	REC	CDT
<i>OR</i> A presses DN key on which D is held	REC	REC	REC	REC	REC	REC

Legend:

BT – Busy tone returned to A.

BT or R – Busy tone or ringback returned to A; A camped on to B.

CDT – Control dial tone returned to A.

O&R – Overflow (fast busy) returned to A for 30 seconds, then A is
reconnected to D.

POVR – Priority Override is attempted.

SDT – Special dial tone is returned to A; D is held.

If at any time invalid digits are dialed for the EOVR or OVRD FFC, overflow (fast busy) tone is returned to the telephone attempting to override. This telephone receives overflow (fast busy) tone for 30 seconds and is then locked out or reconnected to the telephone on hold. If the attempted override is made from a consultation call, the telephone may perform a recall during overflow (fast busy) tone, and return to the call being held.

Enhanced Override from a conference call with any telephone

Once a consultation conference (i.e., party D is still on hold) has been established between telephone A or E and parties B and C, any of the following may occur:

ACTION	RESPONSE
Telephone B or C disconnects.	Telephone A or E remains in simple two party consultation with remaining telephone (B or C).
– <i>or</i> –	
Telephone A performs a recall and dials a control digit.	Multi-Party operation for control digit is dialed.
– <i>or</i> –	
Telephones B and C disconnect.	Telephone A or E may automatically be returned to telephone D or may have to perform a recall, depending on Class of Service (AO6/C6A and XFA). Override tone is removed.
– <i>or</i> –	
Telephone A disconnects or telephone E presses Transfer or Conference key.	D is transferred into the conference with B and C. Override tone is removed.
– <i>or</i> –	
Telephone E disconnects.	Telephones B and D remain connected. Telephone D is treated as in the case of misoperation of call transfer. Override tone is removed.

Override, Priority

The Priority Override feature allows users to break in to an established connection. To do this, analog (500/2500 type) telephone users enter the Override Flexible Feature Code (OVRD FFC), and Meridian 1 proprietary telephone users use the Override (OVR) key.

Priority Override can be used as a feature by itself or in conjunction with Forced Camp-On. The combination of the two features is referred to as Enhanced Override (EOVR).

For Priority Override the overriding telephone must have a Priority Override Level (PLEV) that is greater than or equal to the PLEV of the telephone or trunk to be overridden.

For an analog (500/2500 type) telephone, a recall followed by dialing of the Priority Override FFC (OVRD FFC with Priority Override package 186 equipped) breaks into the connection and establishes a conference between all three parties. For a Meridian 1 proprietary telephone, the OVR key is used in place of the FFC.

For Priority Override to be allowed, all telephones and trunks involved must have Warning Tone Allowed (WTA) Class of Service. Each telephone and trunk route (TIE, DID, and COT) is assigned a PLEV value:

PLEV 0	Indicates that this telephone or route cannot be overridden. If assigned to a telephone, the telephone cannot use Override.
PLEV 1	Indicates that this telephone or route can be overridden. If assigned to a telephone, the telephone cannot use Override.
PLEV 2	Indicates that this telephone or route can be overridden by telephones assigned level 2 through level 7. If assigned to a telephone, the telephone can override level 1 and level 2.
PLEV 3-6	Similar to level 2, indicates that this telephone or route can be overridden by telephones assigned an equal or higher level. If assigned to a telephone, the telephone can override telephones assigned an equal or lower level, except level 0.
PLEV 7	Indicates that this telephone or route can be overridden by another level 7 telephone only. If assigned to a telephone, the telephone can override level 1 through level 7.

Operating parameters

Flexible Feature Codes (FFC) package 139 must be equipped for Priority Override to be available from analog (500/2500 type) telephones.

For analog (500/2500 type) telephone activation, Multi-Party Operations (MPO) package 141 must be equipped, with “YES” as the response to the RALL prompt in LD 15 to ensure register recalls are required before dialing control digits. The OVRD FFC defined must not start with the same digit as one of the control digits. The control digits are defined in LD 15 and are printed as part of the Customer Data Block (LD 21).

If Priority Override is equipped, it replaces Override when the OVR key or OVRD FFC is used. However, Override can be simulated by using the default value, 2, for all trunk routes and telephones.

Telephones or trunks involved in any of the following cannot be overridden:

- Non-established call
- Conference call
- Attendant call
- Attendant call via Centralized Attendant Service (CAS), Primary Rate Access (PRA), or Integrated Services Digital Network (ISDN) trunk
- Make Set Busy
- Do Not Disturb
- Automatic Call Distribution (ACD) call
- Operator Call Back
- Hold
- Data call
- Release Link call, and
- Parked call.

Priority Override is not allowed on analog (500/2500 type) telephones unless the Override Allowed (OVDA) Class of Service is defined. This Class of Service is also used for Override.

Trunks cannot perform Priority Override. They also cannot be overridden unless they are the unwanted party of a connection. It is for this exception that trunks are given a Priority Level.

Feature interactions

Attendant calls

Telephones involved in attendant calls cannot be Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Automatic Call Distribution (ACD)

Telephones involved in ACD calls cannot be Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Conference calls

Telephones involved in Conference calls cannot be Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Data calls

Data calls have Warning Tone Denied (WTD) Class of Service, and therefore cannot be Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Digit display

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

Do Not Disturb (DND)

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

Hold

Neither held calls, nor telephones with calls on hold can be Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Make Set Busy (MSB)

Telephones with MSB active cannot be Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Multi-Party Operations (MPO)

With Priority Override (POVR) equipped, there is a slight change in Multi-Party Operations functionality. When a consultation call is made without POVR equipped, and the telephone being called is busy, a recall returns to the party on hold without dialing a control digit. However, if POVR is equipped, a control digit must be dialed. Any control digit releases the busy call and returns to the call on hold.

Operator Call Back

Telephones involved in an Operator Call Back call or Toll Operator Break in cannot be Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Override

If Priority Override is equipped, it replaces Override when using the OVR key or OVRD FFC. However, Override can be simulated by using the default PLEV, 2, for all trunk routes and telephones.

Ring Again

Ring Again (RGA) is the only other feature currently available once a busy telephone has been encountered. RGA is not allowed on an analog (500/2500 type) telephone making a Multi-Party Operations consultation call.

Feature packaging

The Priority Override (POVR) feature is package 186. To provide all the capabilities described in this document, Flexible Feature Codes (FFC) package 139 should also be equipped.

Feature implementation

LD 57 – Configure Priority Override FFC.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	FFC	Flexible Feature Codes.
...		
CODE	x...x	Code to be programmed, where x...x is: OVRDOverride (OVRD is used for Priority Override when the Priority Override POVR package 186 is equipped.)
X...X	y...y	The user is prompted with X...X, where X...X is the FFC code entered in response to the CODE prompt. y...y is a one- to seven-character input that the user must dial to use the FFC. Valid inputs are digits 0 through 9, asterisk (*), and octothorpe (#).

LD 10 – Configure Analog (500/2500 type) telephones for Priority Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Type of telephone. analog (500/2500 type) telephone.
...		
CLS	OUDA	Class of Service. Override Allowed.
	WTA	Warning Tone Allowed.
...		
PLEV	0-(2)-7	Priority Override Level. 0Indicates that this telephone cannot be overridden or override. 1Indicates that this telephone can be overridden but cannot override. 2Indicates that this telephone can be overridden by telephones assigned level 2 through level 7 and that the telephone can override level 1 and level 2. 3-6Similar to level 2, indicates that this telephone can be overridden by telephones assigned an equal or higher level and that it can override lesser than and equal to levels, except level 0. 7Indicates that this telephone can be overridden by another level 7 telephone only and that it can override level 1 through level 7.

LD 11 – Configure Meridian 1 proprietary for Priority Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
...		
CLS	WTA	Class of Service. Warning Tone Allowed.
...		
PLEV	0-(2)-7	Priority Override Level. 0Indicates that this telephone cannot be overridden or override. 1Indicates that this telephone can be overridden but cannot override. 2Indicates that this telephone can be overridden by telephones assigned level 2 through level 7 and that the telephone can override level 1 and level 2. 3-6Similar to level 2, indicates that this telephone can be overridden by telephones assigned an equal or higher level and that it can override lesser than and equal to levels, except level 0. 7Indicates that this telephone can be overridden by another level 7 telephone only and that it can override level 1 through level 7.
...		
KEY	xx OVR	Define keys. Override (If Priority Override [POVR] package 186 is equipped, the OVR key is used for Priority Override.)

LD 16 – Configure Route for Priority Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route Data Block.
...		
PLEV	0-(2)-7	Priority Override Level 0Cannot be overridden. 1-7Can be overridden by a telephone with a Priority Level which is equal to or greater than the level assigned to this route. Note: Trunks cannot override, but the levels of all parties in a connection are examined to determine if the connection may be overridden.

LD 14 – Configure trunks for Priority Override.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
...		
CLS	WTA	Class of Service. Warning Tone Allowed.

Feature operation

Priority Override can be used when making either a simple or consultation call (i.e., have a call on hold while calling another party). The following feature operation descriptions use telephone A (an analog (500/2500 type) telephone) or telephone E (a Meridian 1 proprietary telephone) to call telephone B, which is connected to party C.

The telephones are configured as follows:

- 1 Telephone A is an analog (500/2500 type) telephone with Warning Tone Allowed (WTA) and Override Allowed (OVDA) Classes of Service.
- 2 Telephone B has Warning Tone Allowed (WTA) Class of Service.
- 3 Party C has Warning Tone Allowed (WTA) Class of Service and can be any telephone type or a Direct Inward Dial (DID), TIE, or Central Office (Public Exchange) (COT) trunk.
- 4 Telephone E is an Meridian 1 proprietary telephone with Warning Tone Allowed (WTA) Class of Service and an Override (OVR) key equipped.

For the following descriptions:

- 1 Telephones A and E have a Priority Override Level (PLEV) of greater than 1.
- 2 Telephone B and party C both have PLEVs greater than 0, but less than or equal to those of telephones A and E.
- 3 Both telephone B and party C are involved in a simple call, not a conference call.
- 4 Call Forward, Hunting, and Call Waiting are not in use.

In the following feature operation descriptions the term “recall” refers to performing a register recall, which can be performed in a number of different ways. Some typical examples are:

- Flash the switchhook (the equivalent of hanging up the handset and picking it back up, this on hook, off hook is performed in a time period that is less than what the system would consider to be a valid disconnect).
- Press the flash or LINK button if equipped.

The Override tone is always provided for Priority Override since Warning Tone Allowed (WTA) Class of Service is a prerequisite. The Override tone used is the same tone as used for Override; the tone is defined in response to the OVRD prompt in the LD-56.

Override will take place on any established call when the Flexible Feature Code (FFC) is dialed or the Override (OVR) key is depressed. That means if telephone A calls telephone B while telephone B is busy, and telephone B disconnects from that call and is established on another call when telephone A activates Override, the new call will be overridden.

POVR with an Analog (500/2500 type) telephone

	ACTION	RESPONSE
1	B and C are connected in a simple call.	
2	A dials B.	A receives busy tone.
3	A performs a recall.	A receives special dial tone (SDT).
4	A dials OVRD FFC to attempt Priority Override.	If telephone B or C has disconnected, telephone A receives overflow (fast busy) tone. Otherwise, a conference is established between A, B, and C with Override tone given.

POVR with a Meridian 1 proprietary telephone

	ACTION	RESPONSE
1	B and C are connected in a simple call.	
2	E dials B.	E receives busy tone.
3	E presses OVR key to attempt Priority Override.	If telephone B or C has disconnected, telephone E receives overflow (fast busy) tone. Otherwise, a conference is established between E, B, and C with Override tone given.

Introduced in X11 Release:	All
Networking:	No

Paging

The Meridian 1 provides switching access and trunk circuit interface to a customer-supplied speaker or radio paging equipment. Paging equipment is accessed by dial access or a Page key on Attendant Consoles. Telephones cannot be assigned a Page key and must dial access this feature.

Attendant Consoles using the Page key preempt telephones having only dial access. Telephones preempted by the attendant are disconnected and must re-access the paging trunk.

Time Forced Disconnect (TFD), X11 Release 15 and later software, provides a variable timer to force disconnect Paging trunks. The timer is defined on a route basis to limit the time a user can keep a Paging trunk seized. When the timer expires, the call is disconnected from the trunk. The trunk is disconnected when the Time Forced Disconnect (TFD) timer expires in all cases, regardless of the status of the trunk at the time. Timing starts as soon as the trunk is seized (not when the call is established), so the timer must allow some delay for connection time.

The Time Forced Disconnect timer is used on the following trunk types:

- COT Central Office
- DIC Dictation
- FEX Foreign Exchange
- PAG Paging trunks
- TIE Tie direct lines
- WAT Wide Area Telephone Service

Operating parameters

Station dial access to the Paging trunk is restricted by the Trunk Group Access Restriction (TGAR) code entered in LD 10 or LD 11.

Unique access codes are required for each Paging route.

Unique feature keys are assigned for each Paging route.

All Zone Paging is not available with Meridian 1, unless the customer-provided paging equipment is equipped with separate “all-zone” input.

The following requirements apply to the X11 Release 15 Time Forced Disconnect (TFD) feature:

- The timer can only be assigned on a route basis and not to individual trunks. All trunks in a route have the same timer value.
- After a timer value is changed, it does not take effect on a given trunk until that trunk is released and seized again.
- Changing a timer value to zero (0) effectively removes the TFD timer from all the trunks in that route.
- The range of the timer is one hour, in 30-second increments (0–3600). The TFD timer is independent of all other timers.

Trunks forced off by TFD are disconnected normally, accompanied by an error message (ERR4054) output on the system terminal. The error message identifies the Originating Terminal Number (TN), Terminating Terminal Number (TN), date, and time for the following trunk types:

- Analog trunks
- Digital Trunk Interface (DTI) trunks, and
- ISDN Integrated Service Links (ISL)/Primary Rate Interface (PRI) trunks.

Feature interactions

Call Forward All Calls

Calls that originate on a TIE trunk to a telephone that is redirected to a paging route are blocked.

Conference

Paging trunks cannot be used in a conference call.

Multi-Party Operations

Users of analog (500/2500 type) telephones cannot make a consultation call while connected to a paging trunk.

Private Line Routes

Route 31 cannot be assigned as a paging route on X11 Release 13 and earlier software.

Feature packaging

Paging is included in base X11 system software.

Feature implementation

LD 16 – Add or change a Paging trunk route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUTE	0-511 1-127	Route number. For Option 11C.
TKTP	PAG	Paging trunk route.
ICOG	OGT	Outgoing trunk.
ACOD	xxx...x	Trunk route access code (if the Directory Number Expansion package is equipped, this access code can have up to seven digits).
TARG	1-31	Trunk access restriction group number.

LD 16 – Define the timer for the Time Forced Disconnect feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUTE	0-511 0-127	Route number. For Option 11C.
CNTL	(NO) YES	Changes to controls or timers (default is NO).
TIMR	TFD xxxx	TFD timer, where: xxxx = 0-(30)-3600 seconds, in 30-second increments.

LD 14 – Add or change a Paging trunk within the Paging trunk route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PAG	Paging trunk.
TN	l s c u c u	Terminal Number. For Option 11C.
XTRK	XUT XEM	Universal Trunk Card (NT8D14), E&M Trunk Card (NT8D15). Prompted only for superloops and the first unit on the card.
CUST	0-99	Customer number.
SIGL	DX2 DX4 EAM EM4 LDR OAD	DX signaling (two-wire) – QPC71 only. DX signaling (four-wire) – QPC71 and NT8D15. E&M signaling (two-wire) – QPC71 and NT8D15. E&M signaling (four-wire) – QPC71 and NT8D15. Loop dial repeating – QPC71 and NT8D14/15. Outgoing automatic, incoming dial – QPC71, NT8D14/15.

STRO	IMM WNK DDL	Immediate start outgoing. Wink start outgoing. Delay dial outgoing.
SUPN	(NO) YES	Answer and disconnect supervision required.

LD 12 – Assign Paging key for an Attendant Console. No programming is required to allow the attendant dial access to Paging.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT 1250 2250	Console type.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx PAG yyy...y	Paging key, where: xx = key number (0-9 on M1250, 0-19 on M2250), and yy...y = access code of Paging trunk route.

LD 10 – Allow or deny dial access to Paging for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
TGAR	xx	Allow/deny access to Paging trunk.

LD 11 – Allow or deny dial access to Paging for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u c u	Terminal Number. For Option 11C.
TGAR	xx	Allow/deny access to Paging trunk.

Feature operation

No specific operating procedures are required to use this feature.

Phantom Terminal Numbers

The Phantom Terminal Numbers (PHTN) feature permits Meridian 1 users to define and configure Terminal Numbers (TNs) with no associated physical hardware. Normally, a TN with no associated hardware is disabled.

With Phantom TNs configured, users can define phantom Directory Numbers (DNs) as well. This feature, in conjunction with Call Forward All Calls (CFW) and Remote Call Forward (RCFW), allows a call to a phantom DN to be redirected to an existing telephone.

Phantom TNs can use loops 0-159 for all machine types except the Option 11. Phantom TNs on Option 11 telephones are restricted to card slots 41-60 (which convert to Superloops 64-80).

Note: The Phantom Terminal Numbers feature is not to be used for predictive dialing applications. For information on configuring Phantom TNs for predictive dialing, please refer to the Predictive Dialing feature module in this guide.

Operating parameters

Phantom TNs can only have Single Appearance DN.

All DNs configured on Phantom TNs must conform to the current customer-defined dialing plan.

LD 25 (Move Data Blocks) is not supported between phantom and nonphantom loops; however, it is supported between phantom loops.

Only analog (500/2500 type) telephones support Phantom TNs.

Model telephones (such as TN 500 M) are not supported.

A Phantom TN requires one of the phantom terminal loop types shown in Table 108.

Table 108
Supported phantom terminal loop types

Mnemonic	Description
TERM	Single (1) density terminal loop, configured in LD 17.
TERD	Double (2) density terminal loop, configured in LD 17.
TERQ	Quadruple (4) density terminal loop, configured in LD 17.
SUPL	Superloop (8) density terminal loop, configured in LD 97.

Feature interactions

Attendant Administration

This feature is not supported. Phantom DN's cannot be configured on a nonphantom TN.

Attendant Blocking of Directory Number

DN's on Phantom TN's will not be overridden by the Attendant Blocking of DN feature.

Automatic Call Distribution

Phantom TN's cannot be configured as Automatic Call Distribution (ACD) agents.

Call Detail Recording

Call Detail Recording records interact with a Phantom TN exactly the same as with an existing TN with its CFW feature turned on.

Call Forward All Calls

Call Forward All Calls is used in conjunction with RCFW to redirect incoming calls to a Phantom TN/DN to a valid DN.

Call Forward and Busy Status

Attempting to define a BFS key for a Phantom TN results in an error message at the beginning of the phantom loop.

Call Forward, Internal Calls

Internal Call Forward cannot be enabled on a phantom TN.

Call Forward/Hunt Override Via Flexible Feature Code

Phantom Terminal Numbers are not overridden by the Call Forward/Hunt Override Via FFC feature. If Call Forward/Hunt Override Via FFC is used against a phantom TN the call will be canceled and overflow tone will be given.

Call Forward, Remote (Attendant and Network Wide)

A Phantom TN does not physically exist, but can be configured with limited hardware associated with it (that is, no sets or line cards); however, all required data blocks are configured.

The Phantom TN feature uses the RCFW feature to configure and activate/deactivate the CFW DN on the Phantom TNs.

As the data blocks associated with Phantom TNs match those of standard analog (500/2500 type) telephones configured within the Meridian 1, the operation of the RCFA and RCFD features on Phantom TNs is applicable to the RCFW feature. As such, the set-based local and network RCFW features can be used to configure and activate/deactivate the CFW DN of Phantom TNs.

The Phantom TN feature uses a Default Call Forward (DCFW) DN. If call forward is not active on the Phantom TN, all calls to the Phantom TN DN are routed to the DCFW DN.

The Phantom TN feature modifies the set-based RCFW feature so that if CFW is not active on the Phantom TN, and the CFW DN entered in the RCFV operation matches the DCFW DN, confirmation tone is returned to the RCFV user; if the CFW DN entered does not match the DCFW DN, overflow is returned.

This change to the set-based RCFV operation is applicable to the network RCFV operation. The operation of this feature network wide requires no changes to the ISDN message passing for the set-based network RCFV operation.

There is no Attendant RCFW operation which interacts with the DCFW DN of Phantom TNs.

Hot Line

Hot Line does not support Phantom TNs.

Call Forward, Internal

Manual Line Service

Multiple Appearance

Multiple Appearance Directory Number Redirection Prime

Station Category Index

These features cannot be enabled on a Phantom TN.

DPNSS1 Diversion

If an incoming call to a Phantom TN contains a DIVERSION BY-PASS REQUEST, Call Forward All Calls applies.

Meridian Link

Phantom TNs cannot be used for origination and termination of calls. AST Class of Service is not allowed on Phantom TNs. With the Telelink Mobility Switch feature, a separate type of TN can be used by Meridian Link AST applications.

Meridian Mail

Phantom DNs are treated like other DNs; a phantom DN can have a Meridian Mail box.

Network Ring Again

The Network Ring Again (NRAG) feature is supported for a Phantom TN with Default Call Forward (DCFW) to an internal set. When the called party becomes idle, the originating caller receives a “set-free” notification. The originating party then presses the Ring Again key, and the DN of the Phantom TN is dialed.

Network Ring Again is not supported for Second Level Default Call Forward or Default Call Forward to an external set.

Override

Call Forward cannot be overridden on phantom terminal numbers. The overflow tone occurs if an Override is attempted

Recorded Announcement for Calls Diverted to External Trunks

If a Phantom TN is forwarded to an external outgoing CO route and the Recorded Announcement for Calls Diverted to External Trunks feature is configured for this route, the calling party that is forwarded due to the Phantom TN feature will be provided with a recorded announcement.

Remote Call Forward

If Remote Call Forward is to be used in conjunction with Phantom TNs, then the Phantom TNs must be configured with the Call Forward All Calls (CFW) feature.

Ring Again on No Answer

Although Ring Again on No Answer can be applied to a phantom DN, it is not recommended. Because a phantom DN cannot be active or busy, the caller is not notified when the phantom DN's forward DN does not answer.

Secretarial Filtering

If a Phantom TN is call forwarded to an existing telephone, and that telephone is used to call the DN on the Phantom TN, the call receives DCFW treatment.

Set-Based Administration Enhancements

Set-Based Administration supports making changes to Phantom TNs with the exception of changing Hunt DNs, since Phantom TNs cannot have Hunt DNs.

Feature packaging

The Phantom Terminal Numbers (PHTN) feature is available as package 254.

Using Remote Call Forwarding (RCFW) with Phantom TNs requires Flexible Feature Codes (FFC) package 139.

Feature implementation

LD 17 – Configure a phantom loop.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CEQU	Release 19 gate opener.
- TERM	N0-N159	Single density local terminal loop; precede loop number with "N" to create a phantom loop; precede with an "X" to remove a terminal loop.
- TERD	N0-N159	Double density local terminal loop; precede loop number with "N" to create a phantom loop; precede with an "X" to remove a terminal loop.
- TERQ	N0-N159	Quadruple density local terminal loop; precede loop number with "N" to create a phantom loop; precede with an "X" to remove a terminal loop.

LD 97 – Configure a phantom Superloop.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SUPL	Superloop data.
SUPL	N0-N156 N64-N80	Local Superloop in multiples of four; for Option 11 systems, range is 64-80 in multiples of four; precede loop number with "N" to create a phantom loop; precede with an "X" to remove a terminal loop. Note: Phantom TNs can use loops 0-159 for all machine types except the Option 11. Phantom TNs on Option 11 telephones are restricted to card slots 41-60 (which convert to superloops 64-80).

LD 10 – Define a TN for the phantom loop.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Telephone type.
TN	l s c u	Terminal number (loop, shelf, card, and unit); if the loop is a phantom loop, "PHANTOM" is echoed to the technician.
DN	xxx...x	Directory Number; must be a Single Appearance DN
CLS	aaaa	Class of Service options, which cannot include AGTA, CCSA, MNL, or LPA.
FTR	DCFW ll xxx...x	Default DCFW length (ll) and default CFW DN xxx...x (up to 23 digits).

Feature operation

Call forwarding occurs as described below, with the exception of the situations described in "Feature interactions" on page 1554.

- 1 A call is directed to a phantom DN.
- 2 If the phantom DN is Call Forward Activated, the call is directed to its CFW DN.
- 3 If the phantom DN is Call Forward Deactivated, the call is directed to its Default CFW DN.

Predictive Dialing

With Predictive Dialing, the process of making outgoing calls to customers is automated for Automatic Call Distribution (ACD) agents. Host applications can request the Meridian 1 to make calls using autodialers or phantom TNs. When a call is answered, the application sends a request to the switch to transfer the call to a live agent. The call needs to be transferred before, or while, the customer starts speaking in order to prevent customers from abandoning the call if they think no one has called them. This transfer was previously performed by Meridian Link in two steps by sending two separate Application Module Link (AML) messages to initiate and then complete the transfer. This operation takes a minimum of 400 to 450 milliseconds for the Meridian 1 to process.

The Fast Transfer development in X11 Release 21 allows applications residing on the Application Module (AM) or host computers to transfer a call in one step, a blind transfer, by sending only one AML message (Fast Transfer) to the switch, thereby saving approximately 200 to 250 milliseconds of transfer time. This Fast Transfer feature is useful for predictive applications to make outbound calls and then quickly transfer them once the customer has answered (i.e., live voice has been detected). Fast Transfer can also be used in a non-predictive dialing environment. Applications that want to perform a blind transfer can now execute it more quickly.

The Predictive Dialing feature enables applications residing on the AM or host computers to send a combined Make Call and Transfer request on behalf of an autodialer or Phantom TN. As soon as live voice is detected by third-party equipment, or notification is sent to the switch indicating the call has been answered (e.g., answer supervision), the application can send the Fast Transfer request to the switch immediately transferring the call to an ACD agent.

Operating parameters

When Phantom TNs/DNs are used to originate calls as part of a predictive dialing operation, the Option 11 will not be supported.

Attendant Consoles, and Basic Rate Interface sets cannot initiate Fast Transfer or predictive calls.

The Meridian 1 does not support live voice answer detection. Live voice answer detection is currently achieved through third-party vendor equipment.

If phantom TNs/DNs are used, this development only supports calls and Fast Transfers originated by phantom TNs/DNs which are defined as Associate set (AST) Meridian 1 proprietary sets on a phantom loop.

Data calls are not supported.

For outbound trunk calls, if no third-party equipment is used to detect live voice answer, the switch will have to depend on receiving answer supervision before transferring the call to the target DN.

If voice detection is used, the application will not be able to Fast Transfer the call before the call is established (i.e., answer notification is received).

The application will not be able to complete the transfer when Fast Transferring over a trunk.

Not all analog trunks support answer supervision. All digital trunks do not provide answer supervision. For trunks that do not support answer supervision, the End-of-Dialing (EOD) timer will be used to trigger the transfer.

Receiving answer supervision depends on the accuracy of signals returned by the external network. Answer supervision may be received before an EOD timeout, fake answer supervision may also be received due to an EOD timeout, and a pseudo answer supervision may be received if the far-end has an EOD timeout even though the local switch has answer supervision configured.

The AML requires an Enhanced Serial Data Interface (ESDI) card or Multi-purpose Serial Data Link (MSDL) card (NT6D80AA) on the switch. If an Option 11 is used, a Serial Data Interface/D-Channel (SDI/DCH) card (NTAK02AA) is required to configure the ESDI port.

The AML connection requires an RS232 cable.

Meridian Link software is required for host applications to utilize this feature.

Feature interactions

Call Transfer by Meridian 1 Proprietary Set

The application sends the Fast Transfer request on behalf of a Meridian 1 proprietary set, and then the switch initiates and completes the transfer immediately which is similar to a normal call transfer from a Meridian 1 proprietary set.

In a Predictive Dialing scenario where the autodialer (originating DN) is a Meridian 1 proprietary set, the Make Call message sent by the application to the switch to make a call on behalf of the Meridian 1 proprietary set, and then the call transfer call, will interact with the Meridian 1 proprietary Call Transfer feature. The autodialer is configured with Class of Service TRN so that the switch can transfer the call to the target destination.

Call Transfer by Analog (500/2500 type) Set

The application sends the Fast Transfer request on behalf of an analog (500/2500 type) set. The switch will then initiate and complete the transfer in one step.

In a predictive dialing scenario, the application will send the Make Call request on behalf of the autodialer (analog [500/2500 type] set) to have the switch make the call, and then transfer the call when the switch receives the Fast Transfer message. The autodialer needs to be configured with Classes of Service Dial Pulse (DIP) and Transfer Allowed (XFA) for 500 sets, or with Classes of Service Digitone (DTN) and XFA for 2500 sets.

Command and Status Link

The Command and Status Link, also known as the AML, is the link on which the messages for the Predictive Dialing feature flow between the switch and an Application Module. The CON/FastTransfer is an AML message.

Trunks

Only certain trunks will support answer supervision. The End-of-Dialing timer will be used for trunks that do not support answer supervision.

Call Hold

If an established call is put on hold by the set initiating the Fast Transfer, the switch will not be able to transfer the call. The switch can only transfer a call if it is in the established state.

Feature packaging

There are no new software packages required for the Predictive Dialing feature. However, the following packages are required to utilize the feature:

- Application Module Link (IAP3P) package 153, and
- Meridian Link Module (MLM) package 209 if the Meridian Link Module is involved.

Feature implementation

This feature does not require any changes to the overlays. The following illustrates the configuration requirements to set up this feature. Most of these requirements are used by existing Meridian Link and Application Module applications.

LD 17 – Configure the ESDI port to the Meridian Link Module.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Release 19 gate opener.
- CTYP	ESDI	Card Type. ESDI card.
- DNUM	x	Device number is x.
- DES	NEWTTY	Description of this I/O device.
- BPS	19200	Baud rate is 19,200 bits per second.
- CLOK	INT	Internal clocking.

- IADR	3	HDLC protocol individual address.
- RADR	1	HDLC protocol remote address.
TYPE	PARM	Release 19 gate opener.
...		
- CSQI	(20)	Maximum call registers for Command and Status Link (CSL) input queues (use the default, unless the system requires otherwise).
- CSQO	(20)	Maximum call registers for CSL output queues (use the default, unless the system requires otherwise).
TYPE	VAS	Release 19 gate opener.
...		
- VSID	y	Server ID y.
- AML	x	Port used by AML defined earlier in this overlay.
- - SECU	YES	Security on for Meridian Link.
- - INTL	x	Length of time interval (five-second increments) (e.g., 2).
- - MCNT	x	Threshold for number of messages per time interval (e.g., 100).
- - CONF	DIR	Direct link configuration.

LD 17 – Configure the MSDL port to the Meridian Link Module.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Release 19 gate opener.
...		
- CTYP	MSDL	Card Type. MSDL card.
- DNUM	y	Device number is y. Refers to the device number on the MSDL card.
- DES	MERIDIAN_LINK	Description of this I/O device.
- BPS	19200	Baud rate is 19,200 bits per second.
- PARM	RS232 DCE	Parameters for interface and transmission mode. DTE/DCE setting.
- IADR	3	HDLC protocol individual address.
- RADR	1	HDLC protocol remote address.
TYPE	PARM	Release 19 gate opener.
...		
- CSQI	(20)	Maximum call registers for CSL input queues (use the default, unless the system requires otherwise).
- CSQO	(20)	Maximum call registers for CSL output queues (use the default, unless the system requires otherwise).
TYPE	VAS	Release 19 gate opener.
...		
- VSID	y	Server ID y.
- AML	x	Port used by AML x, defined earlier in this overlay.
- - SECU	YES	Security on for Meridian Link.
- - INTL	x	Length of time interval (five-second increments) (e.g., 2).

- - MCNT	x	Threshold for number of messages per time interval (e.g., 100).
- - CONF	DIR	Direct link configuration.

LD 10 – Configure non-ACD Analog (500/2500 type) telephones as autodialers.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
...		
TN	I s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
CUST	0-99	Customer number.
...		
DN	x...x	Internal Directory Number.
AST	YES	Associate set assignment. The internal DN is an AST.
CLS	XFA	Transfer allowed.
CLS	DIP	Dial Pulse Class of Service for 500 sets (use DTN for 2500 sets).

LD 11 – Configure non-ACD Meridian 1 proprietary telephones as autodialers.

Prompt	Response	Description
REQ	NEW	New.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
CUST	0-99	Customer number.
...		
KLS	1-7	Number of key lamp strips, typically one.
...		
AST	xx yy	Key number for Associate set DN assignment.
...		
KEY	xx SCR yyyy	Key number, Single Call Ringing, DN.
KEY	xx TRN	Key number, Call Transfer.
KEY	xx AO6	Key number, six-party conference.
KEY	xx SCR yyyy	Key number, Single Call Ringing, second DN.
CLS	xx RLS	Key number, Release.

LD 23 – Configure ACD groups.

Prompt	Response	Description
REQ	NEW	New.
TYPE	ACD	Automatic Call Distribution data block.
CUST	0-99	Customer number
ACDN	xxxx	ACD Directory Number.
...		
ISAP	YES	Integrated Services Application Protocol. ACD DN uses Meridian Link (ISDN/AP) messaging.
- VSID	0-15	Value Added Server ID. This Server ID used for Meridian Link messaging must match the VSID defined in LD 17.

LD 10 – Configure ACD Analog (500/2500 type) telephones as autodialers.

Prompt	Response	Description
REQ	NEW	New.
TYPE	500	Telephone type.
...		
TN	I s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
CUST	0-99	Customer number.
...		
DN	x...x	Internal Directory Number.
AST	YES	Associate set assignment. The internal DN is an AST.
...		
CLS	AGTA	ACD agent allowed Class of Service.
CLS	DIP	Dial Pulse Class of Service for 500 sets (use DTN for 2500 sets).
...		
AACD	YES	ACD telephone is an Associate set.
FTR	ACD xxxx yyyy	ACD DN and the ACD position ID.

LD 11 – Configure ACD Meridian 1 proprietary telephones as autodialers.

Prompt	Response	Description
REQ	NEW	New.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
CUST	0-99	Customer number.
...		
KLS	1-7	Number of key lamp strips, typically one.
...		
AST	xx yy	Key numbers for Associate set DN assignment.
...		
KEY	0 ACD xxxx yyyy	Key 0, ACD, ACD DN, and agent's ID.
KEY	xx MSB	Key number, Make Set Busy.
KEY	xx NRD	Key number, Not Ready.
KEY	xx TRN	Key number, Call Transfer.
KEY	xx AO6	Key number, six-party conference.
KEY	xx SCR yyyy	Key number, Single Call Ringing, second DN.
CLS	xx RLS	Key number, Release.

LD 23 – Configure a Control DN (CDN – default mode). If the application wants to transfer a call to a target CDN, a CDN must be configured. CDNs can be in default or controlled mode.

Prompt	Response	Description
REQ	NEW	New.
TYPE	CDN	Control Directory Number data block.
CUST	0-99	Customer number.
CDN	xxxx	DN of the Control DN (counts as an ACD DN).
...		
DFDN	xxx...x	Default destination ACD DN.
CEIL	0-(2047)	CDN ceiling value. CEIL limits the number of unanswered calls a CDN can have at its default ACD DN at a time. Enter the maximum value (the default).
...		
RPRT	YES	Report Control.
CNTL	NO	NO sends CDN calls to the Default ACD DN.

LD 23 – Configure a Control DN (CDN – controlled mode). When a CDN is in controlled mode, the application can have control of the call once it enters the CDN.

Prompt	Response	Description
REQ	NEW	New.
TYPE	CDN	Control Directory Number data block.
CUST	0-99	Customer number.
CDN	xxxx	DN of the Control DN (counts as an ACD DN).
...		
DFDN	xxx...x	Default destination ACD DN.
CEIL	0-(2047)	CDN ceiling value. CEIL limits the number of unanswered calls a CDN can have at its default ACD DN at a time. Enter the maximum value (the default).
...		
RPRT	YES	Report Control.
CNTL	YES	Control DN is in control (the default).
VSID	0-15	Value Added Server ID. Server ID used for Meridian Link messaging (defined in LD 17).
HSID	0-15	Host Link ID used when Customer Controlled Routing and Meridian Link applications are both running.

LD 14 – Define answer supervision for trunks. If the application wants to transfer outgoing calls based on answer supervision, answer supervision must be configured. If answer supervision is not configured, the End-of-Dialing timer will be used as a trigger for the Meridian 1 to transfer the call.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaa	Trunk type where: aaa = CAA, CAM, COT, CSA, DID, FEX, FGDT, IDA, TIE, or WAT.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
SUPN	YES	Answer and disconnect supervision are required.

LD 16 – If the application is using the End-of-Dialing timer to transfer outbound calls, the timer must be configured in the Route Data Block.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block
...		
CNTL	YES	Change controls or timers.
- TIMR	EOD 128-(13952)- 32640	End-of-Dialing timer in milliseconds. The default is 13952 milliseconds.

LD 17 – In order to originate calls from phantom TNS/DNs, a phantom loop must first be configured and a physical loop card must be installed. A phantom DN can then be configured as part of a specific device group. After configuration changes to the loop card, the system must be reinitialized for the changes to take effect.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CEQU	Release 19 gate opener.
...		
- TERM	0-159 [X] 0-159 [C] 0-159	Single density local terminal loops. Precede loop number with X to remove. Precede loop number with C to create a phantom loop.
- TERD	0-159 [X] 0-159 [C] 0-159	Double density local terminal loops. Precede loop number with X to remove. Precede loop number with C to create a phantom loop.
- TERQ	0-159 [X] 0-159 [C] 0-159	Quad density local terminal loops. Precede loop number with X to remove. Precede loop number with C to create a phantom loop.

LD 97 – If a superloop is used, the phantom loop is configured in this overlay.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SUPL	Superloop parameters.
SUPL	0-156 [X] 0-156 [C] 0-156	Superloop number in multiples of four. Precede superloop number with X to remove. Precede superloop number with C to create a phantom superloop.

LD 11 – After configuring the phantom loop, an AST Meridian 1 proprietary set can be designated to a specific device group which can be controlled by applications. Therefore, when an application wants to originate a call on behalf of an idle TN, it can use a phantom TN. This idle TN is an AST Meridian 1 proprietary set which is defined on a phantom loop. There is no upper limit on the number of devices per group defined by the Phantom DN. However, there is an upper limit on the number of TNs that can be defined for the loop card. This number is dependent on the density of the loop card. The ITNA and DGRP prompts must be configured as follows:

Prompt	Response	Description
REQ	NEW	New.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	I s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
CDEN	SD DD 4D	Card density. Single density. Double density. Quad density.
DES	phanDN	One-to-six character Office Data Administration System (ODAS) Station Designator.
CUST	0-99	Customer number.
...		
CLS	NDD	No digit display is recommended if configuring phantom devices.
CLS	(DNDD)	Dialed Name Display denied is recommended if configuring phantom devices.
...		
AST	00	Key 0 is AST.

IAPG	(0)-15	Meridian Link Unsolicited Status Message (USM) group. These groups determine which status messages are sent for an AST set. The default 0 sends no messages, whereas Group 1 sends all messages.
ITNA	(NO), YES	Idle TN for third-party application. Set ITNA to YES for Phantom TN calls.
DGRP	(1)-5	Device Group with which phantom TNs are associated.
...		
KEY	xx SCR yyyy	Key number, Single Call Ringing, DN.
CLS	xx RLS	Key number, Release.

Feature operation

Applications invoke the Fast Transfer feature by sending a Fast Transfer request message to the switch. No specific operating procedures are required to use this feature.

Pretranslation

In a business or hospitality environment, many communications situations can be simplified with a flexible dialing plan. Pretranslation lets you create such a plan by using Speed Call lists as Pretranslation Tables.

Some typical uses of Pretranslation are:

- room number to DN correlation
- partitioning of telephones by category, group, department, floor, building, room, or special service
- internal call restrictions, and
- expanded customer dialing capability.

The dialing capabilities and/or restrictions of each Pretranslation group are defined in Pretranslation Tables. The tables are Speed Call lists modified for Pretranslation.

With Pretranslation, only the first dialed digit of a call is pretranslated. The translation choices are:

- **Pass** the digit as dialed with no changes
- **Replace** the first dialed digit with a specified substitute digit or digits, and pass the remaining digits unchanged
- **Delete** the first dialed digit and pass the remaining digits unchanged, or
- **Block** the call based on the first digit dialed.

The pretranslator must deal with all telephones, trunks, and consoles capable of delivering a dialed digit to the Meridian 1 digit processor. Each of these must be assigned to one of 255 Pretranslation groups. (Before X11 Release 14, there are a maximum of eight Pretranslation groups (0-7)). The groups are generally set up as follows:

- trunk and Direct Inward System Access (DISA) calls default to group 0
- Attendant Consoles default to group 1, and
- telephones and terminals default to group 0, but may be assigned to groups 2-254.

Note: When Pretranslation group 0 is configured, all sets are affected, as the XLST prompt in LDs 10 and 11 has a default value of 0. The XLST prompt associates a set with a specified Pretranslation group.

The dialing capabilities of each group are reflected by the codes stored against entries in the Pretranslation Table. The four possible codes are:

Code	Function
*	Block call.
***	Delete Pretranslation (first dialed) digit, pass remaining digits unchanged.
space <CR>	Pass Pretranslation digit unchanged.
xxxx...x	Pretranslate digit into xxxx...x, where: xxxx...x = replacement DN.

Only the first dialed digit is sent from the digit processor to the pretranslator. The pretranslator looks up the stored code for the dialed digit in the Pretranslation Table associated with the calling terminal, applies the treatment specified by the entry, and passes the result to the DN translator. From then on, the call is processed normally. Pretranslation of the call is finished at this point, unless call modification procedures, such as a Call Transfer, are involved.

Setting up dialing plans and Pretranslation Tables

Steps needed to set up Pretranslation:

- 1 Identify the customer numbering plan.
- 2 Determine access and restrictions for each Pretranslation calling group.
- 3 Determine dialing requirements and instructions for the Pretranslation calling groups and create a Pretranslation Table for each group.
- 4 Implement the feature.

A hotel has been chosen as a model to illustrate the principles of Pretranslation and how to set up Pretranslation. However, Pretranslation can be applied to many other business environments.

Table 109
Description of model

Hotel with 12 floors containing administrative offices, hotel services, and guest rooms.

Floor 1 – Lobby, gift shop, restaurants, and administrative offices.

Floor 2 – Meeting rooms, salon, and additional office space.

Floor 3 – Banquet rooms and health club.

Floors 4-12 – Guest rooms (floors 4-9 each have 50 rooms, floors 10-12 each have 25 suites).

Step 1 – Identify the numbering plan

The model hotel's numbering plan is shown in Table 110.

Table 110
Numbering plan for model

Available numbers	Assigned to	Actual DNs used
0	Operator	0
1	Guest rooms on floor 10	1001-1026
	Guest rooms on floor 11	1101-1126
	Guest rooms on floor 12	1201-1226
2	Room service	2001
	Cafe	2002
	Restaurant	2003
	Gift shop	2004
	Health club	2005
	Salon	2006
	Housekeeping	2007
	Bell Captain	2008
	Valet	2009
	Meeting rooms	2100-2199
	Administrative offices	2300-2599
	Security	2700
	Front desk	2730
	Lobby telephones	2750-2765
	Miscellaneous	2800-2899
3	SPRE code	
4	unused	
5	unused	
6	Trunk access codes	620-635
7	Guest rooms on floor 4	7401-7451
	Guest rooms on floor 5	7501-7551
	Guest rooms on floor 6	7601-7651
	Guest rooms on floor 7	7701-7751
	Guest rooms on floor 8	7801-7851
	Guest rooms on floor 9	7901-7951
8	unused	
9	BARS access codes	9

Step 2 – Determine access restrictions

Pretranslation calling groups and dialing restrictions are shown in Table 111.

Table 111
Access and restrictions for model

Group number (XLST)	Type of station	Allowed access	Denied access
0	Default for DISA trunks and telephones	Operator only	All except Operator
1	Guest rooms	Other guest rooms, hotel services, local and long distance, operator	Administrative telephones and direct trunk access
2	Lobby and courtesy telephones	Guest rooms, security, and the operator	Hotel services, administrative telephones, local and long distance, direct trunk access, and SPRE
3	Administrative A	Guest rooms, administrative telephones, direct trunk access, SPRE, operator, BARS access for local and long distance	Direct trunk access
4	Administrative B	Guest rooms, administrative telephones, SPRE, operator	Direct trunk access, BARS access for local and long distance

Step 3 – Determine dialing requirements and create Pretranslation Tables

Dialing instructions for Group 0 (zero) in this model are shown in Table 112 and the corresponding Pretranslation Table is listed in Table 113. For an explanation of the groups used in this model, see Table 111.

Table 112
Group 0 – Default for unassigned trunks and telephones

Actual digits dialed	Desired destination
1	Operator
2	Operator
3	Operator
4	Operator
5	Operator
6	Operator
7	Operator
8	Operator
9	Operator
0	Operator

Table 113
Group 0 – Pretranslation Table (default)

Digit	Code	Function	Destination
1	0	replace	Operator
2	0	replace	Operator
3	0	replace	Operator
4	0	replace	Operator
5	0	replace	Operator
6	0	replace	Operator
7	0	replace	Operator
8	0	replace	Operator
9	0	replace	Operator
0	space <CR>	pass	Operator

Dialing instructions for Group 1 in this model are shown in Table 114 and the corresponding Pretranslation Table is listed in Table 115.

Table 114
Group 1 – Guest dialing instructions for model

Actual digits dialed	Desired destination
1xxx	Guest rooms on floors 10-12
2	Security
3	SPRE (housekeeping staff for Room Status)
4	Front desk
51	Room Service
52	Cafe
53	Restaurant
54	Gift shop
55	Health club
56	Salon
57	Housekeeping
58	Bell captain
59	Valet
7xxx	Guest rooms on floors 4-9
8	Long distance calls
9	Local calls
0	Operator

Table 115
Group 1 – Pretranslation Table (Guests)

Digit	Code	Function	Destination
1	space <CR>	pass	Guest rooms
2	2700	replace	Security
3	space <CR>	pass	SPRE
4	2730	replace	Front desk
5 (see Note)	200	replace	Guest services
6	*	block call	Not used
7	space <CR>	pass	Guest rooms
8	620	replace	Long distance calls
9	space <CR>	pass	Local calls
0	space <CR>	pass	Operator
Note: When a guest dials 51 for room service, the digit “5” is translated to the entry “200” and the 1 is passed as is, resulting in the extension “2001.”			

Dialing instructions for Group 2 in this model are shown in Table 116 and the corresponding Pretranslation Table is listed in Table 117.

For an explanation of the groups used in this model, see Table 111.

Table 116
Group 2 – Lobby and courtesy telephone dialing instructions

Actual digits dialed	Desired destination
1xxx	Guest rooms on floors 10-12
2	Security
7xxx	Guest rooms on floors 4-9
0	Operator

Table 117
Group 2 – Pretranslation Table (lobby and courtesy telephones)

Digit	Code	Function	Destination
1	space <CR>	pass	Guest rooms
2	2700	replace	Security
3	*	block call	Not used
4	*	block call	Not used
5	*	block call	Not used
6	*	block call	Not used
7	space <CR>	pass	Guest rooms
8	*	block call	Not used
9	*	block call	Not used
0	space <CR>	pass	Operator

Dialing instructions for Group 3 in this model are shown in Table 118 and the corresponding Pretranslation Table is listed in Table 119.

For an explanation of the groups used in this model, see Table 111.

Table 118
Group 3 – Administrative A dialing instructions for model

Actual digits dialed	Desired destination
1xxx	Guest rooms on floors 10-12
2xxx	Administrative telephones
3	SPRE
7xxx	Guest rooms on floors 4-9
9	Local/long distance through BARS
0	Operator

Table 119
Group 3 – Pretranslation Table (Administrative A)

Digit	Code	Function	Destination
1	space <CR>	pass	Guest rooms
2	space <CR>	pass	Administrative telephones
3	space <CR>	pass	SPRE
4	*	block call	Not used
5	*	block call	Not used
6	*	block call	Not used
7	space <CR>	pass	Guest rooms
8	*	block call	Not used
9	space <CR>	pass	Local/long distance through BARS
0	space <CR>	pass	Operator

Dialing instructions for Group 4 in this model are shown in Table 120 and the corresponding Pretranslation Table is listed in Table 121.

For an explanation of the groups used in this model, see Table 111.

Table 120
Group 4 – Administrative B dialing instructions for model

Actual digits dialed	Desired destination
1xxx	Guest rooms on floors 10-12
2xxx	Administrative telephones
3	SPRE
7xxx	Guest rooms on floors 4-9
0	Operator

Table 121
Group 4 – Pretranslation Table (Administrative B)

Digit	Code	Function	Destination
1	space <CR>	pass	Guest rooms
2	space <CR>	pass	Administrative telephones
3	space <CR>	pass	SPRE
4	*	block call	Not used
5	*	block call	Not used
6	*	block call	Not used
7	space <CR>	pass	Guest rooms
8	*	block call	Not used
9	*	block call	Not used
0	space <CR>	pass	Operator

Operating parameters

Pretranslation Table codes are limited to the four described on page 1580.

User groups are limited to 255 (eight before X11 Release 14).

Each Pretranslation Table entry can be up to 31 characters long; however, it is recommended that a maximum of eight characters be used.

After Pretranslation, any previously loaded (but not pretranslated) digits are added to the end of the pretranslated digits. If the total number of digits exceeds 31, the excess digits will be truncated.

Each Pretranslation Table reduces the number of available Speed Call lists in the system.

Speed Call Controllers do not have access to Pretranslation Tables. Lists must be created and maintained through Service Change.

Before configuring a Pretranslation Data Block in LD 18, Pretranslation group 0 must be configured.

When Pretranslation is allowed in LD 15 (PREO = 1), in order for a pretranslation entry to be removed, Pretranslation must first be disabled in LD 15 (PREO = 0). The Pretranslation data block is then removed in LD 18. It is not possible to remove a single entry. The entire data block must be removed.

Feature interactions

Authorization Code

The first digit dialed after a valid Authorization Code is sent to the pretranslator.

Automatic Redial (ARDL)

ARDL can be activated on a number that has passed the Pretranslation process. However, on an ARDL call the Pretranslation process is not used.

Automatic Trunk Maintenance

Private Line

Telset Messaging

Pretranslation cannot be used with these features.

Call Detail Recording (CDR)

If a number dialed is pretranslated, the translated digits appear in the CDR records, not the dialed digits.

Call Forward

The DN dialed-forwarded calls are pretranslated.

Charge Account

The first digit dialed after a valid Charge Account Code is sent to the pretranslator.

Digit Display

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.

Direct Inward System Access (DISA)

DISA calls are automatically assigned XLST 0.

Direct Private Network Access

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

Electronic Switched Network (ESN)

The pretranslator is used with calls to HNPA, HLOC, and Home CDP locations.

Flexible Feature Codes

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 FFC's 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.

Forced Charge Account

The first digit dialed after a valid Charge Account Code is sent to the pretranslator.

Meridian Link Calls

Pretranslation cannot function with Meridian Link calls if the Hospitality Voice Services (HVS) package is enabled.

Special Prefix

The SPRE code must be accessible through a Pretranslation Table entry in order for users to activate features in this manner.

Speed Call

Entries must be accessible through a Pretranslation Table entry in order to place a speed call.

With X11 Release 18 and later, a Speed Call List number should be programmed to allow for Pretranslation. For example, if 9 pretranslates to 99 and you want to reach 99 nxx xxxx, you need to program the number in the Speed Call List as 9 nxx xxxx. When the Speed Call List is used, 9 nxx xxxx is pretranslated at call processing time to become 99 nxx xxxx.

Feature packaging

Pretranslation (PXLТ) package 92 has no feature package dependencies.

Feature implementation

LD 17 – Allocate sufficient Speed Call lists to be used as Pretranslation Tables (X11 Release 13 and later software).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. Release 19 gate opener.
...		
- MSCL	(0)-8191	Maximum number of Speed Call lists.

LD 18 – Add or change a Speed Call list to be used for each Pretranslation calling group.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	SCL	Speed Call data block.
LSNO	0-8190	Number of Pretranslation list. Note: With X11 Release 12 and earlier, up to 255 Pretranslation lists are allowed.
DNSZ	4-(16)-31	Number of digits that can be in a list entry.
SIZE	10	Maximum number of entries.
WRT	(YES), NO	Data is correct and can be updated in data store.

STOR	x * x *** x space <CR> x yyyy...y	x is the first digit dialed. * = block call. *** = delete the digit. space <CR> = pass digit unchanged. yyyy...y = replacement digits.
WRT	(YES), NO	Data is correct and can be updated in data store.
STOR	<CR>	Ends input of list entries.

LD 18 – Add or change the Pretranslation data block, defining the calling group to Speed Call list correlation. This procedure is necessary in X11 Release 14 and later software. This list must be configured before Pretranslation (PREO) is enabled in LD 15.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	PRE	Pretranslation (X11 Release 14 and later software).
CUST	0-99	Customer number.
XLAT	xxx yyyy	Pretranslation list, where: xxx = Pretranslation calling group number (0-254), and yyyy = corresponding Speed Call list number (1-8190). Note: XLAT appears in LD 15 in X11 Release 13 and earlier software.

LD 15 – Activate Pretranslation and define calling groups to Speed Call list correlation.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.

CUST	0-99	Customer number.
- PREO	0, 1	Allow or deny Pretranslation, where: 0 = no Pretranslation, and 1 = Pretranslation.

Note: When Pretranslation group 0 is configured, care must be taken to define the XLST prompt, rather than letting it default automatically to 0. If XLST does default to 0 when Pretranslation group 0 is configured, all sets in the switch are affected.

LD 10 – Associate an Analog (500/2500 type) telephone with a Pretranslation group.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
XLST	0-254	Associate telephone with the specified Pretranslation group (0-7 in X11 Release 14 and earlier).
	<CR>	Default to Pretranslation group 0 (only when REQ = NEW). It is important to define the XLST prompt, rather than letting it default to 0, as when Pretranslation group 0 is configured, all sets in the switch are affected.

LD 11 – Associate a Meridian 1 proprietary telephone with a Pretranslation group.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
XLST	0-254	Associate telephone with the specified Pretranslation group (0-7 in X11 Release 14 and earlier).
	<CR>	Default to Pretranslation group 0 (only when REQ = NEW).

Feature operation

No specific operating procedures are required to use this feature.

Pretranslation and System Speed Call Enhancement

Pretranslation and System Speed Call Enhancement provides the option to allow or deny Pretranslation when a System Speed Call list entry is dial accessed.

The existing Pretranslation feature allows the creation of a flexible dialing plan by using Speed Call lists which are modified for pretranslation. The dialing capabilities and/or restrictions of each Pretranslation group are defined in Pretranslation Tables.

The existing System Speed Call feature allows abbreviated dialing and also allows users to temporarily override the set's Class of Service, Trunk Group Access Restrictions (TGARs), and Code Restrictions.

Analog (500/2500 type) sets, Meridian 1 proprietary sets, and Attendant Consoles can activate System Speed Call by using a Special Prefix (SPRE) or Flexible Feature Code (FFC).

For further information pertaining to the existing Pretranslation and System Speed Call features, refer to the feature modules in this guide.

Tables 122 and 123 are examples of a Pretranslation Table and a System Speed Call list respectively.

Table 122
Pretranslation Table

List entry	Corresponding DN or Code	Function
0	space <CR>	Pass Pretranslation digit unchanged
1	space <CR>	Pass Pretranslation digit unchanged
2	space <CR>	Pass Pretranslation digit unchanged
3	space <CR>	Pass Pretranslation digit unchanged
4	space <CR>	Pass Pretranslation digit unchanged
5	space <CR>	Pass Pretranslation digit unchanged
6	space <CR>	Pass Pretranslation digit unchanged
7	8000	Convert to Route Access Code 8000
8	***	Delete Pretranslation (first dialed) digit, pass remaining digits unchanged
9	*	Block the call

Table 123
System Speed Call List

List entry	Corresponding DN
00	7182
01	122455678
...	...

In Table 122, if the first dialed digit is 0 to 6, Pretranslation passes all of the digits and leaves them unchanged. If the first dialed digit is 7, Pretranslation changes digit 7 to Route Access Code 8000. If the first dialed digit is 8, Pretranslation deletes the first dialed digit and passes the remaining digits unchanged. If the first dialed digit is 9, Pretranslation blocks the call.

To dial access System Speed Call lists, the user dials:

- 1 SPRE, as defined in Overlay 15
- 2 System Speed Call Feature Code - 73
- 3 System Speed Call list entry number

If the Meridian 1 is equipped with Flexible Feature Codes, the user dials:

- 1 FFC, as defined in Overlay 57.
- 2 System Speed Call list entry number

With the existing Pretranslation and System Speed Call features, when Dial Access occurs, Pretranslation is performed on the first dialed digit of the Special Prefix (SPRE) or Flexible Feature Code (FFC). The first digit of the digits stored in the System Speed Call list entry is then also pretranslated.

The Pretranslation and System Speed Call Enhancement introduces the BPSS prompt in Overlay 15. This prompt provides the option to allow or deny pretranslation on the System Speed Call list entry when dial accessed. If BPSS is set to YES in Overlay 15, Pretranslation is blocked. Therefore, only the first dialed digit is pretranslated. The first digit of the digits stored in the System Speed Call list entry is not pretranslated.

To follow are examples of Pretranslation and System Speed Call functionalities when Pretranslation is blocked/not blocked. Tables 122 and 123 are considered for these examples. It is assumed that the SPRE method of dialing is used and that the user has the following configuration:

- Special Prefix (SPRE) code - **1**
- System Speed Call Feature Code - **73**

BPSS = NO

With dial access and the BPSS option set to NO in Overlay 15, Pretranslation is not blocked. Therefore, the existing Pretranslation functionality is retained.

Now when the user dials 1+73+00, Pretranslation occurs twice. It occurs once on the first dialed digit (1) and once again on the first digit of the digits stored in the System Speed Call list entry (7 of 7182).

When the user dials SPRE + 73 + 00, the first digit of the digits stored in the System Speed Call list entry (7 of 7182) is converted to DN 8000. In this example, DN 8000 is a Trunk Route Access Code; therefore, the call goes out on that route, and the digits 182 are outputted.

BPSS = YES

With dial access and the BPSS option set to YES in Overlay 15, Pretranslation is blocked. Therefore, the new Pretranslation functionality is in effect.

Now when the user dials 1+73+00, the first dialed digit (1) is pretranslated. However, the first digit of the digits stored in the System Speed Call list entry (7 of 7182) is not pretranslated.

When the user dials SPRE + 73 + 00, the list entry number is converted to DN 7182. When BPSS = YES, Pretranslation is blocked at this point. Therefore, the first digit of the digits stored in the System Speed Call list entry (7 of 7182) is not converted to the corresponding DN (8000) in the Pretranslation Table.

Operating parameters

To allow or deny Pretranslation on a System Speed Call list entry when dial accessed, the BPSS prompt must be defined in the Customer Data Block.

When Pretranslation is disabled (PREO = 0) in the Customer Data Block, BPSS is prompted but does not take effect. Therefore, the current functionality is retained.

With Dial Access and the BPSS option set to YES in the Customer Data Block, only the first dialed digit is pretranslated. The first digit of the digits stored in the System Speed Call list entry are not pretranslated.

With Dial Access and the BPSS option set to NO in the Customer Data Block, the existing operation is retained.

The functionality of the Speed Call (Dial Access and Key Access) and System Speed Call (Key Access only) features is not changed by this enhancement.

The operation of Key Access to System Speed Call with Pretranslation is not modified with this feature.

Existing dialing plans are affected when the Pretranslation and System Speed Call Enhancement is configured.

The pre-programmed DN in the System Speed Call list can be internal or external to the Meridian 1 system.

Feature interactions

There are no new feature interactions as a result of this enhancement. For a list of the existing Pretranslation, Speed Call, and System Speed Call feature interactions, refer to the Pretranslation, Speed Call, and System Speed Call feature modules in *X11 features and services*.

Feature packaging

The following packages are required for Pretranslation and System Speed Call Enhancement:

- System Speed Call (SSC) package 34
- Pretranslation (PXLT) package 92

Feature implementation

Note: The Pretranslation and System Speed Call features must be configured as per the existing implementation procedures. Refer to the Pretranslation feature module and the System Speed Call feature module in this guide.

CAUTION

Care must be taken when implementing Pretranslation and System Speed Call Enhancement, as existing dialing plans will be impacted when BPSS = YES. In this case, the existing Pretranslation functionality is changed, and the entire Customer group of dial access System Speed Call users is affected.

LD 15 – Allow or deny blocking of Pretranslation on list entry when dial accessed.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Features and options data. Release 21 gate opener.
CUST	xx	Customer number.
...		

PREO	1	Pretranslation Option enabled. 0 = Pretranslation Option disabled (default).
BPSS	YES	Block Pretranslation on System Speed Call lists when dial accessed. NO = Do not block Pretranslation on System Speed Call lists when dial accessed (default).

Feature operation

To dial access System Speed Call lists, the user

- 1 lifts the handset of the analog (500/2500 type) set, Meridian 1 proprietary set, or Attendant Console
- 2 dials the Special Prefix (SPRE) code, as defined in Overlay 15
- 3 dials the System Speed Call Feature Code - **73**
- 4 dials the System Speed Call list entry number

If the Meridian 1 is equipped with Flexible Feature Codes (FFCs), the user

- 1 lifts the handset of the (500/2500 type) set, Meridian 1 proprietary set, or Attendant Console
- 2 dials the Flexible Feature Code (FFC) for accessing System Speed Call, as defined in Overlay 57
- 3 dials the System Speed Call list entry number

Privacy

Meridian 1 proprietary telephones automatically provide Privacy for telephones sharing a single call arrangement Directory Number (DN). When a call is in progress on the DN, no other telephone on which the DN appears can enter the call.

Operating parameters

Privacy is not available for analog (500/2500 type) telephones.

If the Directory Number (DN) is shared with any single line telephone, Privacy is not in effect for any appearance of the DN, and anyone sharing that DN can enter an active call.

Feature interactions

Automatic Redial (ARDL)

If the ARDL call is redialed on a number that is shared with any single line telephone, the ARDL call is accepted when the single line telephone goes off-hook.

Privacy Override

The user can Override the inherent privacy on Meridian 1 proprietary telephones. If an appearance occurs on a telephone with Privacy Override enabled, that appearance can bridge into an active call. This pertains to calls on a multiple appearance single call Directory Number (DN) when not mixed with single line telephones.

Feature packaging

Privacy is included in base X11 system software.

Feature implementation

No change to existing configuration is required for the Privacy feature.

Feature operation

No specific operating procedures are required to use this feature.

Privacy Override

A Meridian 1 proprietary telephone with a Privacy Override Allowed (POA) Class of Service can enter an established call on a multiple appearance single call Directory Number (DN). However, the call cannot be joined until it is established (that is, the EOD timer has expired).

If all members of a non-mixed multiple appearance single call DN group are allowed Privacy Override, the operation of the feature is equivalent to a mixed multiple appearance single call arrangement.

When a group contains a combination of Privacy Override Allowed (POA) and Privacy Override Denied (POD) Classes of Service, the telephones denied Privacy Override cannot bridge into established calls.

Operating parameters

Privacy Override does not apply to analog (500/2500 type) telephones.

Feature interactions

Automatic Redial (ARDL)

When the Privacy Override feature is activated on the MADN key and the one set activates ARDL, this call can be accepted by other sets.

Exclusive Hold

Telephones with POA Class of Service cannot bridge into calls on Directory Numbers (DNs) with Exclusive Hold active.

Call Park

Calls in a Privacy Override conference state cannot be parked.

Call Transfer

Calls in a Privacy Override conference state cannot be transferred.

Conference

The Conference feature can be used to add other parties to a Privacy Override connection.

Multiple Appearance DN, Mixed Mode

Since the Privacy feature is not active in this mode, telephones with a POD Class of Service can bridge into an active call.

Feature packaging

Privacy Override is included in base X11 system software.

Feature implementation

LD 11 – Allow or deny Privacy Override on a Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number.
CLS	POA, (POD)	Allow or deny Privacy Override.

Feature operation

To activate Privacy Override, press the multiple appearance single call DN. You are automatically connected to the call.

Privacy Release

In multiple appearance single call arrangements of Meridian 1 proprietary telephones, Privacy Release allows one other appearance of the Directory Number (DN) to enter the call. Privacy is then reestablished until Privacy Release is activated again.

Operating parameters

Privacy Release is available only with Meridian 1 proprietary telephones in multiple appearance single call arrangements.

The system must be equipped with a conference loop.

Feature interactions

Automatic Redial (ARDL)

When an ARDL call is not accepted by the calling party, the Privacy Release (PRS) key is ignored if pressed.

Dial Access to Group Calls Group Call

The Privacy Release feature cannot be applied to a Group Call.

Exclusive Hold

If the telephone with Privacy Release has Exclusive Hold Allowed in the Class of Service, and a call is on hold, another telephone with that Multiple Appearance Directory Number (MADN) cannot access the call.

Feature packaging

Privacy Release is included in base X11 system software.

Feature implementation

LD 11 – Allow/deny Privacy Release for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx PRS	Add a Privacy Release key. M2317 and M3000 telephones automatically assign the PRS key to key 28.

Feature operation

To allow someone with another appearance of the Directory Number (DN) to enter a call:

- 1 Press **Priv Rls**. All appearances of that DN flash. One other party can enter the call by pressing the flashing DN key that has the call.
- 2 You must press **Priv Rls** again to allow another appearance of the DN to enter the call.

Private Line Service

Private Line Service enables the customer to assign private Central Office (CO) lines to selected telephones or power fail transfer equipment. When associated with a Meridian 1 proprietary telephone, the following features are available to Private Line Service:

- Automatic Dialing
- Automatic Preselection
- Call Pickup
- Call Transfer
- Call Status
- Conference
- Common Audible Signaling
- Hold
- Multiple appearance single call arrangement
- Prime Directory Number
- Privacy
- Privacy Release
- Release, and
- Analog (500/2500 type) /SL-1 telephone mix.

Operating parameters

Single line telephones with Private Line Service cannot access Meridian SL-1 features.

All Private Lines must be assigned to trunk route 31 on X11 Release 13 and earlier software. A Directory Number (DN) must be assigned to each trunk.

A maximum of 126 Private Lines are available per customer.

X11 Release 14 and later software allows 512 Private Line trunk routes to be defined.

A Private Line should not be assigned as a Prime Directory Number (DN) unless preselection is required.

Hunting does not apply to Private Line service.

Call Forward on Private Lines (Meridian 1 proprietary telephones) is not forwarded to a second appearance of its own DN.

Feature interactions

Call Modification Features (CMF) in the trunk data block can be inhibited as follows:

- Call Transfer
- Conference
- Call Forward
- Message Center
- Call Forward No Answer
Call Forward No Answer is always inhibited on Private Lines.
- Multiple appearance
For multiple appearance calls, call modification cannot be blocked.

Automatic Redial (ARDL)

ARDL call can be activated on a Private Line Service key. The call can only be redialed when the calling party's PVR or PVN key is free.

Calling Party Privacy

The Private Line Service feature will outpulse the Privacy Indicator only if it is dialed by the originator. An asterisk will be outpulsed to the far end only if it is an Outpulsing of Asterisk and Octothorpe (OPAO) call, otherwise the asterisk signals a three-second pause.

Feature packaging

Private Line Service is included in base X11 system software.

Feature implementation

LD 16 – Add or change a Private Line trunk route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUTE	0-511	Route number.
TKTP	COT	Central Office trunk.
PRIV	YES	Route is a Private Line route.
ICOG	IAO	Incoming and outgoing route.

LD 14 – Add or change Private Line trunks in the Private Line trunk route.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	COT	Central Office trunk.
TN	I s c u	Terminal Number.
XTRK	XUT, XEM	Universal Trunk Card (NT8D14), E&M Trunk Card (NT8D15). Prompted only for Superloops and the first unit on the card.

PRDN	xxx...x	Private Line phantom DN.
CMF	(NO), YES	Call modification is or is not inhibited for private line.

LD 10 – Add or change Private Line Service for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
DN	xxx...x	Private Line DN (xxx...x is the same as for PRDN prompt in LD 14).

LD 11 – Add or change Private Line Service for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx PVN yyy...y	Private Line non-ringing key (yyy...y is the same as for PRDN prompt in LD 14).
	xx PVR yyy...y	Private Line ringing key (yyy...y is the same as for PRDN prompt in LD 14).

Feature operation

No specific operating procedures are required to use this feature.

Property Management System Interface

The Property Management System Interface (PMSI) is a full-duplex RS-232 asynchronous data link that allows a Meridian 1 customer with a Property Management System (PMS) computer to exchange a higher level of protocol for the Background Terminal (BGD) features in a hospitality environment.

The Meridian 1 sends formatted messages to the Property Management System (PMS) computer for the following features:

- Controlled Class of Service (CCOS)
- Message Waiting
- Do Not Disturb (DND)
- Room Status (RMS)
- Call Number Information Messages (CNIM), and
- Call Party Name Display (CPND).

The system connects to the Property Management System (PMS) computer through a Serial Data Interface (SDI) port. Each character received from the Property Management System Interface (PMSI) data link is treated as if it were entered from a TTY, and each character transmitted to the PMS computer is handled the same way as characters output to a TTY.

PMSI Standardization

The PMSI Standardization features in X11 Release 19 and later provide the Meridian 1 with the following enhancements:

- message retransmission
- polling, and
- message monitoring.

Note: Upon loading X11 Release 19, these features are not automatically activated. You must go into LD 17 to enable these features.

Message transmission and retransmission

Prior to X11 Release 19, the Meridian 1 ignored any response returned by the PMS after sending a room status message to the PMS, and did not attempt to retransmit the message. As a result, the database between the PMS and the Meridian 1 could not be maintained consistently.

With X11 Release 19 and later, PMSI Standardization provides the Meridian 1 with the capability to retransmit a message to the PMS. This means whenever the Meridian 1 transmits a room message or the new polling message to the PMS, the Meridian 1 will wait for an <ACK> response from the primary PMSI port. If the Meridian 1 receives a <NAK>, or does not receive any response before the predefined response timer expires, the same message will be retransmitted to the primary PMSI port.

Polling

Prior to X11 Release 19, the Meridian 1 did not have the capability to monitor the status of the PMSI link (i.e., the link between the Meridian 1 and the PMS).

With X11 Release 19 and later, PMSI Standardization provides this monitoring capability by enabling the Meridian 1 to poll the PMSI link at predefined intervals.

Message monitoring

Prior to X11 Release 19, the Meridian 1 did not have the capability to track incoming messages from the PMS or outgoing messages to the PMS.

With X11 Release 19 and later, PMSI Standardization provides this tracking capability by enabling these incoming/outgoing messages between the Meridian 1 and the PMS to be displayed on all maintenance (MTC) TTYs on the Meridian 1.

Refer to *Property Management System Interface description* (553-2801-101) for detailed information on PMSI Standardization.

Operating parameters

Refer to *Property Management System Interface description* (553-2801-101).

Feature interactions

Refer to *Property Management System Interface description* (553-2801-101).

Feature packaging

Property Management System Interface (PMSI) package 103 requires:

- Controlled Class of Service (CCOS) package 81
- Room Status (RMS) package 100, and
- Background Terminal Facility (BGD) package 99.

Note: PMSI Standardization requires Release 19 software.

Feature implementation

Refer to *Property Management System Interface description* (553-2801-101).

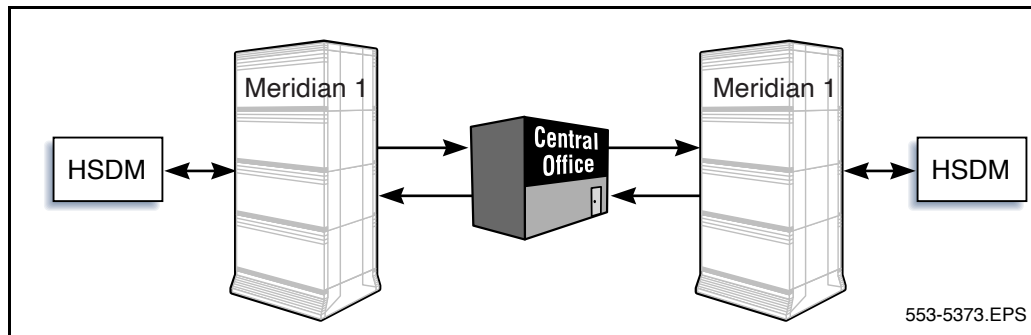
Feature operation

No specific operating procedures are required to use this feature.

Public Switched Data Service

The Public Switched Data Service (PSDS) allows you to receive data on your Meridian 1 at 56 kbps over Digital Trunk Interface (DTI) trunks (with X11 Release 16 and later), and at 64 kbps over an Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) channel (with X11 Release 18 and later). See Figure 63.

Figure 63
Public Switched Data Service (PSDS) between Meridian 1 and Central Office (CO)



You can install a T1 link to different vendors and use the Meridian Communications Adapter (MCA) or QMT21 High Speed Data Module to initiate or receive a 56 kbps digital data call. The digital data call then transports across the vendor's digital network to another Meridian 1 or an SL-100.

Operating parameters

Public Switched Data Service (PSDS) requires X11 Release 16 or later. The various data modules are supported for different Releases. The Meridian Communications Adapter (MCA) operates with X11 Release 16 and later. The QMT21 module operates with X11 Releases 16 and 17.

PSDS calls are supported in the following situations:

- a Meridian 1 and the Central Office (CO)
- a tandem call from an SL-100 to a Meridian 1, and
- a Meridian 1 and other PSDS-compatible switches.

The PSDS supports Digital Trunk Interface (DTI) type trunks, TIE and DID/DOD trunks, and Electronic TIE Network (ETN) compatible signaling.

End-to-End DTI network

For all Meridian 1 networks (Point to Point), users can access the existing data facility in the Meridian 1 to support data calls, or they can select the Switched 56 data mode. For mixed-vendor private networks, users can only select the PSDS mode.

Feature interactions

ISDN PRI

The following routes are possible using this feature on Primary Rate Access:

- Point to Point access
For Point to Point access of TIE trunks, the software can be modified to handle the requirements of this feature.
- Tandem call
For tandem access, additional information on this feature is needed, or the data call can be defined as a voice call.
- DID/FEX/WATS/Accunet
The Meridian 1 supports PSDS data calls to these trunk types.
- Public Network hop off
Signaling is provided to inform the tandem switch about the PSDS data call.

Feature packaging

Public Switched Data Service is included in base X11 system software.

Feature implementation

The data selection (DSEL) in the Route Data Block can be defined as voice calls only (VCE), data calls only (DTA), or voice and data calls (VOD). The call can be defined as voice calls, regular data calls, or PSDS calls. Refer to the *X11 input/output guide* to configure the Route Data Block.

Feature operation

Originating data calls

For direct access, dial the regular seven-digit or 10-digit number.

For special route access, dial a route access code after hearing a dial tone.

Receiving data calls

Calls are answered automatically.

An auto-answer call is answered by the data module, and no special operation is necessary.

Related features

When using Public Switched Data Service, you may want to refer to the following features.

Meridian Communications Adapter (MCA)

The Meridian Communications Adapter (MCA) operates with X11 Release 16 and later and allows asynchronous ASCII terminals, personal computers, and printers to be connected to the telephone using an RS-232C or V.35 interface. With Release 14 and later, the MCA also allows synchronous applications (DTEs such as video conferencing equipment and Group IV fax units) to be connected to the telephone. Refer to *Meridian Communications Unit and Meridian Communications Adapter description, installation, administration, operation* (553-2731-109) for detailed information on the MCA.

Meridian Communications Unit (MCU)

The Meridian Communications Unit (MCU) is a X11 Release 19 feature that provides a standalone version of the Meridian Communications Adapter (MCA).

The Meridian Communications Unit (MCU) allows you to transmit and receive data using either PSDS over the public network or a private network. The MCU, which replaces the QMT21C, is designed for domestic and international use, with transmission speeds up to 19.2 kbps asynchronous, and 64 kbps synchronous, integrated display, and self diagnostics. The MCU supports autodialing, ring again, and speed calling, as well as autobauding and automatic parity detection. You can use the MCU for:

- Video conferencing
- LAN bridging
- Bulk data/PC file transfer
- Dial back-up, and
- Host connectivity.

The MCU fully complies with RS-232C and can be configured as DCE or DTE to connect to a terminal, printer, or fax machine.

Unlike the MCA, the MCU provides a dedicated call key and call progress tones. The MCU also permits smart modem pooling.

The MCU supports the DM-DM, T-Link, V.25 bis, and PSDS interfaces as well as the RS-232C, CCITT V.35, CCITT V.24, and RS570/RS3449 (with different cables) interfaces. It complies with V.28 for European approval.

Refer to *Meridian Communications Unit and Meridian Communications Adapter description, installation, administration, operation* (553-2731-109) for detailed information on this feature.

Transparent Data Networking (TDN)

Transparent Data Networking is an X11 Release 19 feature that provides a transparent data channel for data modules to perform end-to-end protocol exchange. This means that two data modules will wait for a circuit path to be established before exchanging protocol parameters.

The data modules and protocols that are supported by TDN are:

- Meridian Communications Adapter (MCA) card in a Meridian Modular telephone (MMT) set, which uses PSDS and T-Link protocols on external calls
- Meridian Communications Unit (MCU), a standalone version of the MCA, which uses T-Link and PSDS protocols on external calls
- Basic Rate Interface (BRI) telephones, which use T-Link, V.110, and V.120 protocols, and
- High Speed Data Module (HSDM) when configured to use PSDS.

Refer to *Transparent Data Networking* (553-2731-110) for detailed information on TDN.

Recall after Parking

This enhancement to the Call Park feature causes a parked call to be recalled to the attendant or night DN if the attendant is in Night Service, rather than to the parking set, if not answered within a customer-defined period of time (two-minute maximum). The call may be external or internal.

Operating parameters

This enhancement does not apply to calls parked by Automatic Call Distribution (ACD) agents.

This enhancement operates in a standalone, but not a in network environment.

Feature interactions

There are no interactions with other features.

Feature packaging

Recall After Parking feature is included in Call Park (CPRK) package 33.

Feature implementation

LD 50 – Configure Recall after Parking.

Prompt	Response	Description
...		
CPTM	30-(45)-240	Call Park Timer (in seconds). The amount of time a call is held in the parked state before recalling the parking set or the attendant.
RECA	(NO), YES	Recall Attendant. YES = unanswered parked calls recall the attendant. NO = unanswered park calls recall the parking set.

Feature operation

The recall to the attendant appears on the Recall ICI key. If the attendant is in Night Service, the recall occurs to the Night DN. If the Night DN is busy, the external calls are queued.

Recall to Same Attendant

The Recall to Same Attendant (RTSA) feature allows a recall to return to the attendant which last extended the call. If that attendant is busy, the recall is routed to either the first available idle attendant (option RSAA), or queued to the requested attendant until the attendant becomes idle (option RSAX). A call queued to an attendant in this way takes precedence over all other calls. Queued recalls are presented in the order in which they were queued.

The types of calls and recalls which can be queued are as follows:

- inter-attendant calls
- meter recalls
- slow answer recalls
- park recalls
- Camp-on recalls, and
- Call Waiting recalls.

Operating parameters

Attendant recalls brought about by switchhook flash, dial 0, call transfer, conference or the use of a recall key on an SL-1 telephone will not be affected by the RTSA feature.

RTSA will not apply to calls extended by Automatic Call Distribution (ACD) agents.

RTSA is compatible with QCW3 Attendant Consoles, so long as the parameter ALPD is set to NO in LD 12.

If an Attendant Console is maintenance or position busy, then recalls to it will be presented to the first idle Attendant Console, no matter which option has been specified.

If an attendant fails to answer a direct recall, that Attendant Console is forced into position busy, and the recall is presented to the first idle attendant.

RTSA is not supported by Centralized Attendant Service (CAS).

If the customer enters Night Service while recalls are timing for RTSA, these recalls will not be directed to the night station.

Feature interactions

Attendant Forward No Answer

If the attendant does not answer a call and the Attendant Forward No Answer feature is equipped, the console is forced into the Position Busy state and the call routed to the first available idle attendant.

Attendant Overflow Position

Recalls and inter-attendant calls are not routed to the Attendant Overflow Position.

Automatic Call Distribution

Recall to Same Attendant does not apply to calls extended by ACD agents.

Call Waiting Options

All options for call-waiting calls do not apply to calls queued to a specified attendant. The exception to this is the display call waiting key, which shows the number of calls in the overall attendant queue and the calls in the queue for a specified attendant.

Centralized Attendant Service

Centralized Attendant Service does not support the Recall to Same Attendant feature.

Multi-Party Operations

Users of analog (500/2500 type) telephones can perform an attendant recall during a two-party connection by performing a switchhook flash and then dialing the attendant DN.

Periodic Pulse Metering

Meter recalls are returned to the same attendant whether Recall to Same Attendant is allowed or not. If Return to Same Attendant with Queuing on Busy (RSAQ) is selected as an option, the recalls are queued to a specified attendant.

Position Busy

If an Attendant Console is in maintenance or Position Busy when a Return to Same Attendant call is recalled to it, the recall is presented to the first available idle attendant. If an attendant goes into Position Busy with a Return to Same Attendant call in Call Waiting, the waiting call is presented to the first available attendant.

Ring Again on No Answer (RANA)

A telephone that is recalling the attendant cannot apply RANA.

Tenant Service

Recall to Same Attendant applies to Tenant Service. If a specified attendant is in maintenance or Position Busy, the recall first tries to terminate at another attendant within the same console group, and then to the night DN.

Voice Messaging

Recall to Same Attendant does not apply to recalls from the Voice Messaging System.

Feature packaging

Recall to Same Attendant is included in base X11 system software.

Feature implementation

LD 15 – Modify data for each customer member to be configured.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	CDB ATT	Customer Data Block Release 21 gate opener.
...		
RTSA	(RSAD), RSAA	Recall to same attendant (denied) allowed.
	RSAX	Recall to same attendant allowed, with queuing on busy attendant.

Feature operation

If the requested attendant is idle, a recall to it will be presented on the loop key, and on the corresponding MTR, IAT, or RLL Incoming Call Indicator (ICI) key.

When a recall is queued specifically for an attendant, this will be indicated on the Attendant Console by a wink lamp state for the Call Waiting lamp.

Recorded Announcement

The Recorded Announcement (RAN) feature allows the Meridian 1 to connect calls automatically to a customer-provided Recorded Announcement machine. Recorded Announcements can be used for:

- Automatic Call Distribution (ACD)
- Automatic Wake Up
- Intercept Treatment (INTR)
- Recorded Overflow Announcements (ROAs), and
- Network Queuing feature, which has Call Back Queuing (CBQ), Coordinated Call Back Queuing (CCBQ), Call Back Queuing to Conventional Main (CBQCM), and Off-Hook Queuing (OHQ).

The system software detects calls to connect to the Recorded Announcement (RAN) machine, determines the Intercept Treatment required, and connects the call to the proper Recorded Announcement. The system then monitors the RAN machine.

The Meridian 1 provides the software programs to control the announcement recorder and the circuit packs. Two types of circuit packs can be used:

- Recorded Announcement (RAN) Trunk Cards (QPC74) contain four identical trunk circuits for the interface between the Meridian 1 and the announcement machine. See *QPC74 Recorded Announcement Trunk Card description* (553-2201-194) for engineering information. When the QPC74 is used, all ports on the card must be dedicated as TYPE RAN or TYPE MUS.

- Universal Trunk Cards (NT8D14AA) contain eight identical trunk circuits that can be configured independently in the system software. See *NT8D14 Universal Trunk Card description* (553-3001-171) for a description.

Operating parameters

Dial access to RAN trunk groups is allowed and is limited only by Trunk Group Access Restrictions (TGARs).

When the QPC74 is used, all ports on the card must be dedicated as TYPE RAN or TYPE MUS.

Feature interactions

Conference

No Hold Conference

A RAN trunk cannot be Conferenced or No Hold Conferenced.

Recovery on Misoperation of Attendant Console

If a Recorded Announcement is given to the destination side that has been intercepted, the connection to the destination side is considered as invalid. Therefore, if the attendant tries to extend the source to the destination using the RELEASE key or another LOOP key, the operation is ignored. The attendant must first press the RELEASE DESTINATION key to release the destination, and then extend the call to the source. If the HOLD key is pressed, the source party is put on hold and the Recorded Announcement is disconnected on the destination side.

Trunk Traffic Reporting Enhancement

The Trunk Seizure Option is not supported on this type of trunk.

Feature packaging

Recorded Announcement (RAN) is package 7, which requires Intercept Treatment (INTR) package 11.

Feature implementation

LD 16 – Add or change Recorded Announcement (RAN) trunk route.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	RAN	RAN trunks.
RTYP	CAP	Code-a-Phone recording device. Software allows announcements of up to 320 seconds in length in X11 Release 14, or 608 seconds in X11 Release 15.
	AUD	Audichron recording device (required when connecting to a Universal Trunk Card). Software allows announcements of up to 64 seconds.
	CK2	Cook Electric recording device. Software allows announcements of up to 64 seconds.
	DGT	Digital Recorders 213300 & 213400. Software allows announcements of up to 256 seconds on X11 Release 15 and later.
	CON	NT7M series digital recorders. Software allows announcements of up to 608 seconds on X11 Release 15 and later.
REP	1-15	Number of times the announcement repeats during each connection.
POST	ATT	Call is routed to attendant after specified number of repetitions (applies to Direct Inward Dial [DID] calls on Intercept).
	DIS	RAN is removed after a specified number of repetitions.
STRT	IMM	Call connects immediately to announcement.
	DDL	Call connects to announcement at the start of announcement.

ASUP	(NO), YES	Supervision (is not) or is required to inform the Central Office (CO) when the call is answered.
ACOD	xxx...x	Trunk route access code.
Note: All RAN route members must be removed before the route can be removed.		

LD 14 – Add or change Recorded Announcement (RAN) trunk.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RAN	RAN trunk data block.
TN	l s c u	Terminal Number.
CUST	0-99	Customer Number (prompted if REQ = NEW).
RTMB	xxx yyy	Route and member number, where: xxx = 0-511, and yyy = 1-254.

Note: If a night table is used with Network Automatic Call Distribution (NACD), the FROA and FRT values in LD 23 need to be set for the Recorded Announcement feature. FROA should be “NO” and FRT should be four seconds greater than the last entry time of the night table.

Feature operation

No specific operating procedures are required to use this feature.

Recorded Announcement Broadcast

The Recorded Announcement Broadcast (RANBRD) feature expands the existing functionality of the Recorded Announcement (RAN) feature. Previously, the Recorded Announcement (RAN) feature used one-to-one connection between a calling party and a designated RAN trunk connected to a physical Recorded Announcement machine. Therefore, if four calling parties were receiving RAN treatment then four RAN trunks were occupied to provide this functionality.

The Recorded Announcement Broadcast feature eliminates the need for multiple cross-connections to provide recorded announcement. With this feature, multiple calling parties receive RAN treatment from one RAN trunk. Thus allowing a RAN trunk to simultaneously broadcast announcements to a maximum of 48 calling parties per RAN trunk. This expansion maximizes the usage of available RAN trunks.

This feature also introduces the following enhancements:

- Incremental Software Management limits
- RAN signalling capabilities
- Multi-Channel RAN Machine Types and Modes
- Message Staging Through Queuing Thresholds for Delay Dial Start/Stop RAN machines
- Music on Waiting
- Traffic Study Option

Each of the above enhancements are discussed in the sections that follow.

Incremental Software Management Limits

Two new Incremental Software Management (ISM) limits on Broadcast Routes and Broadcast Connections are introduced with this feature.

Overlay 22 is modified to print the new ISM information on RAN Broadcast connections that is introduced for the RAN Broadcast feature. The existing SLT command prints the ISM information for the system.

Option 11C and Input-Output Disk Unit with CD-ROM (IODU/C) customers can modify ISM parameters via keycode. A keycode is a machine-generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects ISM parameters.

In order for Option 11C and IODU/C customers to expand ISM limits, they must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in Overlay 143. To make the expansion effective, the customer must sysload. For further information on keycode installation, please refer to *Software conversion procedures*.

For customers without Option 11C or IODU/C, ISM parameters are delivered as per existing operation.

For further information on ISM, refer to the Incremental Software Management feature module in *X11 features and services*.

Broadcast Routes

The ISM limit on broadcast routes is based on the number of broadcasting RAN routes available on a system. A new ISM header in Overlay 16 indicates ISM broadcasting RAN information for the system. This information is updated as each new RAN broadcasting route is configured by the customer. The upper ISM limit for broadcast routes is 511 for Options 51C-81C and 127 for Options 11C.

Table 124 shows the Broadcast RAN Route ISM information that is added to the header in Overlay 16.

Table 124
New Broadcast RAN Routes ISM Information in Overlay 16

RAN RTE	AVAIL: xx	USED: xx	TOT: xx

Broadcast Connections

The ISM limit on broadcast connections is based on the number of broadcast RAN connections available on the system. Additional broadcast RAN connections can be purchased incrementally. A new ISM header in Overlay 14 indicates ISM broadcasting RAN connections ISM information for the system.

Table 125 shows the Broadcast RAN Connections ISM information that is added to the header in Overlay 14.

Table 125
New Broadcast RAN Connections ISM information in Overlay 14

TNS	AVAIL: xxxxx	USED: xxx	TOT: xxxxx
RAN CON	AVAIL: xxxx	USED: xxx	TOT: xxxx

As each new broadcasting RAN trunk is configured, the number of available broadcast connections is subtracted from the maximum number of broadcast connections to the RAN trunk. Any calling party that is listening to a recorded announcement through a broadcasting RAN trunk represents a broadcast connection.

The following scenario provides a detailed example of the new ISM limits that are applicable to this feature. Assume that a customer has an upper ISM limit of 5 broadcast RAN routes and an upper ISM limit of 240 broadcast connections. When the customer defines a new broadcast RAN route, the new number of available broadcast RAN is equal to the upper limit less 1, in this case that would be 4 broadcast RAN routes. When the customer configures 2 RAN trunks for the RAN route in Overlay 14 and 16 broadcast connections to each trunk. The number of available broadcast connections is now equal to the upper limit less the number of configured broadcast RAN connections. So, in this scenario the customer has a total of 208 ($240 - 16 - 16 = 208$) broadcast connections and a total of 4 broadcast RAN routes.

RAN Signaling

Immediate Start

With immediate start RAN signaling, the calling party is connected to the recorded announcement immediately. With this signaling, calling parties barge-in on the announcement. Therefore, the calling party can be connected to the announcement such as the beginning, middle or end.

The RAN Broadcast feature allows immediate start configuration the option of receiving Music On Hold to calling parties waiting for RAN treatment.

Delay Dial

With delay dial RAN signaling, the calling party is only connected at the start of a recorded announcement. With RAN Broadcast, calling parties can have the option of Music On Hold while waiting for the start of the announcement.

Multi-Channel RAN Machine Types and Modes

Multi-Channel corresponds to multiple RAN channels that can be configured within one RAN trunk route. In a Multi-Channel RAN route, each trunk has its own dedicated RAN channel on a physical RAN machine. Multi-Channel RAN routes do not support the cross connecting (daisy chains) of multiple trunk ports together so that several callers hear the same RAN message.

As an example in Multi-Channel RAN configuration, a Level Start/Stop Multi-Channel (MLVL) route could have trunk ports each configured with it's own RAN channel. Each trunk could be assigned several RAN Broadcast connections. If the message is 15 seconds long, then queuing could be configured to start playing a message every 3 seconds.

The new multi-channel machine types - Continuous Mode Multi-Channel (MCON), Pulse Start/Stop Multi-Channel (MPUL) and Level Start/Stop Multi-Channel (MLVL) - are not linked to RAN machine or a given trunk. All trunks belonging to the RAN route are considered independent. RAN trunks and RAN machine channels are connected one to one. Accordingly, if one RAN trunk is detected as faulty then all other trunks are not impacted.

For these new RAN machine types, the maximum length of the recorded announcement is configured is two hours. The meaning of a ground signal received from the RAN machine (play or idle) is configured in Overlay 16. This prompt was previously only applicable to XFEM RAN trunks.

These new RAN machine types are applicable to broadcasting and non broadcasting RAN routes.

Recorded Announcement Broadcast supports two machine modes: Continuous and Start/Stop. Both modes support immediate start and delay dial configurations.

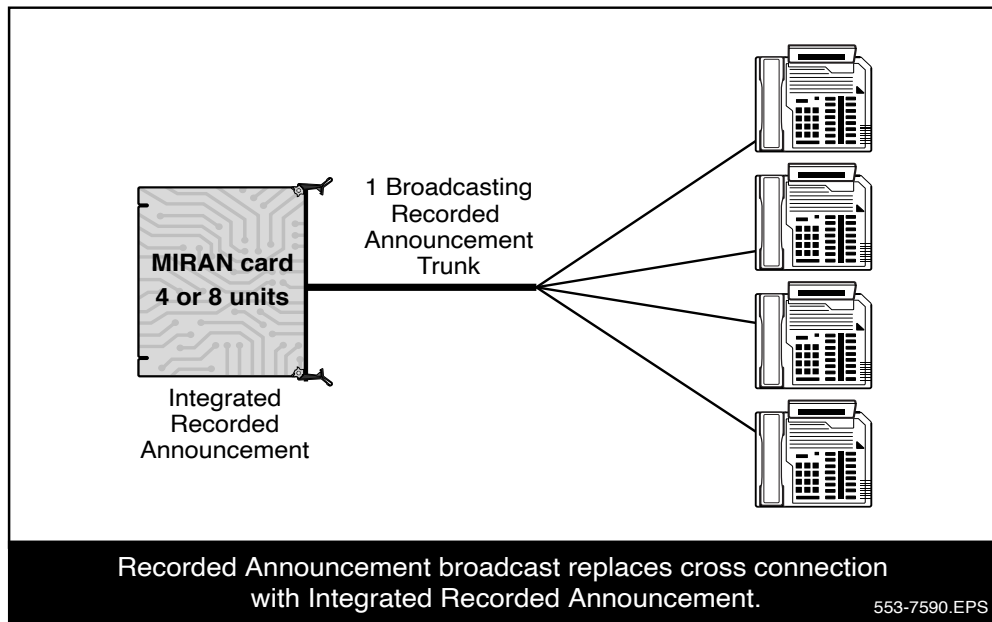
Table 126 outlines the hardware requirements and new RAN modes. RAN Broadcast requires an external RAN machine and a RAN trunk card.

Table 126
RAN modes and Hardware

Hardware	Types of RAN Modes		
	Continuous	Level Start/Stop	Pulse Start/Stop
QPC (X74)	X		X
XUT (NT8D14)	X		
EXUT (NT8D14)	X	X	X
XFEM (NT5K83)	X		X
MIRAN (NTAG36)	X	X	

As shown in Figure 64, the Meridian Integrated Record Announcement (MIRAN) cards eliminates the need for an external RAN machine. MIRAN emulates the Extended Universal Trunk (EXUT) card capabilities and provides built-in, physical RAN channels.

Figure 64
MIRAN Hardware



Continuous Mode

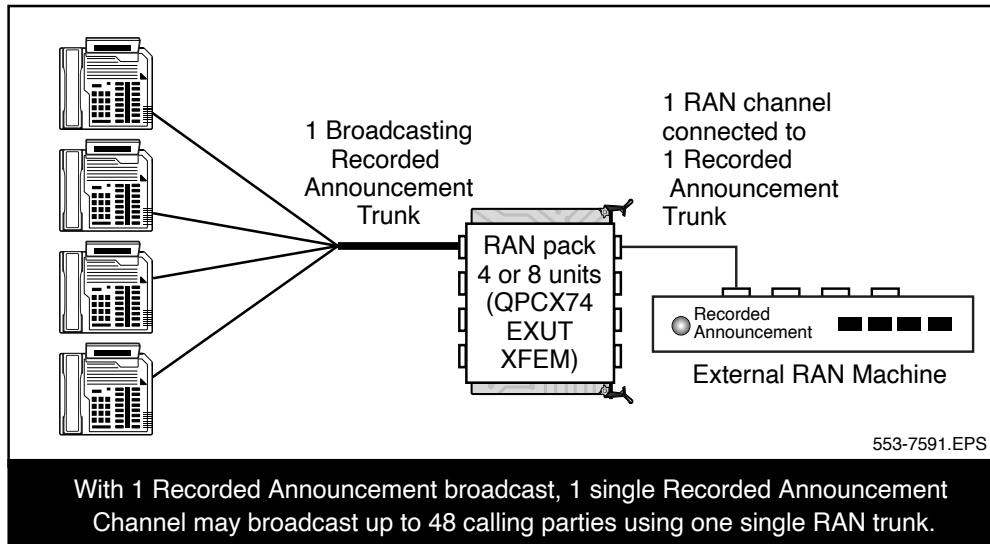
In Continuous mode, the recorded message is repeatedly played over and over. Calling parties requiring RAN treatment barge in on a playing message or receive ringback tone until the message starts over.

In Continuous mode, the maximum recommended amount of connections is between 10 and 16 connections per broadcasting RAN trunk. This amount depends on the following factors: CPU performance, answer supervision and delay between two announcements. This engineering requirement exists due to the fact that the Meridian 1 does not control the RAN channel. In Continuous mode, the message is continually running a recorded message with a short delay (usually less than 500 ms) between two announcements. If a RAN trunk is already broadcasting a recorded message to 12 calling parties and 12 calling parties require RAN treatment, then at the end of the message the system must disconnect these callers and connect the next calling parties before the message plays again. Accordingly, the 12 connection limitation prevents the calling parties from hearing a RAN message that has already started playing. This value of 12 can be increased depending on the system specifications. As an example, a delay between two announcements that is greater than 500 ms. If answer supervision is not returned when the calling party connects to the recorded announcement, then up to 24 connections per Continuous mode RAN trunk are supported.

Recorded Announcement Broadcast introduces a new Continuous mode machine type called Continuous Mode Multi-Channel (MCON). Independent (asynchronous) RAN trunks can belong to a MCON RAN route which was not permitted with the existing Audichron/Cook 211 (AUD), NT7M Digital Recorders (CON) or 213300 and 213400 Digital Recorders (DGT) Continuous mode machine types.

Figure 65 illustrates RAN Broadcast using Start/Stop or Continuous Mode configuration.

Figure 65
RAN Broadcast using Start/Stop or Continuous Mode Configuration



Start/Stop Mode

In Start/Stop mode, the recorded message does not begin to play the recorded announcement until a start pulse signal is received from the RAN machine. There are two types of Start/Stop mode: Pulse Start/Stop and Level Start/Stop.

With Start/Stop configuration, the system controls when the RAN message starts and stops. Therefore, if 30 calling parties require RAN treatment, the Meridian 1 waits to start the recorded announcement until all 30 callers are ready to be connected. When the message is finished playing, the system disconnects all 30 callers and waits until the next 30 callers are queued before sending a message to the RAN machine to start playing the message. The recommended value for the maximum number of connections per broadcast start/stop trunk is 30. Again, this value can be increased depending on the system specifications. As an example, if the answer supervision signal is not returned when the calling party connects to the recorded announcement, then up to 48 connections per Start/Stop RAN trunk are supported.

With Pulse Start/Stop, the start signal is pulse. This pulse activates the playback of the recorded announcement. The announcement is played until completion. All other start pulses are ignored until the announcement has finished.

With Level Start/Stop, the start signal is a level. The leading edge of the start signal initiates the playback of the recorded announcement. This continues until either the trailing edge of the start signal occurs or the announcement has finished. When a trailing edge is detected, the recorded announcement is terminated and level start signal is sent to the RAN machine to immediately reset the recorded announcement.

Recorded Announcement Broadcast introduces two Start/Stop mode machines types called Pulse Start/Stop Multi-Channel (MPUL) and Level Start/Stop Multi-Channel (MLVL).

Message Staging

Recorded Announcement Broadcast allows the staging of recorded announcement for Delay Dial Start/Stop Machines. The staging of announcements is controlled by the queuing thresholds programmed in Overlay 16 for Delay Dial Start/Stop machines. With staging, if several copies of a recorded announcement are available on different RAN ports, then the start time of the recording can be staggered. For queued calling parties, this decreases the waiting time to hear the start of the announcement.

In Continuous modes, the staging of announcements is determined by the RAN machine.

Queuing Thresholds for Delay Dial Start/Stop Machines

The Recorded Announcement Broadcast feature introduces two new queuing thresholds for Start/Stop RAN machines configured with Delay Dial signaling (STRT=DDL in LD 16).

These new queuing thresholds allow customers to stagger recorded announcements using both time and number of calls as threshold triggers. Queuing thresholds optimizes a calling party's waiting time and the number of calls waiting to receive RAN treatment.

As an example, a customer has a recorded announcement that is 15 seconds in length. This announcement is used in a high volume Automatic Call Distribution (ACD) environment. In this scenario, a calling party requiring RAN treatment can range between 1 to 30 at any given time. With RAN Broadcast the 15 second message can be staggered. With this arrangement, 5 trunk ports could be configured in a RAN broadcast route with each trunk provisioned with 10 RAN broadcast connections. The message could then be programmed to play every 3 seconds or when 10 callers are queued (TITH = 3 and NCTH = 10 in LD 16). In this configuration, each of the 5 trunks would be connected to individual RAN channels with each channel having the identical 15 second message. The calling party would only have to wait a maximum of 3 seconds before receiving a recorded announcement message.

With the new queuing thresholds, when the waiting or the number of calls threshold is met or exceeded the system searches for an available RAN trunk and connects all queued callers waiting for a recorded announcement. If the system cannot locate an available trunk, then the waiting calls are requeued without a threshold so that waiting callers are connected to a RAN trunk as soon as it becomes available.

However, if RAN trunks are not available then callers are requeued without a threshold until the next RAN trunk is available. At this point, all threshold exceeded callers listen to the recorded announcement.

If no time or number threshold is configured, then all queued parties are connected to the first available RAN trunk. This includes callers that have just been queued by the system. Therefore, the system does not assign any priority to waiting callers when no thresholds have been configured.

Music on Waiting

Recorded Announcement Broadcast feature supports music on waiting for queued callers on both broadcasting and non-broadcasting RAN trunks. With this enhancement, music is provided when a calling party is queued to receive a recorded announcement. A selected music source is provided to waiting callers until the system locates an available RAN trunk. The music on waiting enhancement replaces ringback tone.

Traffic Study Option

The Traffic Period Option (TPO) allows a customer to enhance their TFC002 reports to accumulate trunk usage data after every traffic period instead of accumulating usage only after a call disconnects. With this option enabled in Overlay 17, the Common Channel Signaling (CCS) associated with lengthy calls is reported in each traffic report interval throughout the duration of the call.

Previously, this feature did not apply to RAN and Music trunks. However, with the introduction of the RAN Broadcast feature, changes are made to the Trunk Traffic Reporting Enhancement with the introduction of TFC111. The TFC111 report provides information on the usage of broadcasting routes. For the TFC111 to be output, the customer report number **11** must be selected using the SOPC command in Overlay 2. For example, for Customer 0, SOPC 0 11 is entered. To print the TFC111 report, the TOPC command in Overlay 2 is used. For example, for Customer 0, TOPC 0 11 is entered. The TFC 111 report is also printed when automatic traffic reports are scheduled in Overlay 2.

A traffic message is output each time the number of active broadcasting connections is equal to the system's ISM limit.

The new TFC111 report provides the following information:

- the trunk type
- the number of successful broadcast connections of the trunk associated with route
- the average duration of broadcast connects for route
- the average waiting time for RAN requests
- the maximum waiting time for RAN requests
- the waiting time threshold peg count
- the number of waiting parties threshold peg count
- the broadcast connection peg count for three lowest usage trunks

Figure 66 is an example of the customer report, TFC 111, for RAN Broadcast routes.

Figure 66
New Customer Traffic Measurement Outputs

System ID 0200	TFC111	
Customer Number 000		
Route Number 031	Trunk Type RAN	
Successful broadcast connections peg count 000817	Average call duration 00006	Average waiting duration 00004
Maximum waiting time 00007	Waiting time threshold peg count 00000	Number of waiting parties threshold peg count 00000
Broadcast connections peg count for lowest trunk usage 00000	Broadcast connections peg count for next to lowest trunk usage 00000	Broadcast connection peg count for second lowest trunk usage 00002

Maximum number of connections per broadcasting RAN trunk

Table 127 shows the maximum number of connections per broadcasting RAN trunk that can be configured. These values depend on system configuration; therefore, some systems can allow greater values or request lower values.

When no answer supervision signal is to be returned at the time the caller receives the announcement, more connections are supported. This is the case with unsupervised trunks, internal calls, or when the answer signal has already been sent.

If answer supervision is returned, there is a high impact on realtime. Therefore, it is recommended that the maximum number of connections per RAN trunk be set to a lower value (See Table 127).

To achieve maximum efficiency, TFC111 and the TITH and NCTH thresholds can be used. For instance, the difference between the number of times TITH was met and NCTH was met provides an indication of how the system reacts to the incoming RAN request rate. In the case of a high rate, a greater number of NCTH was met than TITH. This indicates that the number of connections is insufficient.

Table 127
Recommended maximum number of connections per trunk

RAN mode	Is answer supervision returned when RAN is provided?	Recommended maximum number of connections per RAN trunk
Continuous mode with less than 500ms between two announcements	Yes	up to 12
Continuous mode with less than 500ms between two announcements	No	up to 24
Start/Stop mode	Yes	up to 30
Start/Stop mode	No	up to 48

Operating parameters

The Recorded Announcement Broadcast feature is applicable to RAN routes only.

The Meridian Integrated Recorded Announcement (MIRAN) card provides a multi-tasking environment for certain voice processing intensive applications, such as RAN and Music on Hold. This card stores recorded music and announcements in flash memory using two audio ports. The setup or modification of sound files is done using a set or a TTY. This card stores recorded music and announcements in flash memory or PCMCIA flash memory cards. Music can be played from an analog source, such as a Compact Disc (CD) player or a Muszac source, through the MIRAN card. It is not a requirement that Music be recorded within MIRAN. The card plays music from other sources.

When configuring this feature, the mode supported by the external RAN machine and Meridian 1 hardware must match. The EXUT card supports continuous, pulse start/stop and level start/stop. The XFEM card supports continuous and pulse start/stop modes. The MIRAN card supports continuous and level start/stop modes.

The MIRAN card is associated with a certain port on the EXUT card. Each recorded announcement can be associated with more than one port at one time.

Traditional Recorded Announcement and Recorded Announcement Broadcast can exist on the same system.

If using a Start/Stop RAN machine, it is recommended that both the Waiting Time Threshold (TITH prompt) and the Number of Calls Waiting Threshold (NCTH prompt) be configured.

The Waiting Time Threshold (TITH) and the Number of Calls Waiting Threshold (NCTH) prompts should be configured to minimize caller's waiting time. TITH should be set to the length of the RAN message divided by the number of RAN trunks. NCTH should be set to the maximum number of connections per trunk divided by the number of RAN repetitions. All RAN trunks should have the same number of allowed connections to trigger RAN starts.

The continuous mode multichannel, the level start/stop multichannel and the pulse start/stop multichannel all support independent RAN trunks.

A RAN route can be modified to disallow broadcasting, provided that all trunks do not have any active calls connected when changes are made. When modifying a RAN route to allow broadcasting, the number of available ISM RAN connections must be sufficient or the change is not permitted.

In customer situations with high RAN usage, continuous RAN is recommended. In situations with a fluctuating or low incoming rate, a start/stop RAN with thresholds configured at a low value is recommended.

Feature interactions

Answer Supervision

Answer Supervision is provided based on the configuration of the RAN route. When music is provided to queued callers waiting for an announcement, the answer supervision is returned as though the recorded announcement was given.

Automatic Call Distribution

Recorded Overflow Announcement

Automatic Call Distribution (ACD) and Recorded Overflow Announcement (ROA) allows queued calls to an ACD agent or attendant to be routed to a recorded announcement informing the calling party of the delay. If music is selected between the first and second recorded announcement, queued calls can be routed to a second announcement if they are still waiting in the queue.

When Music on Waiting is configured for the second RAN route, the music source selected by the Automatic Call Distribution or Recorded Overflow Announcement feature, already provided to a queued call, is not replaced by the one selected by the second RAN route when this queued call is waiting to be connected to the second RAN.

Automatic Wake Up

Automatic Wake Up (AWU) broadcast capability is independent of the RAN broadcast capability. AWU broadcast is only applicable to AWU trunks.

Incremental Software Management

The Incremental Software Management (ISM) limits introduced by this feature impact the number of units available and used by the ISM feature. The ISM header at the start of Overlay 14 is updated to indicate the broadcast RAN connections ISM information on the system.

INIT ACD Queue Call Restore

ACD calls queued for receiving RAN are restored by the INIT ACD Queue Call Restore feature following system initialization. All other calls queued for RAN are dropped, and the callers hear silence.

If system initialization occurs when an Automatic Call Distribution (ACD) call is being greeted by ACD RAN, the RAN greeting is automatically disconnected. If the call is restored by the INIT ACD Queue Call Restore feature, the call is presented to the appropriate ACD Directory Number as a new call.

When system initialization occurs, Music on Waiting is stopped and the restored call is presented to the ACD DN as a new call.

Integrated Call Center Management

Integrated Call Center Management (ICCM) broadcast capability is independent of the RAN Broadcast capability. ICCM broadcast is only applicable to IVR voice ports.

The script command GIVE RAN<RAN route number> connects a call to the specified RAN route and the RAN broadcast feature will apply if applicable.

Music Broadcast

The Music Broadcast feature is applicable to Music only, and the RAN Broadcast feature is applicable to RAN only.

Feature packaging

The Recorded Announcement Broadcast (RANBRD) feature is package 327. The following packages are also required:

- Recorded Announcement (RAN) package 7
- Intercept Treatment (INTR) package 11

Feature implementation

The following scenario provides details on how to configure RAN Broadcasting and Non Broadcasting using different applications such as Automatic Call Distribution (ACD) queues and intercept treatments.

Assume the following scenario exists. You have a Meridian 1 configured with non-broadcasting RAN. Your system has 3 RAN routes. Route 1 has 1 trunk with low usage and handles RAN intercept treatments. Route 2 has 8 trunks with variable usage and handles Recorded Overflow Announcement (ROA). Route 3 has 16 trunks with high usage and handles all Automatic Call Distribution (ACD) greetings into your call centre.

Tables 128 and 129 provide a non-broadcasting and a broadcasting scenario respectively.

Table 128
Non-Broadcasting Scenario

RAN Routes	Usage	RAN Mode	Number of Trunks	RAN Machine Type
1	Low	Start/Stop	1	Cook 201/QAY1.
2	Varied	Continuous	8	Audichron/Cook 211 (required for XUT trunks)
3	High	Continuous	16	Audichron/Cook 211 (required for XUT trunks)

In the non-broadcasting scenario the following system requirements exist:

- a total of 25 (1 + 8 + 16) RAN trunks
- a total of 3 RAN channels

When using the RAN Broadcast feature in the same scenario, RAN trunks and RAN channels requirements are reduced. With this feature, each group of RAN trunks is replaced by one broadcast RAN trunk with maximum number of connections set to the number of cross connected trunks. RAN Broadcast allows a maximum of 48 connections per RAN trunk.

Table 129
Broadcasting Scenario

RAN Routes	Usage	RAN Mode	Number of Trunks	RAN Machine Type	Broadcast Connection/Trunk
1	Low	Start/Stop	1	Cook 201/QAY1	non broadcast
2	Varied	Continuous	1	Audichron/Cook 211 (required for XUT trunks)	8 connections
3	High	Continuous	1	Audichron/Cook 211 (required for XUT trunks)	16 connections

In the broadcasting scenario the following system requirements exist:

- a total of 3 (1+1+1) RAN trunks
- a total of 3 RAN channels
- a total of 2 RAN Broadcast Route ISM limits
- a total of 24 (8 + 16) RAN Connections ISM limits

The broadcasting scenario can be further enhanced if RAN routes 2 and 3 used a Delay Dial Start/Stop RAN trunk with the Number of Calls Waiting Threshold and Waiting Time Threshold configured.

LD 16 – Define Continuous RAN Route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	RAN	Recorded Announcement trunk type.
RTYP	AUD CON DGT MCON	Recording devices for RAN trunks where: Audichron/Cook 211 (required for XUT trunks). NT7M Digital Recorders (X11 Release 15). 213300 and 213400 Digital Recorders (X11 Release 15). Continuous mode Multichannel.
REP	1-15	Number of repetitions of recorded announcements.
POST	ATT DIS	RAN Post announcement treatment where: Route to attendant after maximum repetitions Disconnect after maximum repetitions.
STRT	IMM DDL	Start arrangement where: Immediately connect call to recording. Delay call connection until start of recording.
WAIT	RGB	Provide ringback for call queuing for RAN trunk (default). MUS = Provide music for calls queuing for RAN trunk.
- MRT	0-511 0-127	Music route for RAN queuing. For Option 11C. MRT is only prompted for RAN route with WAIT = MUS.
BDCT	YES	Allow RAN broadcast for this route. NO = Deny RAN broadcast for this route (default).

ASUP	(NO)	Do not return answer supervision (default). YES = Return answer supervision. CO = Return answer supervision only if originator is a Central Office trunk.
ACOD	x...x	Access Code for the trunk route. The Access Code must not conflict with the numbering plan. ACOD can be four digits, or seven digits with DNXP package 150 equipped.

LD 16 – Define Immediate Start/Stop RAN Route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	RAN	Recorded Announcement trunk type.
RTYP	CAP CKM PUL LVL MPUL MLVL	Recording devices for RAN trunks where: Code-A Phone. Cook 201 multichannel. Pulse start/stop (X11 Release 19 Enhanced Universal Trunk cards). Level start/stop (X11 Release 19 Enhanced Universal Trunk cards). Pulse start/stop multichannel. Level start/stop multichannel.
REP	1-15	Repetitions of recorded announcements.
POST	aaa	RAN Post announcement treatment where: ATT = Route to attendant after maximum repetitions DIS = Disconnect after maximum repetitions.
STRT	IMM	Immediately connect call to recording.
WAIT	RGB	Provide ringback for call queuing for RAN trunk (default). MUS = Provide music for calls queuing for RAN trunk.

- MRT	0-511 0-127	Music route for RAN queuing. For Option 11C. MRT is only prompted for RAN route with WAIT = MUS.
BDCT	YES	Allow broadcast capability for this route. NO = Deny broadcast capability for this route (default).
ASUP	(NO)	Do not return answer supervision (default). YES = Return answer supervision. CO = Return answer supervision only if originator is a Central Office trunk.
ACOD	x...x	Access Code for the trunk route. The Access Code must not conflict with the numbering plan. ACOD can be four digits, or seven digits with DNXP package 150 equipped.

LD 16 – Define Delay Dial Start/Stop RAN Route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	RAN	Recorded Announcement trunk type.
RTYP	CAP CK2 CKM PUL LVL MPUL MLVL	Recording devices for RAN trunks where: Code-A Phone. Cook 201/QAY1. Cook 201 Multichannel. Pulse start/stop (X11 Release 19 Enhanced Universal Trunk cards). Level start/stop (X11 Release 19 Enhanced Universal Trunk cards). Pulse start/stop multichannel. Level start/stop multichannel.
REP	1-15	Repetitions of recorded announcements.

POST	aaa	RAN Post announcement treatment where: ATT = Route to attendant after maximum repetitions DIS = Disconnect after maximum repetitions.
STRT	DDL	Delay call connection until start of recording.
WAIT	(RGB)	Provide ringback for call queuing for RAN trunk (default). MUS = Provide music for calls queuing for RAN trunk.
- MRT	0-511 0-127	Music route for RAN queuing. For Option 11C. MRT is only prompted for RAN route with WAIT = MUS.
BDCT	YES	Allow broadcast capability for this route. (NO) = Deny broadcast capability for this route (default).
- TITH	(0)-300	Waiting Threshold in seconds. Default value of zero means no threshold applies.
- NCTH	(0)-100	Number of Calls Waiting Threshold. Default value of zero means no threshold applies.
ASUP	(NO)	Do not return answer supervision (default). YES = Return answer supervision. CO = Return answer supervision only if originator is a Central Office trunk.
ACOD	x...x	Access Code for the trunk route. The Access Code must not conflict with the numbering plan. ACOD can be four digits, or seven digits with DNXP package 150 equipped.

LD 14 – Define new RAN Trunk.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RAN	Recorded Announcement trunk data block.
TN	l s c u c u	Terminal Number For Option 11C.
...		
XTRK	a...a	Extended Trunk. To specify hardware, according to the RAN mode defined in LD 16, refer to Table 126.
RTMB	0-511 1-254 0-127 1-254	Route number and Member number. For Option 11C.
- CONN	(4)-48	Define the maximum number of broadcast connections allowed for this trunk. <i>Note: CONN is only prompted for associated RAN route with broadcasting allowed (BDCT=YES in LD 16).</i>

Note: The following feature implementation is applicable to customers using the Meridian Integrated Recorded Announcement (MIRAN) card.

LD 16 – Define Continuous RAN route with Meridian Integrated RAN (MIRAN).

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	RAN	Recorded Announcement trunk type.
RTYP	MCON	Continuous Multi-channel.

- LGTH	4-(60)-7200	Maximum message length in seconds. This is only prompted for the continuous mode multichannel, the level start/stop multichannel and the pulse start/stop multichannel.
- GRD	(IDLE)	Ground signal from RAN indicates that machine is idle (default). PLAY = Ground signal from RAN indicates that machine is playing.
REP	1-15	Repetitions of recorded announcements.
POST	aaa	RAN Post announcement treatment where: ATT = Route to attendant after maximum repetitions DIS = Disconnect after maximum repetitions.
STRT	aaa	Start arrangement where: IMM = Immediately connect call to recording. DDL = Delay call connection until start of recording.
WAIT	(RGB)	Provide ringback for call queuing for RAN trunk (default). MUS = Provide music for calls queuing for RAN trunk.
- MRT	0-511 0-127	Music route for RAN queuing. For Option 11C. MRT is only prompted for RAN route with WAIT = MUS.
BDCT	YES	Allow broadcast capability for this route. (NO) = Deny broadcast capability for this route (default).
ASUP	(NO)	Do not return answer supervision (default). YES = Return answer supervision. CO = Return answer supervision only if originator is a Central Office trunk.
ACOD	x...x	Access Code for the trunk route. The Access Code must not conflict with the numbering plan. ACOD can be four digits, or seven digits with DNX package 150 equipped.

LD 16 – Define Immediate Start/Stop RAN route with Meridian Integrated RAN (MIRAN).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	RAN	Recorded Announcement trunk type.
RTYP	MLVL	Level start/stop multichannel recording devices for RAN trunks.
- LGTH	4-(60)-7200	Maximum message length in seconds. This is only prompted for the continuous mode multichannel, the level start/stop multichannel and the pulse start/stop multichannel.
- GRD	(IDLE)	Ground signal from RAN indicates that machine is idle (default). PLAY = Ground signal from RAN indicates that machine is playing.
REP	1-15	Repetitions of recorded announcements.
POST	aaa	Post RAN treatment where: ATT = Route to attendant after maximum repetitions DIS = Disconnect after maximum repetitions.
STRT	IMM	Immediately connect call to recording.
WAIT	(RGB)	Provide ringback for call queuing for RAN trunk (default). MUS = Provide music for calls queuing for RAN trunk.
- MRT	0-511 0 -127	Music route for RAN queuing. For Option 11C. MRT is only prompted for RAN route with WAIT = MUS.
BDCT	YES	Allow broadcast capability for this route. (NO) = Deny broadcast capability for this route (default).

ASUP	(NO)	Do not return answer supervision (default). YES = Return answer supervision. CO = Return answer supervision only if originator is a Central Office trunk.
ACOD	x...x	Access Code for the trunk route. The Access Code must not conflict with the numbering plan. ACOD can be four digits, or seven digits with DNX package 150 equipped.

LD 16 – Define Delay Dial Start/Stop RAN route with Meridian Integrated RAN (MIRAN).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	RAN	Recorded Announcement trunk type.
RTYP	MLVL	Level start/stop multichannel recording devices for RAN trunks.
- LGTH	4-(60)-7200	Maximum message length in seconds. This is only prompted for the continuous mode multichannel, the level start/stop multichannel and the pulse start/stop multichannel.
- GRD	(IDLE)	Ground signal from RAN indicates that machine is idle (default). PLAY = Ground signal from RAN indicates that machine is playing.
REP	1-15	Repetitions of recorded announcements.
POST	aaa	RAN Post announcement treatment where: ATT = Route to attendant after maximum repetitions DIS = Disconnect after maximum repetitions.
STRT	DDL	Delay call connection until start of recording.

WAIT	(RGB)	Provide ringback for call queuing for RAN trunk (default). MUS = Provide music for calls queuing for RAN trunk.
- MRT	0-511 0-127	Music route for RAN queuing. For Option 11C. MRT is only prompted for RAN route with WAIT = MUS.
BDCT	YES	Allow broadcast capability for this route. (NO) = Deny broadcast capability for this route (default).
- TITH	(0)-300	Waiting Time Threshold in seconds. The default value of (0) means no threshold applies. TITH is only prompted when BDCT = YES and STRT = DDL.
- NCTH	(0)-100	Number of Calls Waiting Threshold. Default value of zero means no threshold applies. NCTH is only prompted when BDCT = YES and STRT = DDL.
ASUP	(NO)	Do not return answer supervision (default). YES = Return answer supervision. CO = Return answer supervision only if originator is a Central Office trunk.
ACOD	x...x	Access Code for the trunk route. The Access Code must not conflict with the numbering plan. ACOD can be four digits, or seven digits with DNXP package 150 equipped.

LD 14 – Define a RAN trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RAN	Recorded Announcement trunk data block.
TN	l s c u c u	Terminal Number For Option 11C.
XTRK	EXUT	Enhanced Extended Universal Trunk card. To use the new MIRAN card, the XTRK prompt must be set to EXUT.
...		
RTMB	0-511 1-254 0-127 1-254	Route number and Member number. For Option 11C.
- CONN	(4)-48	Maximum number of broadcast connections allowed for this trunk. Note: CONN is only prompted for associated RAN route with broadcasting allowed (BDCT=YES in LD 16). Note: The CONN prompt defines the maximum number of broadcast connections allowed for a RAN trunk at any given time. As an example, if sixteen is configured, then the physical broadcasting trunk may broadcast up to sixteen callers at one time.

Feature operation

No specific operating procedures are required to use this feature.

Recorded Overflow Announcement

Recorded Overflow Announcement (ROA) allows delayed calls to the attendant to be connected to a recorded announcement notifying the calling party of the delay. A second recorded message can also be provided to the calling party repeatedly until an attendant answers the call.

A call that is waiting in the queue receives the first recorded message after the expiration of a timer (T1). After the message is given, the call returns to the attendant queue. While the call is in the waiting state, it can be connected either to Music (MUS), Ringback tone (RGB), or Silence (SIL).

If a second recorded announcement is specified, the call receives the message upon expiration of a second timer (T2). After the second message is given, the call is placed in the attendant queue again. There is no limit to the number of times a call can be given the second recorded message.

Operating parameters

Recorded Overflow Announcement (ROA) treatment is provided to call types assigned to Incoming Call Indicator (ICI) keys on the Attendant Console.

A maximum of 20 ICI keys can be assigned to receive Recorded Overflow Announcement (ROA) treatment.

The delay time thresholds for the first and second recorded announcements (T1 and T2) are assigned in LD 15. The thresholds shown in Table 130 can be defined for these timers.

Table 130
Delay time thresholds

	Thresholds		
	Minimum	Default	Maximum
T1	0 seconds	20 seconds	2,044 seconds
T2	0 seconds	40 seconds	2,044 seconds

Loop start trunks do not provide disconnect supervision and are not recommended for use with the ROA feature. A call on a loop start trunk that is abandoned after the recorded message is given must be manually cleared by the attendant.

ROA is not provided on release link trunks from Centralized Attendant Service (CAS) remote locations.

When the CAS feature is activated at a remote PBX, the ROA feature is inactive at the remote site.

If music is required, the Music (MUS) package 44 must be equipped. Music can be provided after the first and second Recorded Announcement (RAN). A customer provided music source is required, connected through a Music trunk. Music is provided to delayed calls through a conference circuit pack in a listen-only mode. The music source provided by the customer must be compatible with the RAN trunk card.

Prior to X11 Release 15, Music (MUS) and Recorded Announcement (RAN) could not share the same trunk card.

Private Lines are not eligible for ROA.

ROA is only provided for call types assigned to Incoming Call Indicator (ICI) keys. The following call types are eligible, if related ICI keys are assigned:

- Trunk routes

- LDN 0 through LDN 3
- Dial 0
- Dial 0 Fully Restricted
- Intercept Treatment (INTR)
- Call Forward Busy
- Call Forward No Answer
- Message Waiting (MW)
- Lockout, and
- Station Category Indication (SCI).

Feature interactions

Automatic Call Distribution (ACD)

The RAN route used for ROA can be the same route that is used for ACD and Intercept Treatment.

Night Service

The ROA feature is inactive when the system is in Night Service.

Feature packaging

Recorded Overflow Announcement (ROA) package 36 requires Recorded Announcement (RAN) package 7.

Feature implementation

LD 16 – Add or change Recorded Announcement (RAN) trunk route.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	RAN	RAN trunks.

RTYP	CAP	Code-a-Phone recording device. Software allows announcements of up to 320 seconds in length in X11 Release 14, or 608 seconds in X11 Release 15.
	AUD	Audichron recording device (required when connecting to a Universal Trunk Card). Software allows announcements of up to 64 seconds.
	CK2	Cook Electric recording device. Software allows announcements of up to 64 seconds.
	DGT	Digital Recorders 213300 & 213400. Software allows announcements of up to 256 seconds on X11 Release 15 and later.
	CON	NT7M series digital recorders. Software allows announcements of up to 608 seconds on X11 Release 15 and later.
REP	1-15	Number of times the announcement repeats during each connection.
POST	ATT	Call is routed to attendant after specified number of repetitions (applies to Direct Inward Dial [DID] calls on Intercept).
	DIS	RAN is removed after a specified number of repetitions (call is kept in Automatic Call Distribution queue).
STRT	IMM	Call connects immediately to announcement.
	DDL	Call connects to announcement at the start of announcement.
ASUP	YES	Return Answer Supervision by RAN to originator. ASUP=NO (Default) Note: ASUP must be set to YES to allow the following options in LD 15 (at the WAIT prompt): Caller hears Ringback (RGB), Music (MUS), or Silence (SIL) while waiting.
ACOD	xxx...x	Trunk route access code.
Note: All RAN route members must be removed before the route can be removed.		

LD 14 – Add or change Recorded Announcement (RAN) trunk.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RAN	RAN trunk data block.
TN	l s c u	Terminal Number.
CUST	0-99	Customer Number (prompted if REQ = NEW).
RTMB	xxx yyy	Route and member number, where: xxx = 0-511, and yyy = 1-254.

LD 15 – Enable a Recorded Announcement (RAN) route for the customer.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB ROA	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
OPT	(ROX), ROI	Recorded Overflow (excluded) included.
- FRRT	xxx	Route number for the first recorded announcement.
- FRT	0-(20)-2044	Time in seconds before the first announcement plays.
- SRRT	xxx	Route number for the second recorded announcement.
- SRT	0-(40)-2044	Time in seconds before second announcement plays.
- WAIT	RGB, MUS, SIL	Caller hears Ringback (RGB), Music (MUS), or Silence (SIL) while waiting.
- - MURT	xxx	Route Number for Music route if WAIT = MUS.
- RICI	xx . .xx . .xx	Incoming Call Indicator (ICI) key numbers eligible for ROA.

Feature operation

No specific operating procedures are required to use this feature.

Introduced in X11 Release:	All
Networking:	Yes

Recorded Telephone Dictation

This feature provides dial access to customer-supplied dictation equipment. Operation of the equipment can be either voice or dial controlled. The actual controls vary with the type of dictation equipment used.

To access the dictation equipment, the user dials the access code assigned to the dictation route. Access to the route is controlled by Trunk Group Access Restrictions (TGARs).

Operating parameters

Each recorded dictation unit requires a separate trunk route.

Feature interactions

Multi-Party Operations

Users of analog (500/2500 type) telephones cannot make a consultation call while connected to a dictation trunk.

Conference

Recorded Telephone Dictation trunks cannot be used in a conference call.

Feature packaging

Recorded Telephone Dictation is included in base X11 system software.

Feature implementation

LD 16 – Add or change a trunk route for the Recorded Telephone Dictation feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUT	0-511 0-127	Route number. For Option 11C.
TKTP	DIC	Recorded Telephone Dictation trunk route.
ICOG	OGT	Outgoing trunk route.
ACOD	xxx...x	Directory Number (DN) to dial to access the dictation device.

LD 14 – Add or change a trunk for the Recorded Telephone Dictation feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
TN	l s c u c u	Terminal Number. For Option 11C.
CUST	0-99 0-31	Customer number. For Option 11C.
RTMB	rrr mm	Route and member number.
SIGL	aaa	Trunk signaling.
STRO	aaa	Outgoing start arrangement.
SUPN	(NO) YES	Answer and disconnect supervision (not) required.

Feature operation

No specific operating procedures are required to use this feature.

Recovery on Misoperation of Attendant Console

The Recovery of Misoperation on the Attendant Console feature provides a safeguard in the Meridian 1 software that prevents calls from being inadvertently disconnected.

Operating parameters

For Centralized Attendant Service, misoperation of the Attendant Console at the main node cannot be prevented.

Feature interactions

Electronic Switched Network (ESN)

If the attendant dials an incomplete ESN number as a destination, pressing the Release key or another loop key is ignored. The attendant can dial more digits as long as the interdigit timer has not timed out. To dial to another number, the attendant must first press the Release Destination key to release the destination.

Hunting Call Forward

Hunting and Call Forward take precedence over the Misoperation feature.

Music on Hold

Music on Hold, if allowed, is applied to calls put on hold due to the Autohold on the loop key option.

Recorded Announcement

If a recorded announcement is given to the destination side that has been intercepted, the connection to the destination side is considered as invalid. Therefore, if the attendant tries to extend the source to the destination using the Release key or another loop key, the operation is ignored. The attendant must first press the Release Destination key to release the destination, and then extend the call to the source. If the Hold key is pressed, the source party is put on hold and the recorded announcement is disconnected on the destination side.

Through Dialing

If an attendant dials a trunk access code and then presses the Release key or another loop key, the station on the source side and the trunk on the destination side are connected and released from the console. The source can then dial the remaining digits to access an outside destination. The Hold key is ignored.

Feature packaging

Recovery on Misoperation of Attendant Console is included in base X11 system software.

Feature implementation

LD 15 – Activate Recovery on Misoperation of Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
OPT	(AHD), AHA (REA), RED	Autohold on loop Key (denied) allowed. Release on Exclusion (allowed) denied.

Feature operation

This section describes how the feature works in each of the following cases:

- Misoperation of Release key and loop keys
- Misoperation of Autohold on loop key
- Misoperation of Release Source key and Release Destination key.

Misoperation of Release key and loop keys

In the following cases, pressing the Release key or the loop key is ignored:

- Extending a call to a vacant number
- Extending a call to restricted station or trunk
- Extending to a station restricted by Trunk Barring

Note: Intercept treatment is returned for the above conditions.

- Extending to a partially-dialed number
- Extending a network-blocked call
- Extending a station in the Do Not Disturb mode
- Extending to a station in the Make Set Busy mode
- Extending to a station in the Maintenance-busy state
- Extending to a station in the Line Lockout state
- Extending to a busy extension without Camp-on or Call Waiting
- Extending to a station restricted by Trunk-to-Trunk Connection Restriction

- Releasing from a conference connection – The attendant is prevented from releasing a conference connection, established on the source side, by pressing the Release key or a loop key in the following cases:
 - if there is no destination. Pressing either the Release key or a loop key places the active loop on hold rather than releasing it. The conference can be released by pressing the Release Source key.
 - if the attempt to extend the call to the destination was not successful. The conference can be released by pressing the Release Destination key.
 - if there is another party already connected as a destination. Pressing the Hold key, Release key or another loop key puts the active loop on hold, rather than releasing it. The destination side can be released by pressing the Release Destination key. The source side can be released by pressing the Release Source key. If an established conference connection cannot be released due to Trunk-to-Trunk Connection Restriction, pressing the Release Source key causes the conference to be released from the console and the trunks disconnected.

Note: Busy tone or overflow tone is returned for the above conditions.

Misoperation of Autohold on the loop key

On a console that is equipped with the Autohold on loop key option, if the attendant is on a call that has terminated properly and presses the loop key while switching to another call, the active loop is placed on hold rather than being released. Besides preventing the inadvertent release of the caller, this option allows the attendant to toggle between any number of held calls by having to press only one key. If the attendant is on a call that cannot be terminated properly, pressing another loop key releases the destination side and puts the source side on hold.

In the following cases, pressing the Release key or the loop key places the call on hold rather than releasing it.

- Extending to a busy extension without Camp-on or Call Waiting, or
- Extending to a station restricted by Trunk-to-Trunk Connection Restriction.

Misoperation of the Release Source/Release Destination key

This option allows the Meridian 1 system to ignore the pressing of the Release Source or Release Destination key, preventing the release of either the excluded source or destination party, or a conference call connection. The source or destination party involved in a talking connection with the attendant may still be released by pressing the Release Source or Release Destination key, as appropriate. In a lockout situation, where both source and destination parties are excluded, the attendant may use either the Release Source or Release Destination key to disconnect both parties, since the attendant is not able to re-enter the connection.

Remote Call Forward

Remote Call Forward (RCFW) allows a telephone user to program Call Forward from a remote telephone. With Remote Call Forward (RCFW) enabled, forwarding DN's can be defined and Call Forward All Calls can be activated from within the Meridian 1 or outside the local switch. The Remote Call Forward (RCFW) feature is password protected.

The Station Control Password (SCPW) is required to program Remote Call Forward. Entering a password length of 0 disables the password control for both Electronic Lock and RCFW.

Operating parameters

RCFW requires the following:

- set the password length in LD 15, at the SCPL prompt
- add passwords in LD 10 and LD 11, at the SCPW prompt
- allow Call Forward All Calls in LD 10 and LD 11, and
- define Remote Call Forward Activate (RCFA), Deactivate (RCFD), and Verify (RCFV) Flexible Feature Codes (FFC) in LD 57.

To activate RCFW from outside of the local switch, you must use the Direct Inward System Access (DISA) DN. The telephone's Prime DN is associated with the RCFW password for added security. Also, RCFW can activate or deactivate Call Forward on a telephone, and verify the same feature on a telephone.

Changes to the Station Control Password length do not take effect until after a data dump and SYSLOAD.

If there are two telephones with the same Prime DN, it is recommended that only one of them have a Station Control Password. With RCFW, it is possible that two telephones could have the same password assigned. With the same password, they could control each other's security. For the same reason, the Secondary DN for an Automatic Call Distribution (ACD) telephone should not appear as a Prime DN on another telephone.

A unique number code must be programmed for each of the FFC functions relating to RCFW: Remote Call Forward Activate (RCFA), Remote Call Forward Deactivate (RCFD), and Remote Call Forward Verify (RCFV). You can change the RCFW Directory Number (DN) from your own telephone or from a telephone remote from the switch.

RCFW is not supported for ACD telephones.

Feature interactions

Attendant Administration

Attendant Administration does not support the telephone programming associated with Remote Call Forward.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Activation of CFW to a barred DN by Remote Call Forward will be permitted, since the user has had to dial the Station Control Password, which could also have been used to deactivate Outgoing Call Barring (OCB).

Multiple Appearance Directory Number

With a Multiple Appearance Directory Number (DN) and both sets having a Station Control Password (SCPW), Remote Call Forward may not operate as intended (that is, if Call Forward has been activated using the Remote Call Forward feature, Call Forward remains activated when an attempt to deactivate it is made from the set on which it is active).

Phantom Terminal Numbers (TNs)

If Remote Call Forward is to be used in conjunction with a Phantom TN, the Phantom TNs must be configured with the Call Forward All Calls (CFW) feature.

Call Forward Destination Deactivation

Remote Call Forward (RCFW) and Call Forward Destination Deactivation (CFDD) provide the same functionality but are activated differently. CFDD does not require the call forward station's control password to deactivate the call forward functionality on the call forward station.

The call forwarded destination can use the Remote Call Forward deactivation FFC as well as CFDD to deactivate the Call Forward All Calls functionality on the call forward station.

Set-Based Administration Enhancements

A set may be remote call forwarded while someone is actively logged into it with Set-Based Administration login.

Feature packaging

The following software packages are required to implement Remote Call Forward:

- Optional Features (OPTF) package 1
- Flexible Feature Codes (FFC) package 139, and
- Controlled Class of Service (CCOS) package 81.

In addition, the following software packages are required to implement RCFW on analog (500/2500 type) telephones:

- Special Service for 2500 (SS25) package 18, and
- 500 Set Dial Access to Features (SS5) package 73.

Feature implementation

LD 15 – Set the Station Control Password length.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FFC	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
...		
- SCPL	0-8	Station control password length (0-8). Entering 0 disables the Remote Call Forward and the Electronic Lock features. Note: A data dump and SYSLOAD are required to implement a change in password length. Shorter passwords are filled with leading zeros. Passwords that are too long have the leading digits truncated.
- FFCS	YES	Change end of dialing digits in FFC.
- - STRL	1-3	Number of digits to indicate FFC end of a feature activation.
- - STRG	(#), xxx	1 to 3 digits to indicate FFC end of a feature entry.

LD 57 – Define Remote Call Forward FFCs.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Codes.
FFCT	(NO), YES	FFC Confirmation Tone (optional).
CODE	RCFA	Remote Call Forward Activate.
RCFA	xx	RCFA code
CODE	RCFD	Remote Call Forward Deactivate.
RCFD	xx	RCFD code.

CODE	RCFV	Remote Call Forward Verify.
RCFV	xx	RCFV code.

LD 10 – Set the Station Control Password for Analog (500/2500 type) telephones and allow Call Forward.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
SCPW	xxx...x	Station control password (0-8 digits as defined by prompt SCPL in LD 15).
	X	Entering X deletes the password.
FTR	CFW 4-(16)-23	Allow Call Forward and set forwarding DN length.

LD 11 – Set the Station Control Password for Meridian 1 proprietary telephones and allow Call Forward.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
SCPW	xxx...x	Station control password (0-8 digits as defined by prompt SCPL in LD 15).
	X	Entering X deletes the password.
KEY	xx CFW 4-(16)-23	Assign Call Forward key (xx) and set forwarding DN length.

Feature operation

From any telephone within the system, simply lift the handset and use the following procedures. From any telephone outside the system, first dial the Direct Inward System Access (DISA) number for your system, wait for dial tone, and dial any required passwords and Authorization Codes.

- 1 Dial the Remote Call Forward Activate FFC.
- 2 Dial the Station Control Password for the telephone to be forwarded.
- 3 Dial the Prime DN of the telephone to be forwarded.
- 4 Dial the number to which calls will be forwarded.
- 5 Dial the end-of-entry digit(s) (defined in LD 15), if these digits plus the number of digits in the forwarding DN are less than 24 digits. (If you do not dial the end-of-entry digits, the forwarding DN is saved but cannot be verified remotely.)

You will hear a confirmation tone after entering the main extension number, telling you that the password and extension match. You will hear a second special tone after dialing the end-of-entry digits, telling you that the procedure was successful. If you hear a fast busy signal, hang up and try again.

When entering the forwarding DN, you cannot enter more than 23 digits, including the end-of-entry digits. If you attempt to enter a 24th digit, you will hear an overflow tone.

If the forwarding DN plus the end-of-entry digits are not less than 24 digits, hang up after dialing the forwarding DN. The DN is saved but cannot be verified remotely.

To cancel Remote Call Forward:

- 1 Dial the Remote Call Forward Deactivate FFC.
- 2 Dial the Station Control Password for the telephone.
- 3 Dial the Prime DN of the telephone.

To verify Remote Call Forward:

- 1 Dial the Remote Call Forward Verify FFC.
- 2 Dial the Station Control Password for the telephone.

- 3** Dial the Prime DN of the telephone.
- 4** Dial the number to which calls should be forwarded.
- 5** Dial the end-of-entry digit(s).

If the number to which the telephone is forwarding calls does not match your entry in step 4, you will hear a fast busy signal. If the numbers do match, you will hear a confirmation tone after entering the forwarding number, provided the confirmation tone is enabled in LD 57.

When entering the forwarding DN, you cannot enter more than 23 digits, including the end-of-entry digits. If you attempt to enter a 24th digit, you will hear an overflow tone. You cannot use Remote Call Forward Verify for a forwarding DN that was entered without the end-of-entry digits because of too many digits.

Remote Peripheral Equipment

The Remote Peripheral Equipment (RPE) feature allows the range of the multiplexed loop between common and peripheral equipment to be extended beyond the normal 14 m (50 ft.), to about 100 km (70 miles) using T1 carrier facilities. This carrier system must conform to the North American T1 specification to link the local and remote locations, and can consist of the following:

- 24-gauge wire pairs for applications in which the remote end is less than 2500 feet from the Meridian 1 common equipment
- a Digital carrier link (such as Northern Telecom LD-1), or
- a microwave radio link.

The Remote Peripheral Equipment (RPE) feature allows the peripheral equipment to be placed closer to the stations it serves, and increases the serving area of a single system.

Among the benefits are the following:

- normal attendant operation covering all locations
- elimination of TIE lines between locations
- uniform system features, and
- a fully integrated numbering plan.

For details regarding RPE, refer to Northern Telecom Publication *Remote Peripheral Equipment description, installation, and testing* (553-2601-200).

Operating parameters

Refer to *Remote Peripheral Equipment description, installation, and testing* (553-2601-200).

Feature interactions

Refer to *Remote Peripheral Equipment description, installation, and testing* (553-2601-200).

Feature packaging

Remote Peripheral Equipment (RPE) package 15 has no feature package dependencies.

Feature implementation

If an even-numbered Tone and Digit Switch (TDS), CONF, or MFSD loop (0, 48, 72, 150) is equipped, the succeeding odd-numbered loop (1, 49, 73, 151) cannot be assigned as a voice loop.

The Peripheral Buffer card switch must be set for quad density. After changes are made, the system must be initialized to activate the changes to the network loop in the database.

LD 17 – Add or change a voice/RPE loop(s).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN CEQU	Configuration Record. Release 21 gate opener.
CEQU	(NO), YES,	Allow changes to common equipment parameters.
- MPED	SD, DD, 4D	Maximum peripheral equipment density.
- TERM	xxx yyy	Single density local terminal loops. For nonenhanced networks: xxx = 0-79 yyy = 0-79 For enhanced networks: xxx = 0-159 yyy = 0-159

- REMO	xxx yyy	Single density remote terminal loops. For nonenhanced networks: xxx = 0-79 yyy = 0-79 For enhanced networks: xxx = 0-159 yyy = 0-159
- TERD	xxx yyy	Double density local terminal loops. For nonenhanced networks: xxx = 0-79 yyy = 0-79 For enhanced networks: xxx = 0-159 yyy = 0-159
- REMD	xxx yyy	Double density remote terminal loops. For nonenhanced networks: xxx = 0-79 yyy = 0-79 For enhanced networks: xxx = 0-159 yyy = 0-159
- TERQ	xxx yyy	Quad density local terminal loops. For nonenhanced networks: xxx = 0-79 yyy = 0-79 For enhanced networks: xxx = 0-159 yyy = 0-159
- REMQ	xxx yyy	Quad density remote terminal loops. For nonenhanced networks: xxx = 0-79 yyy = 0-79 For enhanced networks: xxx = 0-159 yyy = 0-159

Feature operation

No specific operating procedures are required to use this feature.

Ring Again

Ring Again gives you the opportunity, after encountering a busy Directory Number (DN), to ring the DN again when it becomes free. If a dialed DN is busy, or if all the trunks are busy, pressing the Ring Again key asks the system to monitor the dialed DN or trunk. When it becomes available, the system notifies you. The call is automatically dialed again when you press the Ring Again key a second time.

When the system alerts you to Ring Again, you have a limited amount of time to respond. Analog (500/2500 type) telephones have six seconds, while Meridian 1 proprietary telephones have 30 seconds.

Operating parameters

A key/lamp pair must be assigned to Meridian 1 proprietary telephones for Ring Again. M3000 and M2317 telephones access Ring Again with a softkey.

Several people can activate Ring Again against the same DN while it is busy. When the DN becomes free, the system notifies the first person in line.

For analog (500/2500 type) telephones, a Special Prefix (SPRE) or Flexible Feature Code (FFC) may be used.

Feature interactions

Attendant Blocking of Directory Number

It is possible to activate Ring Again towards a DN that is blocked due to the Attendant Blocking of DN feature.

Basic/Network Alternate Route Selection (BARS/NARS)

If the system is equipped with BARS or NARS, the Ring Again feature is used with the Call Back Queuing option to queue for outgoing trunks.

Calling Party Privacy

A call automatically redialed by the Ring Again – Busy Trunk feature will respect the Calling Party Privacy requested when the call was originally dialed.

Dial Access to Group Calls Group Call

Ring Again cannot be applied to a Group Call.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Ring Again cannot be activated after a call is barred by Outgoing Call Barring (OCB). Sets with display will not offer Ring Again.

Enhanced Override

Ring Again is the only other feature currently available once a busy telephone has been encountered. Ring Again is not allowed on an analog (500/2500 type) telephone making a Multi-Party Operations consultation call.

ISDN QSIG Call Completion

Analog (500/2500 type) sets can have only one Call Completion to Busy Subscriber request at a given time. Meridian 1 proprietary sets can make Ring Again requests based on the number of Ring Again keys programmed on a set.

Multi-Party Operations

Ring Again is not allowed if the user of an analog (500/2500 type) telephone has a call on hold and receives a busy signal when calling a second party.

Preference Trunk Usage

Searching for an available trunk via the Ring Again feature is subject to the Preference Trunk Usage feature at trunk seizure time. Earlier trunk availability checks are not carried out.

Priority Override

Ring Again is the only other feature currently available once a busy telephone has been encountered. Ring Again is not allowed on an analog (500/2500 type) telephone making a Multi-Party Operations consultation call.

Feature packaging

Ring Again is included in Optional Features (OPTF) package 1 and has no feature package dependencies.

Feature implementation

LD 10 – Add or change Ring Again for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XRD), XRA	Ring Again is (denied) or allowed.

LD 11 – Add or change Ring Again for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx RGA	Ring Again key, where: xx = key number (must be key 27 for M2317 or M3000).

Feature operation

Ring Again is slightly different for each telephone type. Be sure to follow the correct operating instructions.

Meridian 1 proprietary telephones

To activate Ring Again after hearing a busy signal:

- 1 Press **Ring Again**.
- 2 Hang up, or press **Rls**.
- 3 When you hear the Ring Again tone, lift the handset or select a free **DN**.
- 4 Press **Ring Again**. The number is automatically dialed.

To cancel Ring Again:

- Press **Ring Again** before you hear the notification tone.

M3000 Touchphone

To activate Ring Again after hearing a busy signal:

- 1 Press **Ring Again**.
- 2 Hang up, or press **Rls**.
- 3 When you hear the Ring Again tone, lift the handset or select a free **DN**.
- 4 Touch **Connect**. The number is automatically dialed.

To cancel Ring Again:

- Press **Ring Again** before you hear the notification tone.

M2317 telephone

To activate Ring Again after hearing a busy signal:

- 1 Press **RINGAGN**.
- 2 Hang up, or press **Rls**.
- 3 When you hear the Ring Again tone, lift the handset or select a free **DN**.
- 4 Press **Call** . The number is automatically dialed.

To cancel Ring Again:

- Press **Call**  before you hear the notification tone.

Analog (500/2500 type) telephones

To activate Ring Again after hearing a busy signal:

- 1** Flash the switchhook or press **LINK**.
- 2** Dial SPRE+1, or the Flexible Feature Code (FFC) assigned.
- 3** When you hear the Ring Again tone bursts, lift the handset while you still hear the ringing. The number is automatically dialed.

To cancel Ring Again:

- Before you hear the notification tone, lift the handset and dial SPRE +2, or the FFC assigned, and hang up.

Ring Again on No Answer

The Ring Again No Answer (RANA) feature extends the capabilities of Ring Again for standalone applications, and Network Ring Again for Integrated Services Digital Network (ISDN) applications. The feature allows Ring Again to be applied to a station that does not answer.

This feature applies to Meridian 1 proprietary telephones, as well as analog (500/2500 type) telephones.

Users of Meridian 1 proprietary telephones, upon encountering a station that does not answer, can activate RANA by pressing the Ring Again (RGA) key. When the desired station goes off-hook, to make or receive a call, and then goes on-hook, the station that activated RGA receives a buzz through the telephone's loudspeaker (while the RGA lamp flashes, if that station is idle). The station user can dial the desired station by lifting the handset or pressing a DN key, and then pressing the RGA key.

Users of analog (500/2500 type) telephones, upon encountering a station that does not answer, can activate RANA by performing a recall, and then dialing the Ring Again Activate Flexible Feature Code, or dialing SPRE then the digit 1. After receiving confirmation dial tone, the user goes on-hook to make or receive calls as usual. When the desired station goes off-hook, to make or receive a call, and then goes on-hook, the station that activated RGA receives six ring cycles as a Ring Again notification (if the station is idle). To dial the desired party, the station user has to go off-hook before the six-ring cycle ends. If the desired party goes off-hook while RANA is being applied, Ring Again Busy is activated instead of RANA.

To deactivate RANA from an analog (500/2500 type) telephone, the user goes off-hook and dials the Deactivate Ring Again or the Deactivate Feature Flexible Feature Code, or dials SPRE then the digit 2.

This feature is described more fully in 553-2921-100 and 553-2901-101 for the ISDN environment.

Operating parameters

Ring Again on No Answer cannot be applied:

- if the dialed DN is a Pilot DN
- to Attendant Consoles
- to a station which has been intercepted to the attendant
- to a station which is queued for an attendant
- to a station which has been recalled to an attendant due to misoperation
- to Automatic Call Distribution (ACD) stations
- to a station with Radio Paging active, and
- to trunks.

Meridian 1 proprietary telephones must be equipped with a Ring Again (RGA) key/lamp combination.

Ring Again on No Answer is applied to the originally dialed DN only.

Feature interactions

Call Forward (All Calls)

Call Forward No Answer

If an unanswered call is forwarded to another station by any of these features, RANA is applied to the originally dialed station.

Group Hunting

RANA cannot be applied if the DN dialed was a Pilot DN.

Hunting

If RANA has been applied to a station going through a Hunt sequence, Ring Again is applied to that station and not the ringing station.

Intercept to Attendant

RANA cannot be applied by a set that is intercepted to the attendant.

ISDN QSIG Call Completion

Analog (500/2500 type) sets can have only one Call Completion to Busy Subscriber request at a given time. Meridian 1 proprietary sets can make Ring Again requests based on the number of Ring Again keys programmed on a set.

Multiple Appearance Directory Number

The Ring Again on No Answer feature will only function on Multiple Appearance Directory Numbers that have been assigned to two different sets provided that both users, with the Ring Again on No Answer activated, go off-hook to make a call and then go on-hook. If both users do not go off-hook then the originator will not receive a buzz through the loudspeaker.

M2317 and M3000 Telephones

For RANA to function on M2317 and M3000 telephones, the telephones must be configured with a Ring Again (RGA) key. The Ring Again “soft key” will only be displayed when a busy call is encountered and will not be displayed during ring no answer.

Phantom Terminal Numbers (TNs)

Although RANA can be applied to a phantom DN, it is not recommended. Because a phantom DN cannot be active or busy, the caller is not notified when the phantom DN’s forward DN does not answer.

Queued Calls

RANA cannot be applied by a set which is being queued for the attendant or is in the attendant queue during Night Service.

Recall to Attendant due to Misoperation

RANA cannot be applied by a set that is recalling the attendant.

Feature packaging

For standalone applications, Ring Again No Answer is part of base X11 system software.

Advanced ISDN Network Services (NTWK) package 148 for network applications.

Feature implementation

LD 15 – Define the Ring Again on No Answer setting.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
...		
OPT	(RND), RNA	Customer options. Ring Again on No Answer (denied) allowed.

LD 10 – Define Ring Again for Analog (500/2500 type) sets.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Type of set. Analog (500/2500 type).
...		
CLS	(XRD), XRA	Class of Service options. Ring Again (denied) allowed.

LD 11 – Define Ring Again keys for sets.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
...		
KEY	RGA	Customer options. Ring Again on No Answer (denied) allowed.

Feature operation

Meridian 1 proprietary sets

Place and Accept Ring Again on No Answer

Action	Response
1. User A calls user B.	User A receives ringback tone.
2. User A presses the Ring Again (RGA) key.	Indicator associated RGA key turns on steadily.
3. User A either goes on-hook or presses the Release (RLS) key.	Indicator associated with RGA key remains on and user A is now free to receive or make other calls.
4. User B, the user against which Ring Again was placed, goes off-hook to make a call, and then back on-hook.	User A is given a short buzz through the loudspeaker and the indicator associated with the RGA key will begin to flash.
5. User A either picks up the handset or presses a DN key.	User A receives dial tone.
6. User A presses the RGA key.	The user against which the Ring Again was placed is rung and the indicator associated with the RGA key is turned off.

Cancel Ring Again No Answer

Action	Response
1. User A presses the RGA key.	The indicator associated with the RGA goes from flashing to off, and ring again is cancelled.

Analog (500/2500 type) Sets

In the following feature operation description, the term recall refers to performing a register recall which may be performed in a number of different ways. Some examples are:

- Flash the switch hook (that is, the equivalent of hanging up the handset and picking it back up. This on-hook, off-hook is performed in a time period that is less than what the system would consider to be a valid disconnect).
- Press the flash or LINK button if equipped.

Place and Accept Ring Again No Answer

Action	Response
1. User A calls user B.	User A receives ringback tone.
2. User A performs a recall.	User B stops ringing and User A receives special dial tone.
Note: User B must be in a ringing state for more than two seconds before recall is allowed.	
3. User A dials either the Ring Again Activate (RGAA) Flexible Feature Code, or the Special Prefix (SPRE) code followed by the digit "1".	User A receives dial tone indicating that the Ring Again was successfully placed.
4. User A goes on-hook.	User A is now free to receive or make other calls.
5. User B, the user against which the Ring Again was placed, goes off-hook to make a call, and then goes back on-hook.	User A is given six cycles of ringing as notification.
6. If User A picks up the handset before all six ringing cycles are complete.	User B is rung.
7. If user A does not pick up the handset before all six ringing cycles are complete.	Ring Again is cancelled.

Cancel Ring Again No Answer

Action	Response
1. User A goes off-hook.	User A receives dial tone.
2. User A dials either the Ring Again Deactivate (RGAD) Flexible Feature Code, the Deactivate Feature (DEAF) FFC, or the Special Prefix (SPRE) code followed by the digit "2".	User A receives dial tone indicating that the Ring Again cancellation was successful.

Ringing instead of Buzzing on Digital Telephones

The Ringing instead of Buzzing feature, allows a digital telephone to ring when a call is presented as follows:

- when the handset is off hook but the telephone is idle
- when the handset is off hook but the telephone is idle and when the user is busy on another line

Ringing alerts a user in a more obvious way than buzzing (previous operation).

If a call is presented to the telephone, it rings according to the Distinctive Ringing Class of Service (DRG1, DRG2, DRG3, and DRG4), instead of buzzing.

There are two Classes of Service which can be assigned in LD 11:

- RNGI (the set rings when idle but off hook and a call is presented)
- RNGB (the set rings when busy or idle, but off hook and a call is presented).

Operating Parameters

This feature does not affect the features where a buzz is already provided, such as Ring Again or Manual Signaling.

Buzzing is the default configuration.

Ringing features such as Ringing Change Key, Network Distinctive Ringing or Executive Distinctive Ringing, if implemented, affect the way in which the telephone rings.

Any digital telephone can be assigned an RNGI or RNGB Class of Service.

This feature does not affect Attendant Consoles.

If an attempt is made to enter CLS BUZZ, RNGI or RNGB on an analog telephone programmed in LD 11, a service change error message is output.

Feature Interactions

ACD calls

This feature affects calls to an M2216 telephone. Ringing is given to the agent when the CLS is programmed for ringing and the telephone is idle.

Hunting

For telephones with more than one DN, the RNGB Class of Service and Short Hunting programmed calls will ring, not buzz, when the telephone is already busy.

Short Hunting allows calls to hunt to the next higher available key on a proprietary telephone, when a call is already established on a DN key.

Short Buzz for Digital Telephones

The Ringing instead of Buzzing feature takes precedence over the Short Buzz for Digital Telephones feature.

Third Party Applications

Applications which attach to or emulate a digital telephone can be affected by this feature.

Tones, Flexible Incoming

The Ringing instead of Buzzing feature takes precedence over the Tones, Flexible Incoming feature.

Feature Packaging

There are no new software packages for this feature.

Feature Implementation

LD 11 – Configure the Ringing instead of Buzzing feature on digital telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	xxxx	Valid telephone types: 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3901, 3902, 3903, 3904, 3905.
TN		Terminal Number
	l s c u	Option 51-81C.
	c u	Option 11C.
CLS	(BUZZ)	Buzz (default).
	RNGI	Ringing applied when telephone is idle but off hook.
	RNGB	Ringing applied when telephone is idle but off hook or busy on the other line.

Feature Operation

No specific operating procedures are required to use this feature.

Room Status

Room Status allows customers equipped with a Background Terminal (BGD) to store and retrieve data pertinent to the occupancy, readiness, or cleaning status of any guest room or group of guest rooms.

When equipped with the Room Status software, the Meridian 1 system provides the following Room Status information:

- Guest registration and occupancy
 - OC (occupied)
 - VA (vacant)
 - CH (check in)
 - CH OU (check out)
- Cleaning status
 - RE (cleaning required)
 - PR (cleaning in progress)
 - CL (room cleaned)
 - FA (failed inspection)
 - PA (passed inspection)
 - SK (cleaning skipped)

- Sale status
 - NS (not for sale)
 - SA (ready for sale)

- Other status information
 - CCOS (Controlled Class of Service)
 - DND (Do Not Disturb)
 - MW (Message Waiting)
 - CA (Category one – 1 to 15)
 - TL (telephone check)

Do Not Disturb (DND) has been enhanced for interaction with Room Status on an analog (500/2500 type) telephones. A new customer option allows a visual indication of when the analog (500/2500 type) telephone is in the DND mode: The lamp on the telephone lights up.

The Room Status feature provides four methods of accessing the Room Status data:

- Off-hook detection: Hotel and hospital staff generally clean occupied rooms during certain hours of the day. From a Background Terminal (BGD), an option can be entered to set all occupied rooms to “cleaning status request” mode for a predefined time-of-day interval. During this interval, the Meridian 1 system monitors the room telephone’s switchhook state to detect a change in the Room Status.

- Dial Access: This method is an enhancement to the off-hook detection method for updating the room cleaning status. This method offers seven cleaning-status options, as compared to the two offered by off-hook detection. Again, you allow or deny the dial access method by using the Background Terminal commands.

- Room Status key: A Room Status key (RMK) can be provided on an SL-1, M1109, or Meridian Modular Telephone. This allows the telephone user to read or alter the status of any room in the system.
- Background Terminal: The Room Status feature is administered from a Background Terminal (BGD) assigned to the customer. BGDs are defined in the configuration record and are connected to the Meridian 1 system through a Serial Data Interface (SDI) port. Devices used as BGDs can be any ASCII serial terminal conforming to EIA RS-232C or CCITT V.24 standards.

Operating parameters

The Room Status key (RMK) is supported only on telephones equipped with a display.

A room telephone is defined with Controlled Class of Service allowed (CCSA). The following telephones are supported as room phones:

- Analog (500/2500 type) telephones
- SL-1 and M1309 telephones, and
- Meridian digital telephones.

The M3000, M2317, and ACD telephones are not supported as room phones. Room Status is not supported on telephones with DTA (data terminal allowed) Class of Service. The RMK is not supported on Attendant Consoles.

A room phone is allowed to change the status of its own room.

The Room Status feature is mutually exclusive with the Multiple-Tenant, Centralized Attendant Service (CAS), and Coordinated Dialing Plan (CDP) features.

A message center must be defined for the Do Not Disturb (DND) visual indication function on an analog (500/2500 type) telephones. This is mutually exclusive of Integrated Messaging System (IMS) and Meridian Mail Message Centers.

All analog (500/2500 type) telephones that are to use the Do Not Disturb (DND) visual indication must also have an LPA (Lamp Allowed) Class of Service.

Feature interactions

Attendant Administration

Room Status is not supported by Attendant Administration.

Automatic Wake Up

Room Status and Automatic Wake Up both use the Background Terminal (BGD). If the WAKE option is selected for the check-in/check-out operation, the wake-up call for that room is canceled after a check-in or check-out operation.

Automatic Wake Up FFC Delimiter

When a guest has either checked in or out, the room status changes. If an AWU request is still active, it is canceled if it is included as part of the Check In/Out option.

Controlled Class of Service (CCOS)

You can change the access restrictions for room telephones from the BGD or from a telephone equipped with a Room Status key (RMK).

Maid ID

Maid ID is not required but is recommended to track maid performance. The Maid ID must be entered each time the Room Status changes, or it will not be recorded.

Multiple Tenant

Telephones equipped with an RMK can change the Controlled Class of Service (CCOS) of telephones for any tenant in a Customer Group.

Off-Hook Alarm Security

Cleaning changes entered using the Off-Hook Detection Method are mutually exclusive with the Off-Hook Alarm Security feature.

Feature packaging

Room Status (RMS) package 100 requires the following:

- Controlled Class of Service (CCOS) package 81, and
- Background Terminal Facility (BGD) package 99.

For lamp status, the requirements are as follows:

- Do Not Disturb, Individual (DNDI) package 9, and
- Message Waiting Center (MWC) package 46.

Feature implementation

Note: This procedure assumes that a BGD has been assigned. Refer to *Background Terminal Facility description* (553-2311-316) for a complete description and list of commands for the Background Terminal.

LD 10 – Add or change Controlled Class of Services (CCOS) for analog (500/2500 type) telephones requiring Room Status updates.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(CCSD), CCSA	Controlled Class of Service (denied) allowed.

LD 11 – Add or change Room Status key (RMK) for digit display telephones used for Room Status.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, or 2616.
TN	l s c u	Terminal Number.
CLS	ADD DDS	Automatic digit display enabled. Digit display enabled.
KEY	xx RMK	Room Status key.

LD 15 – Add or change Customer Data Block to allow (or disallow) visual indication of Do Not Disturb (DND) feature. Offered on the customer level, this applies only to analog (500/2500 type) telephones equipped with a Message Waiting (MW) lamp.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
- CUST	0-99	Customer number.
- DNDL	YES (NO)	Indicator goes on when DND is active. Indicator does not go on (the default).
TYPE	CCS	Release 21 gate opener.
- CCRS	UNR CUN, CTD, TLD, SRE, FRE, FR1, FR2	Unrestricted call service. With CCOS active, the restrictions entered apply.

Feature operation

To read the Room Status by using the RMK (display needed):

- Without lifting the handset, press the **RMK key**.
- Dial the Directory Number (DN) of the room telephone. The DN is displayed, followed by a dash and a two-digit code.

The first digit indicates occupancy: zero (0) means vacant, one (1) means occupied.

The second digit indicates Room Status:

- 1 = RE (cleaning required)
- 2 = PR (cleaning in progress)
- 3 = CL (cleaned)
- 4 = PA (passed inspection)
- 5 = FA (failed inspection)
- 6 = SK (cleaning skipped), and
- 7 = NS (not for sale).

To change the Room Status by using the RMK:

- 1** Without lifting the handset, press the **RMK key**.
- 2** Dial the Directory Number (DN) of the room telephone.
- 3** Dial the new room status as follows:
 - 1 = RE (cleaning required)
 - 2 = PR (cleaning in progress)
 - 3 = CL (cleaned)
 - 4 = PA (passed inspection)
 - 5 = FA (failed inspection)
 - 6 = SK (cleaning skipped), or
 - 7 = NS (not for sale).
- 4** Press the **RMK key**.

To change the Room Status by using Dial Access (from the room telephone):

- 1** Lift the handset and dial SPRE 86.
- 2** Dial the room status as shown below:
 - 1 = RE (cleaning required)
 - 2 = PR (cleaning in progress)
 - 3 = CL (cleaned)
 - 4 = PA (passed inspection)
 - 5 = FA (failed inspection)
 - 6 = SK (cleaning skipped), or
 - 7 = NS (not for sale).
- 3** Dial * and the Maid ID followed by #, if required.
- 4** Hang up or press **Rls**.

Note: For complete details on the Room Status operation, see *Background Terminal user guide* (P0740427).

Scheduled Access Restrictions

The Scheduled Access Restrictions (SAR) feature allows a customer to define Trunk Group Access Restrictions (TGAR), Class of Service (COS) restrictions, and Network Class of Service (NCOS) restrictions for different hours and days (typically off-hours and off-days). These TGAR, COS, and NCOS restrictions comprise SAR groups. Each customer may define up to 1000 SAR groups, and one of these groups can be assigned to each customer station or route. Up to eight time periods may be defined for each SAR group, and different restrictions may be applied to each time period.

SAR can be overridden on a single call basis for a station or route by using an authorization code or forced charge account. By using the SAR Disable (SADS), SAR Enable (SAEN), SAR Lock (SALK), or SAR Unlock (SAUN) Flexible Feature Codes these restrictions can be changed on a more permanent basis.

SADS returns the set/route to its normal restriction state. SAEN cancels SADS, returning the set to its SAR state. SALK will occur automatically at a predefined period of time or when the Lock command is dialed by the user. Lock restrictions remain in effect until an SAUN or SADS command is entered. The SALK command can be used on a customer basis or SAR group basis, depending on the authcode used.

Typically, the Flexible Feature Codes can be used to do the following:

- extend off-hour restrictions for weekends or holidays (SALK)
- return to the schedule of access restrictions (SAUN)
- extend normal restrictions into the off-hour period for after hour services (SADS)
- cancel this after hour service (SAEN)

- cause off-hour restrictions to start immediately (SALK followed by SAEN), and
- disallow any calls on an Attendant Console (SALK on SAR group containing the attendant(s)).

Customer attendants that are included in SAR groups are placed in Position Busy when an off-hour or off-day period goes into effect. The restricted attendant can only release existing calls or dial the SAR Flexible Feature Codes. New calls cannot be made. Incoming calls will be directed to any other attendants that are not included in SAR groups and that are not in Position Busy.

If the system is placed in Night Service by an attendant, or the system is automatically placed in Night Service because all attendants are in the Position Busy state, incoming calls are routed to the Night DN. Going into Night Service will automatically place attendants who belong to a SAR group into an SAR Locked and Enabled state. These attendants can only release existing calls or dial the SAR Flexible Feature codes; they cannot make new calls when restricted by SAR.

Operating parameters

The definition of authorization codes for SAR decreases the number of authorization codes available for non-SAR use.

SAR does not apply to Direct Inward System Access (DISA) DNs. DISA can be used to manually modify the SAR schedule using an FFC authorization code.

Telephones and trunks assigned to SAR groups have their Class of Service (COS), Trunk Group Access Restriction (TGAR) and Network Class of Service (NCOS) defined by the SAR schedule of their SAR group.

During the periods that a SAR or SAR lock is in effect, the Controlled Class of Service (CCOS) for the station or trunk is overridden.

If a Facility Restriction Level (FRL) is changed in order to be associated with a different NFCR tree, the NCOS using that FRL is affected. Also, different FRLs, and therefore different New Flexible Code Restriction (NFCR) trees, are used at different times according to the NCOS assigned to the SAR group.

Feature interactions

Authorization Code

Authorization Codes can be used to override SAR restrictions. In addition, Authorization Codes are defined for the specific use of SAR FFCs.

Automatic Redial (ARDL)

The Scheduled Access Restrictions (SAR) on ARDL redialed calls are set when the call is initiated. If restrictions are changed later, the prior restrictions still apply.

Basic Alternate Route Selection

If SAR is equipped when Basic Alternate Route Selection (BARS) is set up, a NCOS value between 0 and 99 must be defined for each time period.

Call Detail Recording

If configured, Call Detail Recording (CDR) A-type records are printed for SAR Flexible Feature Codes functions.

Class of Service

Sets defined in LD 10 and 11, and trunks defined in LD 14 which are assigned a SARG number, have their Class of Service defined by the SAR schedule of their SAR group.

Controlled Class of Service (CCOS)

If SAR is active, it overrides CCOS whether activated by a controller or Electronic Lock.

Coordinated Dialing Plan

If SAR is equipped when Coordinated Dialing Plan (CDP) is set up, a NCOS value between 0 and 99 must be defined for each time period.

Direct Inward System Access (DISA)

DISA numbers are not assigned to 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.

Electronic Lock Network Wide/Electronic Lock on Private Lines

The SAR feature overrides Electronic Lock.

Forced Charge Account

Forced Charged Account can be used to override SAR restrictions on a per call basis, provided the current Class of Service of the set or trunk is CUN, TLD, or CTD.

Multi-Tenant Service

If a SAR is assigned to a tenant, any set belonging to the tenant will follow this SAR schedule unless the set belongs to a SAR group. The set's Scheduled Access Restrictions override any SAR assigned to the tenant.

Network Alternate Route Selection

If SAR is equipped when Network Alternate Route Selection (NARS) is set up, a NCOS value between 0 and 99 must be defined for each time period.

Network Class of Service (NCOS)

When an NCOS is changed, it may be necessary to alter the NCOS values defined for each SAR group in LD 88. The NCOS value, which defines the facility restriction level and hence the NFCR trees, is used as defined by the SAR schedule. Also, different FRLs, and hence different NFCR trees, are used at different times according to the NCOS assigned to the SARG.

New Flexible Code Restriction

If a Facility Restriction Level (FRL) is changed to be associated with a different NFCR tree, any NCOS which uses that FRL is affected. In turn, the NCOS assigned to a SAR group may also be affected.

Office Data Administration System

Office Data Administration System (ODAS) can be used to indicate that telephones have been assigned to an SAR group. ODAS must be equipped in order to print members of a SAR group in LD 81.

Speed Call and Network Speed Call

The System Speed Call and Network Speed Call features ignore the Class of Service and TGAR access restrictions in a SAR schedule, using the Class of Service and NCOS defined in the speed call list.

Trunk Group Access Restriction (TARG)

SAR does not alter the TARGs defined per route.

Feature packaging

Scheduled Access Restrictions (SAR) is package 162. The following packages are also required:

- Call Detail Recording (CDR) package 4
- Basic Authorization Code (BAUT) package 25
- Network Class of Service (NCOS) package 32
- Network Authorization Code (NAUT) package 63
- Multi-Tenant Service (TENS) package 86
- To add the capability for manual modification of schedules, Flexible Feature Codes (FFC) package 139 and Basic Authorization Codes (BAUT) package 25 are required.
- If Call Detail Recording is required, Call Detail Recording (CDR) package 4 must be equipped.
- To make Network Class of Service restrictions effective, Network Class of Service (NCOS) package 32 is required.
- For additional billing information, Charge Account for CDR (CHG) package 23, Charge Account/Authorization Code (CAB) package 24, and Forced Charge Account (FCA) package 52 are required.

Feature implementation

LD 88 – Create or modify Scheduled Access Restrictions as follows:

Prompt	Response	Description
REQ	NEW, CHG	Create or change existing data block.
TYPE	SAR	Scheduled Access Restrictions.
CUST	0-99	Customer number.

SPWD	xxxx	Secure data password (same password as defined for DISA on a per customer basis in LD 15). Note: Prompt will not appear to a user with an LAO password.
SGRP	0-999	SAR group number.
SCDR	(NO), YES	(Do not) activate CDR for the SAR FFC commands.
OFFP	1-8	Off-hour period number. Off-hour periods may overlap; the period that starts first has priority until that off-hour period is over.
	<CR>	Go to ICR prompt.
- STAR hh mm	hh mm	Start time. The current start time (hours and minutes) is printed individually after the prompt. Respond with the new start time.
	X	Remove value and return to OFFP prompt.
- STOP hh mm	hh mm	Stop time. The current stop time (hours and minutes) is printed individually after the prompt. Respond with the new stop time.
	X	Remove value and return to OFFP prompt.
- DAYS	d ... d	Respond with a new set of days to be used. Maximum of seven entries in the range of 1-7. Day 1 = Sunday, Day 2 = Monday, etc.
- COS	(UNR) CTD CUN FR1 FR2 FRE SRE TLD	Off-hour period Class of Service. Unrestricted Conditionally Toll-Denied Conditionally Unrestricted Fully Restricted Class1 Fully Restricted Class 2 Fully Restricted Semi-restricted Toll Denied
- TGAR	(0)-15	Trunk Group Access Restriction.
- NCOS	0-99	Network Class of Service.

- ICR	(NO), YES	Incoming Calls are Restricted.
LOCK	(1)-8	The LOCK prompt is used to indicate which off-hour period is to be used as the LOCK period. The default is Period 1.

LD 88 – If the system is in an off-hour or locked period when a print command is issued, an asterisk appears following the restrictions being used. If lock is in effect, an additional asterisk appears following the lock prompt. The print command allows a tenant number to be entered. The status of a tenant SAR group can be printed.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	SAR	Scheduled Access Restrictions.
CUST	0-99	Customer number.
SPWD	xxxx	Secure data password.
TEN	1-511	Tenant number.
SGRP	0-999	Prompted only if no tenant number is entered.

LD 88 – With SAR you must configure the Authcode data block not to automatically generate Authcodes as follows:

Prompt	Response	Description
REQ	NEW	New.
TYPE	AUB	Authcode data block.
CUST	0-99	Customer number.
SPWD	xxxx	Secure data password (same password as defined for DISA on a per customer basis in LD 15).
ALEN	1-14	Number of digits in authcodes.
ACDR	YES, NO	Activate CDR for authcodes (there is no default response).
RANR	0-511 X	RAN route number for authcode last prompt. Enter X for no entry.
CLAS	(0)-115	Classcode value assigned to authcode.
AUTO	NO	Do not automatically generate Authcodes. Note: Prompted when NAUT package 63 is equipped and REQ = NEW. The Authcode length must be a minimum of four digits.

LD 88 – Define SAR entries in the Authcode entries data block as follows:

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	AUT	Authcode entries data block.
CUST	0-99	Customer number.
SPWD	xxxx	Secure data password (same password as defined for DISA on a per customer basis in LD 15).
CODE	xxxx ...	Authcode (1-14 digits).
SARC	YES, NO	Allow or disallow Authcode to be used as the SAR authorization code.

- SERV	(END), ENA (LKD) LKA (DSD), DSA (UND) UNA	SAR service functions for SARC (the SERV prompt appears if SARC = YES) Enable (Denied) Allowed. Lock (Denied) Allowed. Disable (Denied) Allowed. Unlock (Denied) Allowed Note: Up to four entries can be made at once.
- SRGP	0-999 ALL	Number of SAR group to be defined or changed. Change all SAR groups.
CLAS	(0)-115	Class code value assigned to authcode. Cycle continues with CODE. When type = AUT, enter X to configure the authcode as an exempt code. When this data is printed, the month the authcode was deactivated is output. The default is 0 when adding authcode entries.
	X	Exempt authcode.

LD 10 – A SAR group can be assigned to individual analog (500/2500 type) sets by entering the SAR group number in response to the SGRT prompt. If the SAR group number has not been previously defined in LD 88, an error message is issued.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
...		
SGRP	(0)-999	Scheduled Access Restriction group number. Must have group defined in LD 88.

LD 11 – A SAR group can be assigned to individual Meridian 1 proprietary sets by entering the SAR group number in response to the SGRT prompt. If the SAR group number has not been previously defined in LD 88, an error message is issued.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
SGRP	(0)-999	Scheduled Access Restriction group number. Must have group defined in LD 88.

LD 12 – A SAR group can be assigned to individual Attendant Consoles by entering the SAR group number in response to the SGRT prompt. If the SAR group number has not been previously defined in LD 88, an error message is issued. Attendant Consoles do not follow the SAR restrictions defined by the SARG group, but they can be locked by using SAR FFCs.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	1250, 2250, ATT	Attendant Console type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
SGRP	(0)-999	Scheduled Access Restriction group number. Must have group defined in LD 88.

LD 16 – A SAR group can be assigned to individual trunk route by entering the SAR group number in response to the SGRT prompt. If the SAR group number has not been previously defined in LD 88, an error message is issued.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
...		
SGRP	(0)-999	Scheduled Access Restriction group number. Must have group defined in LD 88.

LD 57 – Define Flexible Feature Codes for the SAR disable, SAR enable, SAR lock, and SAR unlock functions.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	FFC	Flexibly Feature Codes data block.
CUST	0-99	Customer number.
...		
CODE	aaaa	Specific Flexible Feature Code Type. To change a specific Flexible Feature Code, enter the associated mnemonic then carriage return <CR>. The mnemonic will then be prompted and the Flexible Feature Code can be entered. The Flexible Feature Code may be up to four digits or up to seven digits if DNXp package 150 is equipped.
- SADS	xxxx	SAR Disable code.
- SAEN	xxxx	SAR Enable code.
- SALK	xxxx	SAR Lock code.
- SAUN	xxxx	SAR Unlock code.

LD 93 – A SARG can be entered for each tenant. Sets follow the restriction of this group if they are a member of the tenant and do not belong to a SARG themselves. Respond to the TEN prompt with the tenant number. Respond to the SGRP prompt with the number of the SAR group to be assigned to the tenant.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	TGEN	Tenant SAR data block.
CUST	0-99	Customer number.
...		
TEN	1-511	Tenant number.
...		
SGRP	(0)-999	Scheduled Access Restriction group number. Must have group defined in LD 88.

Feature operation

Modification of SAR Restrictions

SAR restrictions can be modified on a per call basis by using an Authorization code, if the Basic Authorization Code (BAUT) package 25 is equipped.

Also, if the Authorization Code and Flexible Feature Codes packages are equipped, the off-hour periods can be shortened or extended by using the four SAR FFCs.

The Authorization Code feature can be used to allow a user to override a Scheduled Access Restriction on a single-call basis by dialing an Authorization Code (Authcode). Each Authcode is assigned a Class of Service, Trunk Group Access Restriction, and a Network Class of Service. The restrictions associated with the dialed Authcode, apply to the call being made. Thus, by using an Authcode, any facility to which access is allowed depending on the restrictions associated with an Authcode, can be accessed by dialing the set, even though the set may normally be denied access.

Single-Call Modification

The Scheduled Access Restrictions feature does not modify using Authcodes to allow calls to be made on restricted sets. Dial either “SPRE + 6” or the AUTH FFC plus the Authcode associated with the desired restrictions. Once dial tone is returned, indicating a valid code, the call may be dialed as normal.

Off-Hour Period Modification

The SADS, SAEN, SALK, and SAUN FFCs defined in LD 57 can be used to modify off-hour period restrictions, by simply dialing the FFC plus an appropriate Authcode. The Authcode determines if the requested function is allowed and whether the action is to take place on a SAR group or a customer basis. An FFC plus an Authcode for a specific SARG is only accepted from a station within that group, or from a station within a tenant which uses that SAR group.

Entering a Flexible Feature Code plus an Authcode results in the following:

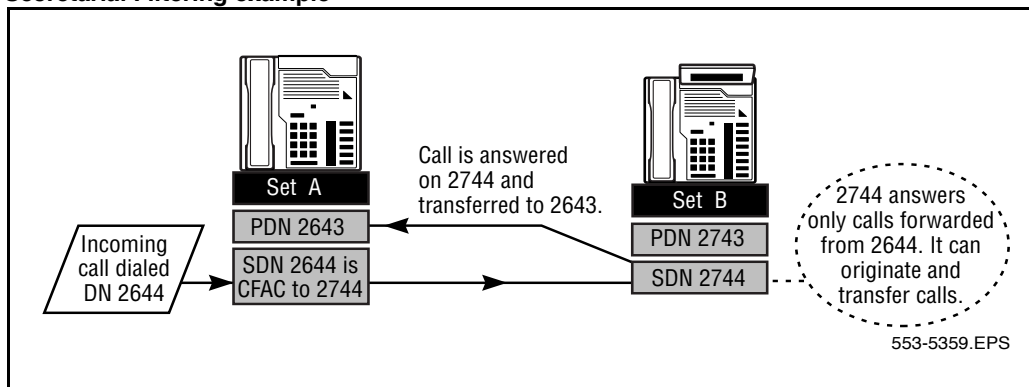
- SALK + Authcode = extend off-hour restrictions for weekends or holidays
- SAUN + Authcode = return to the schedule of access restrictions
- SADS + Authcode = extend normal restrictions into the off-hour period for after hour services
- SAEN + Authcode = cancel this after hour service
- SALK followed by SAEN + Authcode = cause off-hour restrictions to start immediately, and
- SALK on SAR group containing the attendant(s) + Authcode = disallow any calls on an Attendant Console.

Secretarial Filtering

Secretarial Filtering is an application of Call Forward All Calls. It allows you to forward all calls to a second telephone. The user at the second telephone answers the forwarded calls and can choose to transfer the call back to you.

In the following example, a manager having a secondary DN of 2644 forwards all calls arriving at that DN to a secretary's secondary DN 2744. Any call placed to DN 2644 is forwarded to the secretary at DN 2744. The secretary answers the call, decides that the manager should take the call, and transfers it back to DN 2643 (the prime DN). In this example, the manager receives only the calls originated or transferred by the secretary.

Figure 67
Secretarial Filtering example



Operating parameters

Only the Directory Number (DN) designated as the Call Forward number can originate or transfer calls to the originally dialed DN.

All Single Appearance DN's on the forwarded telephone are forwarded to the target DN.

A Multiple Appearance DN on the forwarded telephone is forwarded only if it is a Prime DN. A Multiple Appearance DN that is not the Prime DN rings at all appearances, including the forwarded telephone.

Feature interactions

Phantom Terminal Numbers (TNs)

If a Phantom TN is call forwarded to an existing telephone, and that telephone is used to call a DN on the Phantom TN, the call receives DCFW treatment.

Feature packaging

Secretarial Filtering is included in base X11 system software. It is provided with Call Forward All Calls.

Feature implementation

This feature is enabled when Call Forward All Calls is enabled.

Feature operation

See the feature operation in the Call Forward All Calls module in this document.

Selectable Conferee Display and Disconnect

The Selectable Conferee Display and Disconnect (SCDD) feature expands existing Conference Display functionality and provides Meridian Modular (Aries) set users with the capability to selectively drop any party that has been added to a conference. This feature provides Meridian Modular sets involved in a conference with the following two enhancements:

- Conference Count Display
- Selectable Conferee Disconnect

Note: The Selectable Conferee Display and Disconnect feature applies to Meridian Modular sets equipped with a display screen. The Meridian Modular set must be participating in a conference involving a total of at least three conferees.

Conference Count Display

Previously, only the elapsed time was shown on the display screen of a Meridian Modular set during a conference call. With Conference Count Display, however, the display screen of a Meridian Modular set also shows a count of the number of parties currently active in a conference call. This count includes every conferee involved in the active conference, whether a Meridian Modular set or not. The Conference Count Display is updated whenever a conferee is added to or disconnected from the active conference.

The Conference Count Display is activated at a set level by setting Class of Service to Conferee Display Count Allowed (CDCA). If Class of Service is set to Conferee Display Count Denied (CDCD), the display screen of the Meridian Modular set shows only the elapsed time, as per existing functionality.

The Conference Count Display is composed of three fields which are configured in the Customer Data Block. At least one of these fields must be configured for the Conference Count Display functionality to be in effect. The fields are as follows:

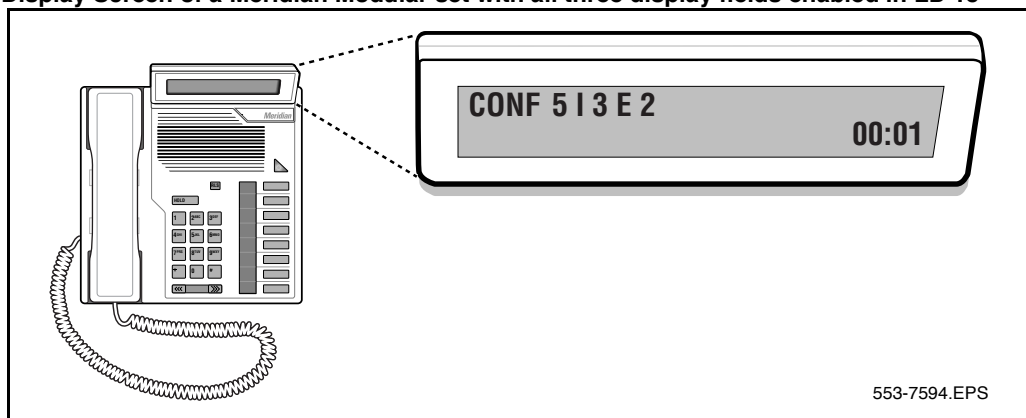
- The Total Conferees Count display field (CNFFIELD) shows the total number of parties involved in a conference (total internal conferees + total external conferees). The default mnemonic for this field on the display screen is “CONF”.
- The Total Internal Conferees Count display field (INTFIELD) shows the total number of conferees that are internal to the Meridian 1 system. This includes analog (500/2500 type) sets, Meridian 1 proprietary sets, Attendant Consoles, and service trunks (such as Paging, Music, and Recorded Announcement) within the Meridian 1 system. The default mnemonic for this field on the display screen is “I”.
- The Total External Conferees Count display field (EXTFIELD) shows the total number of conferees that are external to the Meridian 1 system. This includes trunks that are connected to the Meridian 1 system that can be configured on internal or external routes. The default mnemonic for this field on the display screen is “E”.

The mnemonics for each of the above fields can be modified to accommodate different languages or to save output time. This modification is performed by defining the CNF_NAME, INT_NAME, and EXT_NAME prompts in the Customer Data Block. The mnemonic for each of the three fields can be one to four characters in length.

When modifying the mnemonics for the three display fields, it is recommended that the real time impact be taken into consideration. Since each character, including spaces, is sent to a Meridian Modular set individually, a configuration with the maximum number of characters in each of the field headings (four characters each) affects the refresh time for each of the sets involved in the conference. This is especially important for conferences involving a large number of parties.

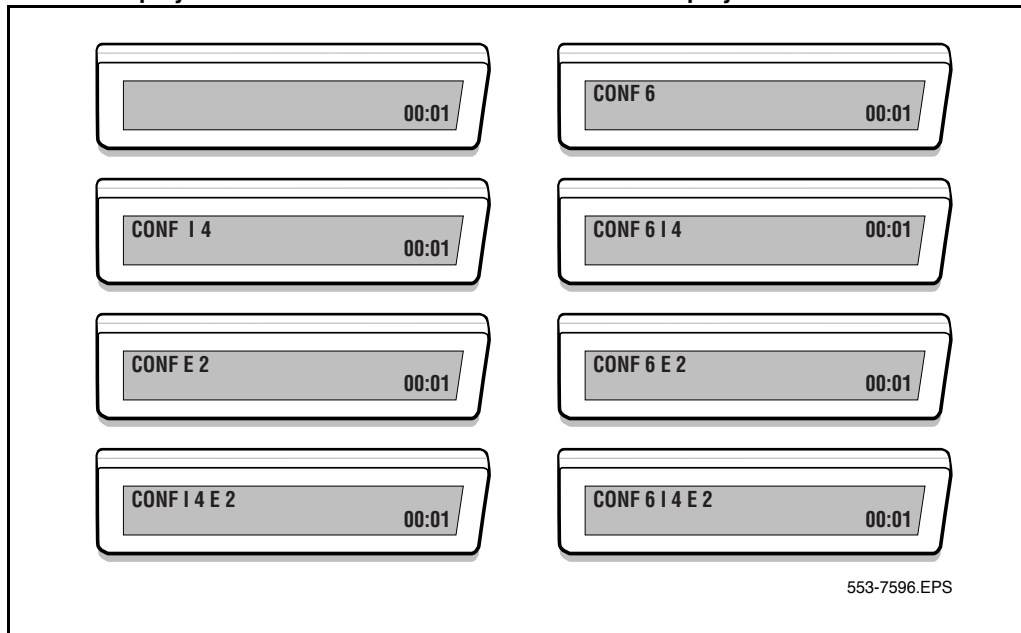
In Figure 68, a Meridian Modular set is involved in a conference consisting of five parties - three internal conferees and two external conferees. The Meridian Modular set has all three Conference Count Display fields (CNFFIELD, INTFIELD, and EXTFIELD) enabled in the Customer Data Block. Also, the Class of Service at a set level is set to Conferee Display Count Allowed (CDCA).

Figure 68
Display Screen of a Meridian Modular set with all three display fields enabled in LD 15



Eight possible Conference Count Display formats can be configured in the Customer Data Block, using a combination of the three Conference Count Display fields. Figure 69 shows the eight possible display formats for Conference Count Display. In this example, a conference has been established with a total of six conferees - four internal parties and two external parties.

Figure 69
Possible display formats of the active Conference Count Display

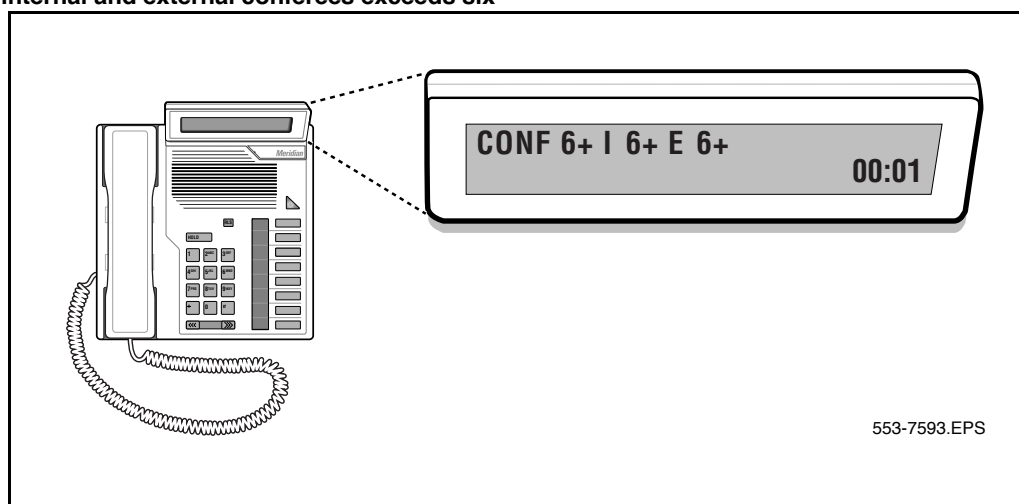


In Figure 69, the Total Conferees Count display field (CNFFIELD) is disabled in the left hand column. CNFFIELD is enabled in the right hand column. The formats in Row 1 have both the Total Internal Conferees Count display field (INTFIELD) and the Total External Conferees Count display field (EXTFIELD) disabled. In Row 2, the INTFIELD is enabled and the EXTFIELD is disabled. In Row 3, the INTFIELD is disabled and the EXTFIELD is enabled. INTFIELD and EXTFIELD are both enabled in Row 4.

Note: The Total Conferees Count display field name (CNF_NAME) is displayed when any of the CNFFIELD, INTFIELD, or EXTFIELD prompts are set to YES in the Customer Data Block.

Each display field on the screen of a Meridian Modular set shows a maximum conferee count of six. If the total number of conferees exceeds six, the Conference Count Display fields show “6+”. In Figure 70, a Meridian Modular set is involved in a conference consisting of more than six external parties and more than six internal parties. Therefore, the Total Conferees Count also exceeds six.

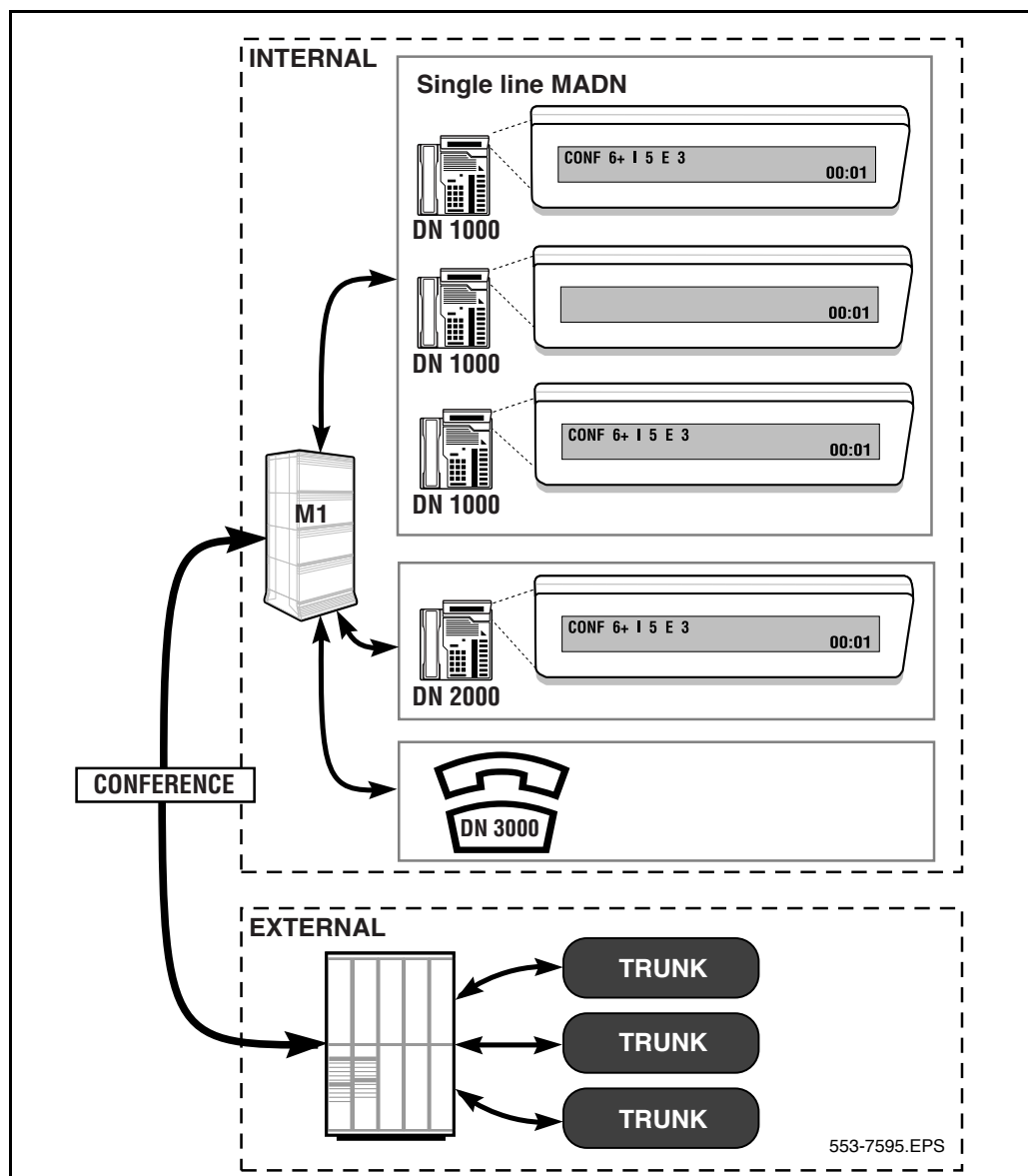
Figure 70
Display Screen of a Meridian Modular set involved in a conference where the total number of internal and external conferees exceeds six



In Figure 71, five internal sets and three external trunks are involved in an active conference. The display screens of the Meridian Modular sets contain Conference Count Display information.

Referring to Figure 71, DN 1000 is a single line Multiple Appearance Directory Number (MADN) on three Meridian Modular sets. All three sets on DN 1000 are involved in the active conference (two of the sets entered the conference via Privacy Override). One of the sets on DN 1000 has Class of Service set to Conferee Display Count Denied (CDCD) in Overlay 11; therefore, its display screen shows only the elapsed time. All other Meridian Modular sets involved in the conference have Class of Service set to Conferee Display Count Allowed (CDCA). DN 2000, a Meridian Modular set, and DN 3000, an analog (500/2500 type) set, are also involved in the active conference. All three display fields are enabled in Overlay 15.

Figure 71
Example of a Conference Scenario involving both internal and external parties



Selectable Conferee Disconnect

With Selectable Conferee Disconnect, a Meridian Modular set user scrolls through a list of active conferees, using a Conferee Selectable Display (CSD) key. The CSD key is configured at a set level.

Selectable Conferee Disconnect is activated when the CSD key is pressed during an active conference. Every conferee involved in the conference, with the exception of the CSD key user, can be displayed one at a time on the CSD key user's screen.

When the CSD key is in use, the display format of each conferee follows the existing simple two party call display. The display shows the name and extension number of the conferee. If the conferee is on a trunk, the display shows the trunk group access code and the trunk member number.

Once the CSD key is activated, the key user can selectively disconnect a displayed conferee from the conference by pressing the active call key. The active call key is the key on which the conference is established. Also once the CSD key is activated, the CSD key user can cancel the Selectable Conferee Disconnect operation by pressing the Release key.

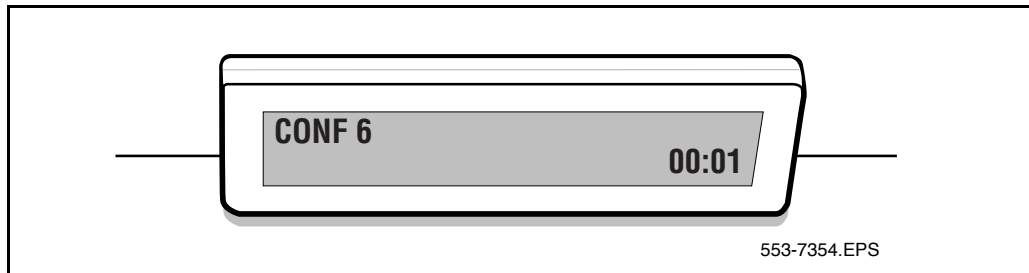
When the CSD key is pressed, the last conferee to join the active conference is displayed first. Subsequent pressing of the CSD key displays the other conferees in no particular order. With each press of the CSD key, the conferee list scrolls in a forward direction. Therefore, if the CSD key user scrolls past the desired party to be disconnected, repeated pressing of the CSD key brings the user to the desired party again.

The CSD key lamp is lit when the CSD key is activated. If, however, the displayed conferee cannot be disconnected, as in the case of an Attendant Console, the Key lamp flashes. The display screen remains unchanged and continues to show the same conferee on the display.

Figures 72, 73, and 74 show the display screen of Set A, a Meridian Modular set, as it displays and disconnects a selected conferee. Class of Service is set to CDCA in Overlay 11 and a CSD key is also configured in Overlay 11. Only the CNFFIELD is enabled in Overlay 15; therefore, only the Total Conferees Count is displayed.

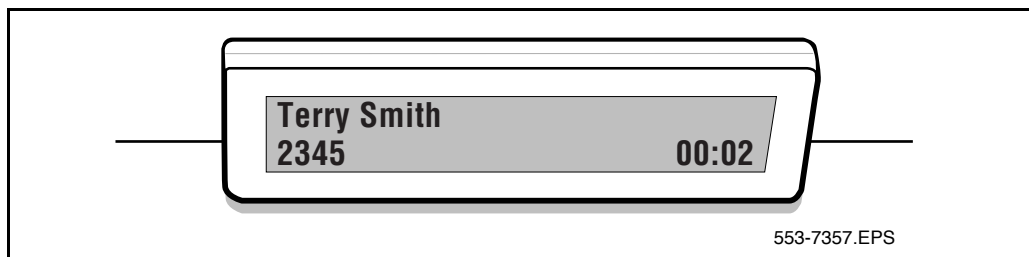
The display screen in Figure 72 shows that there is a total of six conferees involved in an active conference.

Figure 72
Display screen of Set A prior to the CSD key being activated



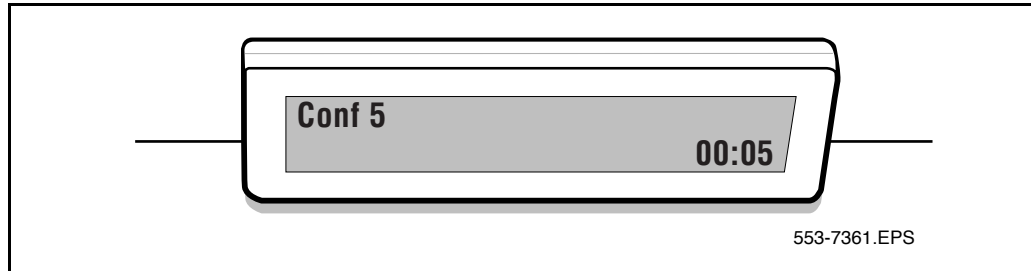
In Figure 73, Set A presses the CSD key and scrolls to conferee, Terry Smith.

Figure 73
Display screen of Set A when the CSD key is activated and a conferee to disconnect is selected



In Figure 74, Set A presses the active call key to disconnect Terry Smith. Set A's display screen is updated to show the new total conferee count status after the conferee is disconnected from the active conference. The Conference Count Displays of the other Meridian Modular sets involved in the conference are also updated. After the disconnection of Terry Smith, a total of five conferees remain active in the established conference.

Figure 74
Display screen of Set A after disconnecting the selected conferee



Operating parameters

The Selectable Conferee Display and Disconnect feature only applies to Meridian Modular sets that are equipped with a display screen. The Meridian Modular set must be participating in an active conference involving a total of at least three conferees.

Meridian Modular sets include M2008, M2016, M2616, M2216ACD1, and M2216ACD2 sets.

When conferees disconnect from an active conference, leaving only two parties in the conference call, the conference is usually converted to a simple two-party call. There are some situations, however, where the two remaining parties are still connected as a conference call. For instance, if either party is an Attendant Console or if both conferees are mixed sets with the same DN, the conference status is maintained.

The Selectable Conferee Display and Disconnect feature is not applicable to two party conferences.

Simple call display for the last two remaining parties in a conference is as per existing operation.

The method that is used to add a conferee to a conference does not affect Selectable Conferee Display and Disconnect. Some of these methods are: 3-party and 6-party Conference, Override, Attendant Barge-In, Attendant Break-In, and Bridging.

The two Selectable Conferee Display and Disconnect sub-features, Conference Count Display and Selectable Conferee Disconnect, have independent functionalities and operations.

Conference Count Display

Conferee Count Display is activated in Overlay 11 by setting Class of Service to Conferee Display Count Allowed (CDCA). At least one of the three Conference Count Display field options must also be enabled in the Customer Data Block.

In order for Class of Service to be set to Conferee Display Count Allowed (CDCA) in Overlay 11, the Automatic Digit Display (ADD) or the Delay Display (DDS) Class of Service must first be set.

A display screen with only the elapsed time showing (existing functionality) can be configured if all three Conference Count Display field options are set to NO in Overlay 15 or if Class of Service is set to Conferee Display Count Denied (CDCD) in Overlay 11.

Selectable Conferee Disconnect

Selectable Conferee Disconnect is activated by defining a Conferee Selectable Display (CSD) key in Overlay 11. Prior to defining the CSD key, however, Automatic Digit Display (ADD) or Delay Display (DDS) Class of Service must be set in Overlay 11.

Only one CSD key can be configured per Meridian Modular set.

The CSD key can only be used during an active conference call.

Each conferee (internal and external) is displayed to the CSD key user following the existing simple two-party call display. No changes are made to the features that supply and/or display the conferee's data. Some of these features are: Call Party Name Display, Calling Party Privacy, Dialed Number Identification Service, Digit Display, Display of Calling Party Denied, and ISDN Calling Line Identification.

For the display of a conferee that is on a trunk, the specific terminating set may not be shown. Therefore, when several trunks are involved in a conference, it is recommended that a record be kept of what party joins the conference on what trunk.

When a conferee uses the CSD key, the displays (if any) on the other conferee sets are not changed. Only the CSD key user can see the list of conferees.

After the CSD key is pressed, only the active call key, Release (RLS) key, or CSD key can be used. All other input is ignored.

When the CSD key is activated, if the CSD key user goes on-hook, the key user is disconnected from the call instead of the displayed conferee.

This feature does not support the use of a confirmation tone as indication that a conferee has been disconnected from the active conference.

If the system initializes or sysloads during an active conference, the conference is torn down as per existing functionality. If the CSD key is active when the system initializes or sysloads, then the key operation is canceled.

When the last party to join the conference uses the CSD key, the active conferee list has no particular order. This is because the last conferee to join the conference is the only conferee to be displayed with any priority. In this case, the last party to join the conference is the CSD key user, and the CSD key user is never displayed.

If the last conferee to join the conference is disconnected, then the next scan of the active conferee list has no particular order. The order of inclusion of each conferee is not maintained or stored beyond the last conferee to join the conference.

A conferee can be disconnected from the active conference via the CSD key at any time during the conference call.

When a key or feature key is pressed, the active conference display is replaced. The Conference Count Display is not restored until a conferee is added to or disconnected from the conference, thereby updating the conferee count. If the conference is placed on hold and then restored, the Conference Count Display appears once again.

Feature interactions

Attendant

When the CSD key is activated, the Attendant Console can be displayed as a conferee in the active conference. The CSD key cannot be used to disconnect an Attendant Console from the conference. Only the Attendant Console can release itself from a conference call.

An attempt to disconnect the Attendant Console via the CSD key causes the CSD key lamp to flash. To recover from the flashing CSD key lamp, the key user presses the Release key to cancel the CSD key operation or presses the CSD key again to scroll to the next conferee.

Attendant Barge-In

When an attendant barges into a conference, the conferees are separated. The conferees connected through the trunk that is being verified are placed on the destination (DEST) side and do not include the attendant. The other conferees are conferenced on the Source (SRC) side and include the attendant. However, all parties can communicate with each other.

Once a conference is established on the SRC and/or DEST side, the CSD key is operable. The CSD key, however, cannot be used to disconnect an attendant.

Attendant Break-In

An attendant receives an urgent call and dials the destination DN which is busy. The attendant places the urgent call on hold and then breaks into the active call by using the Break-In key. The destination DN disconnects from the current active call so that the attendant can extend the urgent call.

If the attendant breaks into a simple call, a three-party conference is established including the attendant. Once the conference is established, the new Conference Count Display is not shown. Instead, the displays on the two sets show the attendant information.

If the attendant breaks into a conference call, the attendant is added to the existing conference. Once a conference is established, involving the attendant, the new Conference Count Display is not shown. Instead, the displays of the sets show the attendant information. When the Destination DN disconnects from the active conference, the urgent call is extended to the destination DN. If the remaining parties can form a conference, the Conference Count Display is shown on those sets.

Once a conference is established, the CSD key can be used. However, the urgent call is not shown as a conferee. The attendant is shown as a conferee, but the CSD key cannot be used to disconnect an attendant.

Attendant Administration

Attendant Administration (AA) is modified in order to print the Conferee Selectable Display key when found through Overlay 71. AA cannot be used to configure a CSD key.

Meridian Integrated Conference Bridge

The Selectable Conferee Display and Disconnect feature does not change the functionality of Meridian Integrated Conference Bridge.

Automatic Call Distribution

An Automatic Call Distribution (ACD) agent or supervisor can activate Conference and No Hold Conference. If the ACD set is a Meridian Modular set equipped with a display and a CSD key, then the Selectable Conferee Display and Disconnect feature can be used.

Agent Observe

Selectable Conferee Display and Disconnect does not change the functionality of the ACD Agent Observe feature. While in the observe mode, the ACD supervisor is not part of the conference. Thus, the active conference count does not include the ACD supervisor. The Conference Count Display is not shown on the ACD supervisor's set. When the CSD key is activated, the ACD supervisor is not shown in the active conferees list.

ACD Agent Features

It is recommended that the CSD key not be assigned to agents' sets, as the CSD key can be used to disconnect a supervisor.

Alternate Call Answer

When ACAA = YES in Overlay 23, an agent can put an active Individual DN (IDN) call on hold and then press the In-Calls key to return to the idle agent queue in order to take the next call. If the agent activates Call Join, a conference is established with the agent, the IDN call, and the ACD call.

With Alternate Call Answer, once there is an active conference established with the ACD agent, an IDN call, and the ACD call, the Selectable Conferee Display and Disconnect feature is applicable.

Agent and Supervisor Communication

When the ACD agent is active in a simple call with an ACD caller and wishes to include the ACD supervisor in the call, the ACD agent presses the Answer Supervisor (ASP) key. The supervisor answers by pressing the Agent (AGT) key. In order to finish this operation, the agent presses the ASP key once the supervisor has answered.

When an ACD agent is active in a conference call with an ACD caller, the supervisor cannot be added to the conference via the ASP key.

With Agent and Supervisor Communication, once there is an active conference established, the Selectable Conferee Display and Disconnect feature is applicable.

Emergency Key

The Emergency Key (EMR) feature enables the ACD agent to conference an ACD supervisor and, optionally, a recording device for customer-defined emergencies or sensitive situations.

When the EMR key is activated, the recording trunk is not considered a member of the conference. When the CSD key is activated, the recording trunk is not included in the active conferees list. The total number of conferees on the Conference Count Display does not include the recording trunk.

ACD Display Enhancement

With the ACD Display Enhancement, the Not Ready (NRD) key cannot be pressed when using the Conference key. When a conference is established and the NRD key is pressed, the conference call is disconnected. In this case, the NRD key lamp is lit, and the 'NOT READY' screen is displayed.

When the CSD key is active, the NRD key cannot be used. Pressing the NRD key is ineffective.

ACD In-Calls Key

When a conference is established on the ACD In-Calls key, the In-Calls key is used to drop a desired conferee when the CSD key is activated. The Position Identification (POS ID) of each ACD set involved in the conference is displayed when the CSD key user scrolls through the active conferees list.

Application Module Base

The Selectable Conferee Display and Disconnect feature uses the existing messaging to disconnect a conferee. The messaging to disconnect a conferee is the same as though the conferee has gone on-hook or has pressed the Release (RLS) key to disconnect themselves from the conference.

Automatic Hold

The Selectable Conferee Display and Disconnect feature does not change the functionality of the Automatic Hold feature. Once a conference is established on the active DN key, the Selectable Conferee Display and Disconnect feature is applicable.

Basic Rate Interface

The Selectable Conferee Display and Disconnect feature is not supported on BRI sets. However, if a conferee involved in the active conference is on a BRI set, its information is shown when the CSD key is activated.

Bridging

The Selectable Conferee Display and Disconnect feature does not change the functionality of the Bridging feature.

With the Bridging feature, the same DN can appear on up to eight single-line sets. Any appearance of the MADN can enter a call by going off-hook. When a conference with three parties is created through Bridging, there are only two active DNs in the conference call. As long as there are only two different DNs in the bridged conference call, the displays on the sets show the information of the other DN involved in the call, not the Conference Count Display information. In this case, however, the CSD key can be used, as more than three conferees are active in the conference call.

Once there are more than two different DN's in the conference call, the Conference Count Display shows the count of the conferees. Once a conference is established, the CSD key is applicable.

Conference

The Selectable Conferee Display and Disconnect feature does not change the functionality of Conference, except for the new active conference display. Conference calls can include calls on the following key types: Single Call Arrangement DN (SCN, SCR), Multiple Call Arrangement DN (MCN, MCR), ACD In-Calls (ACD DN), Private Line Ringing and Non-ringing (PLN, PLR), Hotline (HOT), Call Waiting (CWT), Voice Call (VCC) and Dial Intercom (DIG).

Conference Control

The Selectable Conferee Display and Disconnect feature does not change the functionality of the Conference Control feature.

Digitone Receiver

The Selectable Conferee Display and Disconnect feature does not treat the Digitone Receiver (DTR) as a conferee when it appears on the conference loop since it appears only temporarily to provide the tone service.

Display Key

While in a conference call, the Display (DSP) key can be used to obtain information. However, the Display key is blocked when the CSD key is active.

DNIS Across Call Modifications

When a CSD key user scrolls through the list of conferees during a DNIS call, the DNIS information is displayed.

End-to-End Signaling

The Selectable Conferee Display and Disconnect feature does not block End-to-End Signaling (EES) or dialing digits while the CSD key is active.

Group Call

The Selectable Conferee Display and Disconnect feature is only applicable to the originator of a Group Call involving three or more active parties. The active conference display is not shown until a redisplay of the Group Call originator's screen is needed.

Hold

With the Selectable Conferee Display and Disconnect feature, when a Meridian Modular set equipped with display is involved in a conference, its display shows the Conference Count Display. If a Meridian Modular set puts the conference on hold by pressing the Hold key, the active DN key lamp flashes, and the display is cleared during the held operation. The Conference Count Display is restored upon completion of the held operation. The active DN key is pressed to restore the held conference call.

Meridian Link

The Selectable Conferee Display and Disconnect feature uses existing messages sent over the Meridian Link in order to provide the Conference Count Display and the Selectable Conferee Disconnect functionality.

No Hold Conference

The Selectable Conferee Display and Disconnect feature does not change the No Hold Conference (NHC) functionality. The Selectable Conferee Display and Disconnect feature is applicable to conferences created by No Hold Conference.

Override

The Selectable Conferee Display and Disconnect feature does not affect the operation of the Override (OVR) feature. The Conference Count Display is not shown for an Override conference, as the Override display is shown instead. The CSD key, however, can be used to disconnect conferees in an Override conference.

Priority Override

The Selectable Conferee Display and Disconnect feature does not affect the operation of the Priority Override (POVR) feature. The Conference Count Display is not shown for a POVR conference, as the Priority Override display is shown instead. The CSD key can, however, be used to disconnect conferees involved in a POVR conference.

Privacy

The Selectable Conferee Display and Disconnect feature does not affect the operation of the Privacy feature. With Privacy enabled, only one appearance of a single line MADN can participate in a conference call. This appearance is included in the conferee counts.

Privacy Override

The Selectable Conferee Display and Disconnect feature does not change the operation of the Privacy Override (POA) feature.

A Meridian 1 proprietary set with Privacy Override Allowed (POA) Class of Service can bridge into an established call on a single line MADN. When a conference with three parties is created through Privacy Override, there are only two active DNs in the conference call. As long as there are only two different DNs in the POA bridged conference call, the displays on the sets show the information of the other DN involved in the call, not the Conference Count Display information. In this case, however, the CSD key can be used, as more than three conferees are active in the conference call.

Once there are more than two different DNs involved in the active conference call, the Conference Count Display shows the count of conferees. The conferees that are added to the conference through POA are included in the Conference Count Display totals. Once a conference is established, the CSD key is applicable.

Tone and Digit Switch

The Selectable Conferee Display and Disconnect feature does not treat the Tone and Digit Switch (TDS) as a conferee when it appears on the conference loop, as it appears only temporarily to provide tone service.

Feature packaging

Selectable Conferee Display and Disconnect is included in base X11 System Software.

Feature implementation

LD 15 – Enable and modify the Conference Count Display Format.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Features and options.
CUST	xx	Customer number.
...		
CONF_DSP	YES	Change Conference Count Display configurations. NO = Do not change Conference Count Display configurations (default). To prompt for further conference display options, CONF_DSP must be set to YES.
- CNFFIELD	(NO) YES	Total Conferees Count display field (disabled) enabled.
- CNF_NAME	(CONF) aaaa	Total Conferees Count display field name. Enter 1-4 alphanumeric characters to replace the existing name. The Total Conferees Count display field name is displayed when any of the CNFFIELD, INTFIELD, or EXTFIELD prompts are set to YES.
- INTFIELD	(NO) YES	Total Internal Conferees Count display field (disabled) enabled.
--INT_NAME	(I) aaaa	Total Internal Conferees Count display field name. Enter 1 to 4 alphanumeric characters to replace the existing name.
- EXTFIELD	(NO) YES	Total External Conferees Count display field (disabled) enabled.
--EXT_NAME	(E) aaaa	Total External Conferees Count display field name. Enter 1 to 4 alphanumeric characters to replace existing name.

LD 11 – Set the Conferee Display Count Allowed (CDCA) Class of Service for Meridian Modular sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type where xxxx is: 2008, 2016, 2216, or 2616.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
CLS	ADD DDS	Automatic Digit Display. Delay Display. With CLS = DDS, the display is activated after the call is answered. CLS must be set to either ADD or DDS prior to setting CLS = CDCA or CDCD.
	(CDCA)	Conferee Display Count Allowed (default) CDCD = Conferee Display Count Denied. CDCD option sets a blank display screen during a conference call.

LD 11 – Add or change a Conferee Selectable Disconnect (CSD) key for Meridian Modular sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type where xxxx is: 2008, 2016, 2216, and 2616.
TN	l s c u c u	Terminal Number. For Option 11C.
...		

CLS	ADD DDS	Automatic Digit Display. Delay Display. With CLS = DDS, the display is activated after the call is answered. CLS must be set to either ADD or DDS prior to configuring a CSD key.
KEY	xx CSD	Conferee Selectable Display key. To remove the CSD key, set the KEY prompt to xx NUL, thereby disabling Selectable Conferee Disconnect.

Feature operation

Viewing the list of active conferees

To view the list of active conferees:

- 1 Press the Conferee Selectable Display (CSD) key to view the list of active conferees. Continue to press the CSD key to view each conferee. The CSD key lamp is lit. The displays on the other Meridian Modular sets involved in the conference are not changed.
- 2 Press the Release key to cancel the Selectable Conferee Disconnect operation. None of the conferees are disconnected. The CSD key lamp is dark. The Conference Count Display returns if it is enabled. The original conference call remains active throughout this operation.

Disconnecting one conferee

To disconnect a conferee using the CSD key:

- 1 Press the CSD key repeatedly until the conferee that is to be disconnected is displayed on the screen. The CSD key lamp is lit. The displays on other Meridian Modular sets are not changed.
- 2 Press the active call key (the key on which the active conference is established). The displayed conferee is disconnected. The CSD key lamp is dark. The Conference Count Display returns, if enabled, showing the revised total count of conferees. The original conference call remains active throughout this operation.

Disconnecting more than one conferee

In order to disconnect more than one conferee, follow the steps for disconnecting one conferee. Each conferee must be disconnected separately.

Note: When two CSD key users wish to drop different conferees (but not each other), each CSD key user can initiate the Selectable Conferee Disconnect operation and disconnect the selected conferee. If enabled, the Conference Count Displays on the Meridian Modular sets are revised once each Selectable Conferee Disconnect operation has concluded successfully.

Disconnecting the same conferee

Two Meridian Modular sets (Set A and Set B), both equipped with a CSD key, wish to disconnect the same conferee. The Set that presses the active call key first is successful in disconnecting the conferee. If Set A is the first set to press the active call key, its Conference Count Display is updated with the revised total count of conferees. The Conference Count Display of all other Meridian Modular sets, with the exception of Set B, are also updated. Set B's Conference Count Display is updated when it presses the active call key or when it presses the Release key to end the operation.

Verifying that a conferee has been disconnected

To verify that a conferee has been disconnected:

- View the list of conferees using the CSD key, and note whether or not the disconnected conferee is still listed.
- Check that the CSD key lamp is dark. This indicates that the Conferee Selectable Disconnect operation is complete.
- Check that the total count of conferees on the Conference Count Display has been revised on the display screen.
- If the conferee is disconnected and only two parties remain, a simple call situation is established. Therefore, the displays are updated accordingly.

Canceling the Selectable Conferee Disconnect operation

To cancel Selectable Conferee Disconnect operation at any time, press the Release key when the Conferee Selectable Disconnect operation is in progress. When the Release key is pressed, none of the conferees are disconnected, the CSD key lamp is dark, and the Conference Count Display returns (if enabled). The original conference call remains active throughout this operation.

Disconnecting from an active conference

To disconnect yourself from an active conference, press the Release key or go on-hook. In this case the original conference call remains active, as long as a supervised conference situation remains.

Semi-Automatic Camp-On

This feature allows a Camp-On call to recall to the attendant instead of ringing the called party when the called party becomes available. The called party can originate calls but cannot receive any other calls. Other incoming calls to this DN will receive a busy indication. If the called party originates another call when the attendant attempts to present the Camp-On call, the attendant receives busy tone and can initiate Camp On again or release the call.

When an attendant extends a call to a desired party that is busy, the attendant can activate Semi-automatic Camp-On by pressing the Semi-automatic Camp-On (SACP) key. This causes the call to be camped-on to the desired party, and recalled to the attendant when the desired party becomes idle, rather than rung through to the desired party.

Recall to Same Attendant must be allowed, otherwise the recall is routed to the first available attendant. The attendant display shows the calling-party DN and the party to which the call is camped-on. If the attendant, or all attendants in a multiple-console environment, are busy then the recall is placed in the attendant queue.

Meanwhile, incoming calls to the desired party receive busy treatment. The desired party, however, is still able to make calls. After receiving the recall, the attendant can ring the desired party by pressing the SACP key. The attendant may release the call while it is ringing, or hold the call until it is answered. If the desired party has made another call while the attendant tries to present the recall, the attendant may Camp-On the recall to the desired party by pressing the SACP key.

Operating parameters

The same operating parameters apply as for Camp-On.

Semi-automatic Camp-On is mutually exclusive with the Call Waiting feature. Thus, Attendant Consoles configured with Semi-automatic Camp-On will not work if Call Waiting has been defined.

Semi-automatic Camp-On can be configured for individual or all Camp-On occurrences.

Semi-automatic Camp-On is not available with Network Attendant Service. If the attendant tries to apply Semi-automatic Camp-On to a station at a remote node, the SACP lamp flashes to indicate that Semi-automatic Camp-On is not allowed. The attendant has to press the SACP key again to deactivate the feature, and be allowed to activate it under normal operation.

Semi-automatic Camp-On is not supported during Night Service or Enhanced Night Service. Calls that were camped-on by Semi-automatic Camp-On during normal hours ring through to the desired party, when idle, and do not recall to the attendant.

Feature interactions

Attendant Break-In

The attendant can Break-In to an established call and apply Semi-automatic Camp-On to the desired party. The attendant may press the SACP key before or after the Break-in.

Incoming calls during recall

During Semi-automatic Camp-On, when the desired party becomes idle and the camp-on is recalled to the attendant, the desired party appears busy to incoming calls. The DN of the desired party is displayed as busy on the Busy Lamp/Enhanced Busy Lamp display.

Periodic Camp-On Tone

Periodic Camp-On Tone stops when the camped-on call is recalled to the attendant.

Secrecy and Enhanced Secrecy

Secrecy and Enhanced Secrecy apply to Semi-automatic Camp-On recalls, with splitting taking place when the attendant answers the recall.

Feature packaging

Semi-automatic Camp-On (SACP) is package 181.

Feature implementation

LD 15 – Configure Semi-automatic Camp-On.

Prompt	Response	Description
REQ	NEW, CHG	New, or change
TYPE	ATT	Release 21 gate opener.
...		
RTSA	RSAA	Recall to Same Attendant Allowed.
SACP	(NO) SNGL ALL	Semi-automatic Camp-On. Semi-automatic Camp-On not allowed. Enable Semi-automatic Camp-On on a per-call basis. Enable Semi-automatic Camp-On for all occurrences. SACP keys must be defined on all Attendant Consoles which are to make use of the feature.

LD 12 – Configure an SACP key on the Attendant Console.

Prompt	Response	Description
...		
KEY	xx SACP	Key number, Semi-automatic Camp-On.

Feature operation

When an attendant extends a call to a desired party who is busy, the attendant can activate Semi-automatic Camp-On as follows:

- 1 Press the SACP on the Attendant Console.
The call is camped on the desired party.

The display on the Attendant Console shows the calling party's DN, and the party to which the call is camped on (the desired party).
- 2 The desired party becomes idle.
The call is recalled to the attendant.
- 3 To ring the desired party after receiving the recall, press the SACP on the Attendant Console again.

Recall timing on Camp-On calls

When any station extends an external call, recall timing will be initiated if the call is camped on to a busy station.

The recall timing will start from the moment that the extending station "releases" the call. The value of the recall timer is set by the prompt RTIM in the Customer Data Block (LD 15).

At the recall, the camped on call will be routed to the attendant. If the attendant is in Night Service, Night treatment is given; if NAS routing is active, the call will be routed according to the NAS configuration.

Standalone case

When the recall to the attendant occurs, the Camp-On is canceled. If the attendant is busy during the recall, the recall will be queued.

Network case

When the recall occurs and the attendant has answered the recall, the call will still be camped on to the desired party. If during the recall the attendant is busy, the recall will be queued.

Series Call

The Series Call feature causes a source call (either an attendant-answered incoming call, or an attendant-originated trunk call), that has been extended to an internal destination party, to be recalled to the attendant when the destination party hangs up. The attendant can then extend the source call to another destination party. This feature enables a caller to talk to more than one party without having to disconnect and call again (Recall to Same Attendant must be allowed, otherwise the recall is routed to the first available attendant). This process can be repeated for as many destinations as requested by the caller.

A Series Call is canceled if one of the following occurs:

- the attendant presses the SECL key while the associated lamp is lit
- the attendant extends the source to a trunk while the SECL lamp is lit
- the attendant enters Night Service after extending the call and prior to receiving the recall
- the destination is call forwarded to a trunk, or
- the source disconnects.

Operating parameters

The source can only be extended to an internal party.

Feature interactions

Attendant Position Busy

If the attendant activates Position Busy while a Series Call is active, the recall occurs to the next available attendant.

Timed Reminder Recall

With Timed Reminder Recall, if the attendant extends a Series Call during Camp-on, Call Waiting, or ringing, the SECL lamp goes dark.

Call Detail Recording

With Call Detail Recording, a start record is generated when a source Periodic Pulse Metering call is answered and marked as a Series Call by the attendant, and an end record is generated when the attendant releases the call. No intermediate records are generated.

Night Service

If the attendant extends a Series Call and goes into Night Service before it recalls to the attendant, the call recalls to the night DN and Series call treatment is canceled.

Feature packaging

Series Call (SECL) is package 191.

Feature implementation

LD 12 – Series Call keys must be defined for each Attendant Console to make use of the function.

Prompt	Response	Description
...		
KEY	xx SECL	Key number, Series Call.

LD 15 – Recall to the first available attendant.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT	Change Attendant Console options.
CUST	0-99	Customer number.
...		
- RTSA	(RSAD), RSAA	Recall (Denied) Allowed to Same Attendant.

Feature operation

The attendant designates the source call as a Series Call by pressing the Series Call (SECL) key. The SECL key may be pressed by the attendant while dialing, talking to the destination party, or while a call is ringing. The associated key lamp remains lit until the Series Call is canceled. If the attendant tries to extend a call to an external station, the SECL lamp flashes. The attendant has to press the SECL key to cancel the Series Call, and extend the call as a standard call extension.

Set-Based Administration

Previously, Set-Based Administration was a feature available on Meridian 1 Option 11 systems that simplified system installation and administration by enabling a set to be used to perform several administrative and maintenance procedures. With X11 Release 21 and the Set-Based Administration Enhancements feature (ADMINSET package 256), Set-Based Administration is now available for Options 21E through 81C. In addition, enhancements are provided to the existing capabilities on the Option 11.

For further information on Set-Based Administration, please refer to the *Set-Based Administration* NTP 553-3001-303.

Set-Based Administration Enhancements

Previously, Set-Based Administration was a feature available on Meridian 1 Option 11 systems that simplified system installation and administration by enabling a set to be used to perform several administrative and maintenance procedures. With the Set-Based Administration Enhancements feature, Set-Based Administration is now available for all system types. In addition, enhancements are provided to the existing capabilities on the Option 11.

To further enhance Set-Based Administration, three levels of set-based data administration access are available, having the following capabilities:

- Administrator Access allows a system administrator to make changes to any supported telephones within the same customer location. The system administrator can perform any of the following tasks through an administration/maintenance set (M2008, M2016, M2216, M2616 with display):
 - Change the data associated with specific set-related features (that is, Hunting, External Hunting, Call Forward No Answer, External Call Forward No Answer, Call Forward, Busy Forward Status, Voice Call, Dial Intercom Group, Group Call, Ringing Number Pickup Group, Speed Call, System Speed Call, and Hot Line)
 - Add or change the Calling Party Name Display (CPND) names associated with existing DNs
 - Change system date and time
 - Change toll restrictions of any set, and
 - Determine Directory Number-Terminal Number correspondence.

- Installer Access allows an installer to perform any of the following tasks to a set from which the installer is logged in:
 - Change the data associated with specific set-related features
 - Add or change the Calling Party Name Display names associated with the DN on that set
 - Change system data and time, and
 - Change toll restriction for that set.
- User Installation allows a user to add or change the user's own CPND when logging in through the user's own set.

Administrator and Installer Access are invoked by dialing the Administrator or Installer Flexible Feature Code (FFC) followed by the Administrator or Installer password. The passwords are defined on a system basis. User Access is activated by dialing the Set-Based Administration User FFC followed by the Station Control Password of the user's set.

The multi-language capability of this feature supports all languages currently supported on the Option 11. These languages are English, German, Spanish, Swedish, Canadian and Parisian French, Dutch, Italian, Danish, Portuguese, and Norwegian.

For the Option 11 the functionalities that have been offered by Set-Based Administration prior to Release 21 are now grouped under the following two tasks on the main menu, under administration access:

- Administration: provides a grouping of trunk-related options.
- Installation options: provides the same functions as before; however, it is moved to a new location on the main menu.

Since the above two capabilities are only available to Option 11, they will not be displayed on the main menu for other system types.

For more information about Set-based Administration Enhancements feature, please see *Set-Based Administration* 553-3001-303.

Short Buzz for Digital Telephones

When a call is presented to a digital telephone that is off-hook, a buzz tone is given. The duration of this secondary buzz is shortened from two seconds to an average of 0.8 seconds, with a minimum length of 0.5 seconds and a maximum length of one second.

Operating parameters

Short Buzz for digital telephones does not apply to SL-1 telephones.

Short Buzz for digital sets does not change the buzz tone given to Automatic Call Distribution (ACD) telephones on the In-calls key.

Feature interactions

Group Call

The special three-second buzz for Group Call is not affected by this feature.

Feature packaging

Short Buzz for Digital Telephones is included in base X11 system software.

Feature implementation

No change to existing configuration is required to implement this feature.

Feature operation

No specific operating procedures are required to use this feature.

Speed Call

Speed Call allows you to place calls by dialing a one-, two-, or three-digit code. You can use Speed Call for both internal and external calls. To use Speed Call, Meridian 1 proprietary telephones, and Attendant Consoles can have a Speed Call key/lamp pair.

Analog (500/2500 type) telephones can activate Speed Call by using Special Prefix (SPRE) or Flexible Feature Codes (FFC).

Analog (500/2500 type) telephones, Meridian 1 proprietary telephones, and Attendant Consoles can be designated as a Speed Call Controller (SCC) or a Speed Call User (SCU). SCCs can program the numbers to be stored (Speed Call codes) and can use the Speed Call list. SPUs cannot program Speed Call codes; they can only use the Speed Call lists.

Each stored number is assigned a Speed Call code from the Speed Call list. Each list can contain up to 1000 telephone numbers (entries). The maximum number of digits of the telephone number that can be stored in each entry is specified by the customer. Speed Call entries can be 4, 8, 12, 16, 20, 24, 28, or 31 digits long.

Operating parameters

You can define up to 255 (0-254) Speed Call lists per system. X11 Release 13 and later software allows up to 8191 (0-8190) Speed Call lists per system, as long as sufficient memory is available. The new maximum includes all combined Speed Call, System Speed Call (SSC), and Hot Line lists.

You can have as many Speed Call lists as you have available key/lamp pairs on any Meridian 1 proprietary telephone, or Attendant Console. Any number of users can be assigned to a list. Analog (500/2500 type) telephones can access only one Speed Call list. More than one Speed Call Controller can be assigned to each list, but this is not recommended.

A maximum of 31 digits for the telephone number is allowed per Speed Call list entry. An asterisk (*), which indicates a pause, and an octothorpe (#), which indicates end-of-dialing, can be programmed as part of the entry.

Speed Call list entries can be defined in LD 18 or by Speed Call Controllers. Speed Call Controllers must know the digit length (one, two, or three) required for the Speed Call codes in each list.

Feature interactions

AC15 Recall: Transfer from Meridian 1

Speed Call is supported with the AC15 Recall: Transfer from Meridian 1 on the first transfer, provided that the digits are outpulsed on the trunk after the End-to-End Signaling Delay timer expires. If the far end is not ready, the call will fail because no dial tone is detected by the Meridian 1.

Autodial Tandem Transfer

The Speed Call key cannot be used after a Centrex Switchhook Flash or during an established call to send digits out to the far site. The Speed Call key can be used only during the dialing stage.

Automatic Redial

The Automatic Redial (ARDL) feature can be activated on a call using the Speed Call (SCL) and System Speed Call (SSU/SSC) keys.

Calling Party Privacy

An outgoing trunk call initiated by dialing the Speed Call code will carry the Privacy Indicator if the CPP code followed by the normal dialing sequence is stored in the Speed Call Entry represented by the Speed Call code. The CPP code will be counted against the maximum number of digits (currently 31) allowed per Speed Call list entry.

A user can also store the CPP code in the Speed Call Entry (or Speed Call key). An outgoing CPP call can then be initiated by dialing the Speed Call code (or pressing the Speed Call key), followed by manually dialing the digits.

Direct Private Network Access

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.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Digits dialed using Speed Call are checked against the active Outgoing Call Barring (OCB) level. This includes calls made using the Dial Access to Speed Call feature (i.e., using Pilot DN).

Last Number Redial

A number dialed using Speed Call will become the Last Number Redial number on all telephones, except the M2317 and M3000.

Pretranslation

With X11 Release 18 and later, a Speed Call List number should be programmed to allow for Pretranslation. For example, if 9 pretranslates to 99 and you want to reach 99 nxx xxxx, you need to program the number in the Speed Call List as 9 nxx xxxx. When the Speed Call List is used, 9 nxx xxxx is pretranslated at call processing time to become 99 nxx xxxx.

If Pretranslation is enabled for a customer, then when a Speed Call List is assigned to a Pretranslation group within the customer, it cannot be accessed by a Meridian 1 proprietary set from within that customer group.

Speed Call Delimiter

An octothorpe (#) is required as a delimiter following an authorization code if an Electronic Switched Network (ESN) and dialed number are stored as part of the speed call key. If an octothorpe (#) is not entered then the user receives a fast busy tone. If the MSCD = YES, then the end of dial delimiter must be programmed to something other than an octothorpe (#) in LD 15.

Feature packaging

Speed Call is part of Optional Features (OPTF) package 1, and has no feature package dependencies.

Feature implementation

LD 17 – Set maximum number of Speed Call lists.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. Release 19 gate opener.
...		
- MSCL	0-8191	Maximum number of Speed Call lists.

LD 18 – Compute Speed Call list memory size and disk records (X11 Release 17). Use this prompt sequence to determine if there is enough memory and disk records for new Speed Call lists. Compare the output with the MEM AVAIL and DISK AVAIL values output before the REQ prompt.

Prompt	Response	Description
REQ	COMP	Compute disk and memory.
TYPE	SCL	Speed Call lists.
NOLS	1-8191	Number of lists to be added.
DNSZ	4-(16)-31	Maximum length of DN allowed for Speed Call list.
SIZE	1-1000	Maximum number of entries in Speed Call list.

LD 18 – Add or change a Speed Call list.

Prompt	Response	Description
REQ	NEW, CHG, OUT	Add, change, or remove a Speed Call list.

TYPE	SCL	Speed Call data block.
LNSO	0-8190	Speed Call list number.
DNSZ	4-(16)-31	Maximum number of digits in a list entry (i.e., 4, 8, 12, 16, 20, 24, 28, or 31).
SIZE	1-1000	Maximum number of entries in the Speed Call list.
WRT	(YES), NO	Data is correct and list may be updated.
STOR	xxx yy...yy	xxx = list entry number (0-9, 00-99, or 000-999). yy = digits to be stored against the entry (must be equal to or less than DNSZ).
WRT	(YES), NO	Data is correct and list can be updated.
Note: The prompt WRT follows prompts SIZE and STOR, asking you to confirm the correctness of the data just entered. If data is correct, enter YES or <CR>. A response of NO after the SIZE prompt causes all data entered to be ignored. A response of NO after the STOR prompt generates a warning message (SCH3213) indicating the data was not stored and must be reentered. A response of **** aborts the program. Only the last STOR value is lost. All previous values to which WRT was YES are saved. In X11 Release 17 and later, the following information is output with the WRT prompt, following SIZE: ADDS: MEM: xxxxx DISK: yy.y where xxxxx is the amount of protected memory and yy.y is the number of disk records required for the new Speed Call list. Check the MEM AVAIL and DISK REC AVAIL values output before the REQ prompt.		

LD 10 – Add or change Speed Call for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
FTR	SCU yyyy SCC yyyy	Speed Call User, list number (0-8190). Speed Call Controller, list number (0-8190).

LD 11 – Assign a Speed Call list to Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx SCU yyyy xx SCC yyyy	System Speed Call User key. Speed Call Controller key, where: xx = key number, and yyyy = Speed Call list number (0-8190). M3000 must use key 21. M2317 must use key 0-10 or key 21.

LD 12 – Assign a Speed Call list to an Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx SCC yyyy	Speed Call Controller, where: xx = key number, and yyyy = list number (0-8190).

Feature operation

To store Speed Call entries from a Meridian 1 proprietary telephone, or Attendant Console (Controller):

- 1 Without lifting the handset, press **Speed Call**. The indicator flashes.
- 2 Dial the Speed Call code (0-999), followed by the phone number it represents.
- 3 Press **Speed Call**. If the entry is accepted, the indicator goes off. If the entry is not accepted, the indicator continues flashing.

To make a Speed Call from a Meridian 1 proprietary telephone, or Attendant Console (User):

- 1 Lift the handset and press **Speed Call** (telephone).
 - Select an idle loop key and press **Speed Call** (Attendant Console).
- 2 Dial the Speed Call code. The telephone number represented by the Speed Call code is dialed automatically.

To store Speed Call entries from an analog (500/2500 type) telephone (Controller):

- 1 Lift the handset and press octothorpe (#) +2 (2500 telephone) or SPRE+75 (analog [500/2500 type] telephone).
- 2 Dial the Speed Call code (0-999), followed by the phone number it represents. If the entry is accepted, you hear silence. If the entry is not accepted, you hear a fast busy tone.
- 3 Hang up.

Repeat steps 1 through 3 for each entry to be stored.

To make a Speed Call from an analog (500/2500 type) telephone (User):

- 1 Lift the handset and dial #3 (2500 telephone), or SPRE 76 (Analog [500/2500 type] telephone).
- 2 Dial the Speed Call code (0-999). The telephone number represented by the Speed Call code is dialed automatically.

Note: In addition to SPRE codes your system may be equipped with Flexible Feature Codes (FFCs).

Speed Call/Autodial with Authorization Codes

This feature is an enhancement to the existing Speed Call and Autodial features. It allows a Speed Call entry to contain an Authorization Code with an associated trunk route or Electronic Switched Network (ESN) access code and dialed number. The digits stored are recorded in Call Detail Recording (CDR), if equipped, for billing purposes.

The Speed Call entry can be one of the following:

- SPRE + 6 + Authorization Code
- SPRE + 6 + Authorization Code + #, or
- SPRE + 6 + Authorization Code + # + ESN access code and dialed number.

Operating parameters

Authorization Code Conditionally Last is not supported.

An octothorpe (#) is required as a delimiter after the Authorization Code if an ESN access code and dialed number are stored as part of the Speed Call or Autodial key. If the octothorpe is not entered, the user receives a fast busy tone. The octothorpe is not stored in the CDR record.

If the system initializes before the Authorization Code is recorded by CDR, the record may be lost.

An SL-1 digital display set can display up to 16 digits. Additional digits cause the digits to scroll off the display.

The M3000 set can display up to 29 digits. Additional digits cause the digits to scroll off the display. Only one softkey, key 21, can be programmed for Speed Call.

An M2317 set can display up to 31 digits.

For Meridian 1 proprietary sets, up to 31 digits per Speed Call entry are allowed.

On digit display sets, Authorization Codes cannot be blocked from being displayed.

There is no validation of the Authorization Code until the Speed Call key is activated.

Feature interactions

There are no interactions with other features.

Feature packaging

The following packages are required to implement this feature:

- Basic Authorization Code (BAUT) package 25, or Network Authorization Code (NAUT) package 63.
- Optional features (OPTF) package 1, System Speed Call (SSC) package 34, or Network Speed Call (NSC) package 39.

Feature implementation

An Authorization Code can now be entered as part of a Speed Call list.

Feature operation

No specific operating procedures are required to use this feature.

Speed Call on Private Lines

This feature allows Meridian 1 proprietary telephone users equipped with a Private Line (PVR or PVN) key and a Speed Call (SCL) key to first access a Private Line trunk (by pressing the PVR or PVN key) and then make a speed call (by pressing the SCL key).

Operating parameters

When a Private Line call is made, recognizable Route Access Codes are absorbed from the start of every entry in the Speed Call List (e.g., if 7654 is stored as a Speed Call List entry, and 76 is a valid Route Access Code, 76 is absorbed and 54 is outpulsed).

Feature interactions

Feature interactions are the same as for the Private Line and Speed Call features.

Automatic Redial (ARDL)

The ARDL feature is activated on a number dialed using the Private Line (PVR/PVN) key and then making a speed call by pressing the Speed Call (SCL) key.

Basic/Network Alternate Route Selection (BARS/NARS)

The BARS and NARS access codes (AC1 and AC2) are not absorbed. If a user has a Speed Call list entry that includes either AC1 or AC2, this entry will not terminate correctly when used on a Private Line. The BARS or NARS access code (AC1 or AC2) will be outpulsed, causing the Public Network to either terminate the call at an unwanted location or reject the call.

Feature packaging

Speed Call on Private Lines is part of base X11 system software and requires Optional Features (OPTF) package 1.

Feature implementation

No change to existing configuration is required to implement this feature.

Feature operation

	ACTION	RESPONSE
1	User presses Private Line Ringing (PVR) or Private Line Nonringing (PVN) key.	Trunk is accessed and dial tone is returned.
2	User presses Speed Call key and enters list entry number.	The number stored against this entry is outpulsed.

Speed Call, System

System Speed Call extends the capabilities of Speed Call. In addition to abbreviated dialing, System Speed Call allows a user to temporarily override the telephone's Class of Service, Trunk Group Access Restrictions (TGARs), and code restrictions.

Analog (500/2500 type) telephones, Meridian 1 proprietary telephones, and Attendant Consoles can activate System Speed Call by using SPRE or Flexible Feature Codes (FFC).

An analog (500/2500 type) telephone can be designated as a System Speed Call User only (not Controller) and can access one System Speed Call list. Meridian 1 proprietary telephones can be System Speed Call Users (SPRE codes or key access) or Controllers (key access only). Attendant Consoles can be System Speed Call Users (dial access only) and System Speed Call Controllers (key access only).

Operating parameters

Prior to X11 Release 13 up to 255 (0-254) System Speed Call lists and regular Speed Call lists can be defined per system. X11 Release 13 and later software allows up to 8191 (0-8190) Speed Call lists, as long as sufficient memory is available. The new maximum includes all combined Speed Call, System Speed Call and Hot Line lists, 4096 (0-4095) of which can be System Speed Call lists.

System Speed Call lists can have up to 1000 entries and each entry can be up to 31 digits in length.

Restrictions applied to a telephone are ignored only for the origination of a call made through System Speed Call. Restrictions are applied if any call modification is attempted once the call is established.

System Speed Call lists can only be programmed in LD 18 or from telephones or Attendant Consoles equipped with a System Speed Call Controller key.

Prior to X11 Release 19, the technician enters each System or regular Speed Call List individually. X11 Release 19 enhances LD 18 so the technician can add or copy up to 100 System and regular Speed Call Lists at a time.

Feature interactions

Attendant Administration

System Speed Call lists can be assigned using Attendant Administration.

Authorization Code

If the Basic Authorization Code (BAUT) or Network Authorization Code (NAUT) package is equipped, a Network Class of Service (NCOS) is assigned to the System Speed Call list. The NCOS of the System Speed Call list replaces the NCOS of the Authorization code or Forced Charge Account code if it increases the Facility Restriction Level (FRL) of the code.

Basic/Network Alternate Route Selection (BARS/NARS)

If the BARS or NARS package is equipped, an NCOS is assigned to the System Speed Call list. The NCOS associated with the System Speed Call list replaces the NCOS of the telephone if it increases the Facility Restriction Level (FRL) of the user.

Calling Party Privacy

An outgoing trunk call initiated by dialing the Speed Call code will carry the Privacy Indicator if the CPP code followed by the normal dialing sequence is stored in the Speed Call Entry represented by the Speed Call code. The CPP code will be counted against the maximum number of digits (currently 31) allowed per Speed Call list entry.

A user can also store the CPP code in the Speed Call Entry (or Speed Call key). An outgoing CPP call can then be initiated by dialing the Speed Call code (or pressing the Speed Call key), followed by manually dialing the digits.

Flexible Feature Code (FFC)

With FFC, a confirmation tone is provided for Speed Call store after the end-of-dial (EOD) string is entered.

Last Number Redial

A number dialed using a System Speed Call key becomes the Last Number Redial number on all telephones, except the M2317 and M3000. A number dialed using SPRE-activated System Speed Call becomes the Last Number Redial number on all telephones. The original Class of Service and NCOS restrictions of the telephone apply when using Last Number Redial.

Pretranslation

With X11 Release 18 and later, a Speed Call List number should be programmed to allow for Pretranslation. For example, if 9 pretranslates to 99 and you want to reach 99 nxx xxxx, you need to program the number in the Speed Call List as 9 nxx xxxx. When the Speed Call List is used, 9 nxx xxxx is pretranslated at call processing time to become 99 nxx xxxx.

Feature packaging

System Speed Call (SSC) is package 34 and has no feature package dependencies.

Feature implementation

LD 17 – Set maximum number of Speed Call lists.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. Release 19 gate opener.
...		
- MSCL	0-8190	Maximum number of Speed Call lists.

LD 18 – Compute Speed Call list memory size and disk records (X11 Release 17). Use this prompt sequence to determine if there is enough memory and disk space for new Speed Call lists. Compare the output with the “MEM AVAIL” and “DISK AVAIL” values output before the REQ prompt.

Prompt	Response	Description
REQ	COMP	Compute disk and memory.
TYPE	SCL	Speed Call lists.
NOLS	1-8190	Number of lists to be added.
DNSZ	4-31	Maximum length of DN allowed for Speed Call list.
SIZE	1-1000	Maximum number of entries in Speed Call list.

LD 18 – Add or change a System Speed Call list.

REQ	NEW, CHG, OUT NEW xx, CPY xx	Add, change, or remove a single speed call list; Add or copy xx lists.
TYPE	SSC SCL	System Speed Call. Speed Call List.
LSNO	0-8190 xxxx, yyyy	Number of list to add, where: xxxx = number of list to be copied, and yyyy = number of list to receive copy.
NCOS	0-99	NCOS to be assigned to calls accessing the list.
DNSZ	4-(16)-31	Maximum number of digits in a list entry (i.e., 4, 8, 12, 16, 20, 24, 28, or 31).
SIZE	1-1000	Maximum number of entries in the Speed Call list.
WRT	(YES), NO	Data is correct and list may be updated.
STOR	xxx yy...yy	xxx = list entry number (0-9, 0-99, or 0-999). yy = digits to be stored against the entry (must be equal to or less than DNSZ).
WRT	(YES), NO	Data is correct and list may be updated.

Note: The prompt WRT follows prompts SIZE and STOR asking you to confirm the correctness of the data just entered. If data is correct, enter YES or <CR>. A response of NO after the SIZE prompt causes all data entered to be ignored. A response of NO after the STOR prompt generates a warning message (SCH3213) indicating the data was not stored and must be reentered.

A response of "*****" aborts the program. Only the last STOR value is lost. All previous values to which WRT was YES are saved.

In X11 Release 17 and later, the following information is output with the WRT prompt, following SIZE:
ADDs: MEM: xxxxx DISK: yy.y

Where xxxxx is the amount of protected memory and yy.y is the number of disk records required for the new Speed Call list. Check the "MEM AVAIL" and "DISK REC AVAIL" values output before the REQ prompt.

LD 10 – Add or change System Speed Call for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
FTR	SSU yyyy	System Speed Call user, list number (0-4095).

LD 11 – Add or change System Speed Call list for Meridian 1 proprietary telephones.

REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
SSU	yyyy	System Speed Call list number (0-4095) for dial access.
KEY	xx SSU yyyy xx SSC yyyy	System Speed Call user key. System Speed Call Controller key, where: xx = key number, and yyyy = System Speed Call list number (0-4095). Note: The M2317 and M3000 must use key 21.

LD 12 – Add or change a System Speed Call list for Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
SSU	yyyy	System Speed Call list number (0-4095) for dial access.
KEY	xx SSC yyyy	System Speed Call Controller key, where: xx = key number, and yyyy = System Speed Call list number (0-4095).

LD 20 – Print Speed Call data.

Respond to the TYPE prompt with SCL to print regular and System Speed Call lists and pretranslation.

Respond to the TYPE prompt with SSC to print the System Speed Call data block.

Feature operation

To store System Speed Call entries from a Meridian 1 proprietary telephone, or Attendant Console (Controller):

- 1 Without lifting the handset, press **Speed Call**. The indicator flashes.
- 2 Dial the Speed Call code (0-999), followed by the telephone number it represents.
- 3 Press **Speed Call**. If the entry is accepted, the indicator goes off. If the entry is not accepted, the indicator remains flashing.

To make a System Speed Call from a Meridian 1 proprietary telephone, or Attendant Console (User):

- 1 Lift the handset and dial SPRE 73 or press the System Speed Call key (telephone).

— *or* —

Select an idle loop key and dial SPRE 73 (Attendant Console).

- 2 Dial the Speed Call code.

If the Speed Call number is accepted, the telephone number represented by the Speed Call code is dialed automatically. No confirmation tone is given unless Flexible Feature Code (FFC) is implemented.

If the Speed Call number is not accepted, a fast busy signal indicates the number was rejected.

To make a System Speed Call from an analog (500/2500 type) telephone (User):

- 1 Lift the handset and dial SPRE 73.
- 2 Dial the Speed Call code (0-999). The telephone number represented by the Speed Call code is dialed automatically.

Note: In addition to SPRE codes your system can be equipped with Flexible Feature Codes.

The routine to add a call list aborts under the following conditions:

- trying to add a call list whose number is already in use, or
- trying to add multiple call lists when there is insufficient memory.

Station Category Indication

The Station Category Indication (SCI) feature allows an attendant to selectively answer internal attendant Directory Number (DN) calls on a priority basis. Stations are assigned a category, with priority indicated by an Incoming Call Indicator (ICI) lamp at each Attendant Console. Using the answering priority defined in LD 15, the attendant gives prompt attention to a call presented at a high-priority ICI lamp by selecting the associated ICI key.

Operating parameters

A maximum of seven station categories (1-7) can be assigned.

Calls from SCI 0 stations appear on the dial 0 ICI.

Calls from fully restricted stations appear on the dial 0 fully restricted ICI.

The Station Category Indication (SCI) feature should not be mixed with any other Incoming Call Indicator (ICI) assignment on the same ICI key/lamp pair.

Feature interactions

Centralized Attendant Service (CAS)

When CAS is active, calls from a remote station to the attendant DN appear on the remote ICI key/lamp pair at the CAS main, regardless of the station SCI category.

Controlled Class of Service (CCOS)

The CCOS feature has priority over SCI. A station's SCI category is suppressed when CCOS is active, and calls to the attendant DN carry the CCOS class defined in the database.

Phantom Terminal Numbers (TNs)

SCI cannot be enabled on a Phantom TN.

Feature packaging

Station Category Indication (SCI) package 80 has no feature package dependencies.

Feature implementation

LD 15 – Add or change a Station Category Indication ICI key/lamp pair for Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB	Customer Data Block.
CUST	0-99	Customer number.
ICI	0-19 CA1-CA7	Assign ICI key/lamp pair for SCI.
ICI	0-19 DL0	Dial 0 (calls from telephones in SCI 0).
ICI	0-19 DFO	Fully restricted (call from fully restricted telephones).

LD 10 – Change SCI for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
SCI	0-7	SCI number.

LD 11 – Change SCI for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
SCI	0-7	SCI number.

Feature operation

No specific operating procedures are required to use this feature.

Station Specific Authorization Code

Station Specific Authorization Code (SSAU) is available with X11 Release 19 and later, and enables the system administrator to control the level of authorization code access on a per telephone basis. SSAU applies to analog (500/2500 type) and Meridian 1 proprietary telephones; it does not apply to Basic Rate Interface (BRI) telephones.

Station Specific Authorization Code provides three levels of authorization code access:

- 1** Authcode Unrestricted (AUTU)
An AUTU telephone has no authorization code access limitations. Any authorization code is accepted and processed normally.
- 2** Authcode Restricted (AUTR)
An AUTR telephone can enter up to six assigned authorization codes. The authorization code entered must match one of the preassigned codes. Any other authorization code will be rejected and the call will not be completed.
- 3** Authcode Denied (AUTD)
An AUTD telephone has no access to authorization codes. Any authorization code will be rejected and the call will not be completed.

Operating parameters

The same authorization code can be assigned to more than one AUTR telephone.

There is cross-checking between LDs 10 and 11, which define a station specific authorization code, and LD 88, which ensures that the user has entered a valid authorization code.

LD 88, which is used to delete an existing authorization code, does not check if the authorization code is assigned as a station specific authorization code before the deletion.

The Station Specific Authorization Code feature does not apply when the authorization code is prompted from a tandem node.

Feature interactions

Attendant Administration

Station Specific Authorization Code does not support Attendant Administration.

Authorization Code

Users cannot freely enter authorization codes from telephones that have AUTR or AUTD Class of Service.

Autodial

The SSAU feature treats stored autodial numbers as if they were entered at the telephone.

Speed Call

The SSAU feature treats stored speed call numbers as if they were entered at the telephone.

Feature packaging

Station Specific Authorization Code (SSAU) is package 229, which requires Basic Authorization Codes (BAUT) package 25.

Feature implementation

LD 88 – Create Authorization Code data block (AUB).

Prompt	Response	Description
REQ	NEW	Create.
TYPE	AUB	Authcode data block.
CUST	0-99	Customer number.

SPWD	xxxx	Secure data password.
ALEN	1-14	Number of digits in authcodes.
ACDR	YES, NO	Activate CDR for authcodes. There is no default.
RANR	0-511	RAN route number for "Authcode Last" prompt (NAUT).
CLAS	(0)-115	Class code value assigned to authcode (NAUT).
COS	aaa	Class of Service.
TGAR	(0)-31	Trunk Group Access Restrictions.
NCOS	(0)-99	Network Class of Service.
AUTO	YES, NO	Automatically generate authcodes.
- SECR	0-9999	Security password (NAUT).
- NMBR	1-9999	Number of authcodes to be generated.
- CLAS	(0)-115	Class code value assigned to authcode (NAUT).

LD 88 – Create an Authorization Code Table.

Prompt	Response	Description
REQ	NEW	Create.
TYPE	AUT	Authorization Code Table.
CUST	0-99	Customer numbers.
SPWD	xxxx	Secure data password.
CODE	xxxx	Authcode (number of digits must equal ALEN).
CLAS	(0)-115	Class code value assigned to authcode (NAUT).

LDs 10/11 – Activate SSAU.

Prompt	Response	Description
REQ	NEW, CHG	Add,or modify.
TYPE	aaaa	Telephone type, where: aaaa = 500, 2500, SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
CLS	(AUTU), AUTR, AUTD	Authcode unrestricted. Authcode restricted. Authcode denied.
MAUT	(NO), YES	Modify assigned authcodes for this telephone.
SPWD	xxxx	Correct security password (if one is defined).
AUTH	x nnnn	x is in the range of 1-6; nnnn is the assigned authcode (a valid authorization code defined in LD 88).
	X x	X x deletes an assigned authcode.
Note: Changing an AUTR telephone to AUTU or AUTD clears all assigned authcode information previously defined for that telephone.		

LD 20 - Security Password.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	xxx	Type of data block.
TN	l s c u	Terminal Number
CDEN	SD, DD, 4D, 8D	Card density requested.
CUST	xx	Customer Number.

SPWD	xxxx	Valid Security data password to display SSAU.
Note: Once SPWD is prompted, a valid security data password as defined in the customer data block is required for displaying Authorization (AUTH) information for sets with Class of Service Authorization Code. Sets with Class of Service Authcode Unrestricted (AUTU) and Authcode Denied (AUTD) do not have AUTH information for display. Entering of a carriage return at the SPWD prompt will result in the AUTH information being skipped during printing.		

In LD 20, Security Password (SPWD) will not be prompted if any of the following conditions exists:

- the Station Specific Authcode Package 220 is not equipped,
- the response to the TN prompt is more than one specific TN,
- the response to the TN prompt is a unique TN, but the customer of this TN does not have a security data password defined,
- the response to the CUST prompt is not a specific customer, or
- the response to the CUST prompt is a specific customer number but the customer does not have a security password defined.

Feature operation

After an authorization code is entered, the Station Specific Authorization Code feature determines if the set is allowed to use the entered code. If the authorization code is not allowed on that set, the existing invalid authorization code treatment occurs. Otherwise, normal authorization code processing occurs.

Station-to-Station Calling

Station-to-Station Calling allows direct dialing between station users in the same customer group without the assistance of the attendant.

Operating parameters

There are no feature requirements.

Feature interactions

Manual Line Service

If a single line telephone has been assigned a Manual Line Class of Service, the telephone automatically rings the attendant when it goes off-hook.

Private Lines

You must go over the public network to reach a Private Line. The software PRDN is not meant to be dialed directly.

Feature packaging

Station-to-Station Calling is included in base X11 system software.

Feature implementation

No change to existing configuration is required to implement this feature.

Feature operation

No specific operating procedures are required to use this feature.

Stored Number Redial

Stored Number Redial (SNR) allows telephones and Attendant Consoles to store one previously dialed number of 4 to 31 digits for automatic redialing.

Depending on the type of telephone, the number can be stored before a call is placed, during Ringback, while the number is busy, or during an active call. On Attendant Consoles, the number can be stored only before a call is placed. Stored Number Redial (SNR) is not supported on M2317 telephones, M3000 Touchphones, or analog (500/2500 type) telephones serving as Private Lines.

Operating parameters

When a number is stored, it overwrites any previously stored number.

Storage is limited to one number per analog (500/2500 type) telephone and one number per SNR key. When a call is established through a Tandem TIE Trunk Network (TTTN), the user is required to pause for dial tone. When you store a number using SNR, automatic redialing may fail because required delays are not added. It is possible to include delays in the outpulsing by dialing the asterisk (*) in the original digit string where dial tone is expected. Each asterisk (*) signifies a three-second delay in outpulsing.

The three-second delay is not available from a 500-type telephone.

During the stored Number Redial (SNR) programming mode, if the user attempts to store more digits than the maximum number defined for the telephone or console, SNR programming is canceled and overflow tone is returned. During an active call on a Meridian 1 proprietary telephone, if a user attempts to store more digits than the specified limit, the SNR operation fails, the previously stored number remains unchanged, and a failure indication is not given. The SNR indicator remains off.

For analog (500/2500 type) telephones, in order to store a number dialed to a busy DN, the maximum length of the stored number must be at least five digits (see prompt FTR RDL xx in LD 10).

Feature interactions

Authorization Code

Charge Account

Forced Charge Account

The Authorization, Charge Account, and Forced Charge Account codes are not stored. To store a code, dial the code prior to using Stored Number Redial to dial the call.

Automatic Redial (ARDL)

The ARDL feature can be activated on a call using the Stored Number Redial (RDL) key.

Calling Party Privacy

During Stored Number Redial (SNR) programming, a user can store the CPP code followed by the normal dialing sequence in the SNR data space.

Outgoing calls originated by the SNR feature will send the Privacy Indicator to the far end. The CPP code will be counted against the maximum number of digits (currently 31) allowed by the SNR feature.

During an active call on a Meridian 1 proprietary telephone, the Stored Number Redial feature will store the CPP code in the SNR data space if the CPP code was included in the number dialed by the originator. The outgoing redialed calls will send the Privacy Indicator to the far end.

End-to-End Signaling (EES)

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.

Multi-Party Operations

For analog (500/2500 type) telephones, the Last Number Redial/Stored Number Redial feature can be used when normal or special dial tone is received. The last number redialed that can be stored is the first call of a consultation connection, and can be stored only after the connection is completely released.

Feature packaging

Stored Number Redial (SNR) is package 64 has no feature package dependencies.

Feature implementation

LD 10 – Add or change SNR for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XFD), XFA	Call Transfer (denied) allowed.
FTR	RDL xx	Activate SNR, where: xx = the maximum number of digits that can be stored (i.e., 4, 8, 12, (16), 20, 24, 28, 31).

LD 11 – Add or change SNR for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, or 2616.
TN	l s c u	Terminal Number.
KEY	xx RDL yy	Add an SNR key, where xx = key number, and yy = the maximum number of digits that can be stored (i.e., 4, 8, 12, (16), 20, 24, 28, 31).

LD 12 – Add or change SNR for Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx RDL	Add an SNR key.

Feature operation

Attendant Consoles, Meridian 1 proprietary telephones

To store a number prior to dialing (for Attendant Consoles, and Meridian 1 proprietary telephones):

- 1 Without lifting the handset, press **Stored No.**
- 2 Dial the number.
- 3 Press **Stored No.** again. The number is stored, replacing any previous one.

To store a number during Ringback, while the number is busy, or during an active call (for Meridian 1 proprietary telephones only):

- Press **Stored No.**

To call a stored number:

- 1 Press **DN** (Meridian 1 proprietary telephones) or the Loop key (consoles).
- 2 Press **Stored No.** The number is dialed.

Analog (500/2500 type) telephones

To store a number prior to dialing:

- 1** Lift the handset.
- 2** Dial SPRE 78, or the Flexible Feature Code (FFC) assigned for SNR.
- 3** Dial the number to be stored.
- 4** Hang up. The number is stored, replacing any previous one.

To store a number before a call is placed, during Ringback, while the number is busy, or during an active call:

- 1** Flash the switchhook or press **LINK**.
- 2** Dial SPRE 78, or the FFC assigned for SNR.

To call a stored number:

- 1** Lift the handset.
- 2** Dial SPRE 79, or the FFC assigned for SNR. The number is dialed.

Supervised Analog Lines

The Supervised Analog Lines feature provides two types of call supervision signaling capabilities: battery reversal answer/disconnect supervision; and hook flash disconnect supervision. These forms of supervision are provided to terminal devices connected to analog ports in the Meridian 1 system.

Battery Reversal Supervision

Battery reversal answer and disconnect supervision signaling is used for calls originating from the terminal device. It provides both far-end (i.e., the called party) answer supervision and far-end disconnect supervision signals to the terminal device. It does not apply to incoming calls terminating at the terminal device.

In the idle state, the analog port in the Meridian 1 provides ground signal on the tip lead and battery on the ring lead. This polarity is maintained during dialing and ringing at the far end. When the far end answers, the battery and ground connections are reversed. The reverse battery is maintained while the call is established. When the far end disconnects, the battery and ground connections are reverted to the idle state to signal that the far end has disconnected. If the terminal device disconnects first, the Meridian 1 sends the Deactivate Battery Reversal Scan Signal Distribution (SSD) message to the firmware after receiving the on-hook status to revert the polarity to its idle state.

Two types of battery reversal are supported. Battery Reversal for Absolute Answer Only provides an answer supervision signal to the terminal device only when the Meridian 1 detects an absolute answer. Battery Reversal for Absolute and Assumed Answer provides an answer supervision signal to the terminal device even when an assumed answer is detected and the far end is not capable of indicating definite answer (e.g., an outgoing call on an unsupervised loop start trunk).

Hook Flash Disconnect Supervision

Hook flash disconnect supervision is used for incoming calls terminating at the terminal device. The disconnect signal is indicated by the removal of the ground connection to the tip lead for a specific period of time, which is provided by firmware ranging from a minimum of 10 milliseconds to a maximum of 2.55 seconds. The analog port is held busy for incoming calls while hook flash is in progress.

Operating parameters

This feature applies to Intelligent Peripheral Equipment that support the Supervised Analog Line feature only.

Supervised Analog Lines require NT1R20AB off premise line cards. However, NT5D11AA or NT5D14AA line cards may also be used.

Disconnect supervision is not provided to the terminal device if the Meridian 1 does not receive any indication of the far end releasing.

If the Meridian 1 does not receive any answer indication, and answer supervision is not extended to the terminal device following an assumed answer condition, disconnect supervision cannot be extended when the far end disconnects.

If the Battery Reversal Supervision feature is configured for an analog line on an analog card that does not support battery reversal, the battery reversal SSD messages from the Meridian 1 software are ignored by the analog card firmware. In this case, no battery reversal signal is extended to the terminal device.

If the Hook Flash Disconnect Supervision feature is configured for an analog line on an analog card that does not support hook flash, the hook flash SSD messages from the Meridian 1 software are ignored by the analog line card firmware. In this case, no hook flash signal is extended to the terminal device.

If the system initializes while an outgoing call originating from an analog line is established and battery reversal is activated, unprotected data is lost. In this case, battery reversal remains activated when the call is cleared down by either party. However, the line status is reverted to normal when the next outgoing call is answered and then cleared down.

If the hook flash timer is set equal to or greater than the on-hook timer, activation of the hook flash disconnect signal also causes the card to send an on-hook message and then an off-hook message to the Meridian 1. In this case, if the user remains off-hook after the far end disconnects, dial tone is received and an outgoing call can be initiated.

Feature interactions

Call Transfer

If more than one active call is extended to an analog line, the call type associated with an analog line is determined by the first active call. The call type is assumed to be incoming and hook flash supervision applies if a terminal device answers an incoming call from an idle state. If the terminal device performs a switch hook flash to put the first party on hold and initiates a consultation call, the Battery Reversal feature is not supported; no battery reversal answer signal is extended to the terminal device when the second party answers.

If the first party disconnects while the terminal device is connected to the second party, no disconnect supervision is extended to the terminal device. However, hook flash disconnect supervision is extended to the terminal device when the second party disconnects (i.e., a disconnect supervision signal is sent only when the last party connected to the terminal disconnects).

If a terminal device originates an outgoing call, battery reversal answer supervision is extended when the called party answers. The polarity of the line remains reversed when the terminal device performs a switch hook flash and then initiates a consultation call to a second party. The analog line is reverted to normal polarity when the terminal device completes the transfer and drops out or when the last of either the held party or the consultation party disconnects.

Conference

If a terminal device answers an incoming call and then initiates a conference, no battery reversal answer supervision signal is extended to the terminal device when new parties of the conference answer. However, a hook flash disconnect supervision signal is extended to the terminal device when the last party in the conference disconnects.

If a terminal device initiates a conference, battery reversal answer supervision is extended to the terminal device when the first party answers. No polarity change is made when additional parties are added to the conference. The polarity is reverted to normal when the terminal device disconnects or when the last party in the conference disconnects.

Multi-Party Operations

As in the cases with Call Transfer and Conference, the call type of the first active call determines whether battery reversal or hook flash supervision applies. Also, supervision signaling is not supported for the second call. A disconnect supervision signal is extended only when the last party disconnects.

Feature packaging

The Supervised Analog Lines feature is included in base X11 system software.

Feature implementation

LD 10 – Enable battery reversal supervision.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Telephone type.
TN	I s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
FTR	OSP (1)	Outgoing call supervision. Answer and disconnect supervision for outgoing calls with absolute and assumed answer indication. If the numeric parameter is not entered and the saved value is null, it is defaulted to 1. Otherwise it remains unchanged.
	OSP 2	Answer and disconnect supervision for outgoing calls with absolute answer supervision only.
	XOSP	Enter XOSP to disable battery reversal answer and disconnect supervision.

LD 10 – Enable hook flash disconnect supervision.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	500	Telephone type.
TN	I s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
FTR	ISP 1...(75)...255	Enable hook flash disconnect supervision with flash timer in 10 millisecond units. If the numeric parameter is not entered and the saved value is null, it is defaulted to 75. Otherwise it remains unchanged.
	XISP	Enter XISP to disable hook flash disconnect supervision.

Respond to the FTR prompt in LD 10 with OSP 1, and then with ISP 1...(75)...255 to enable both battery reversal supervision and hook flash disconnect supervision.

Feature operation

No specific operating procedures are required to use this feature.

Telephones

There are several different types of telephones you can use in the Meridian 1 system. Regular telephones are compatible with the Meridian 1 system, as well as several special business telephones designed specifically to take advantage of the many features available.

This module provides an overview of the telephones and a description of the basic features and services. Additional information regarding related software features is found in other modules of this document.

“Meridian 1 proprietary telephones” is used as a generic term and includes the SL1, M2000 series telephones, the M2317 telephone, the M3000 Touchphone and Meridian Modular Telephones, which are all configured using LD 11.

Analog (500/2500 type) telephones

Analog (500/2500 type) telephones are regular telephones not normally associated with a business environment, but they are compatible with the Meridian 1 system. They are configured by using LD 10. The 500-type telephones have a rotary dial. The 2500-type telephones are the basic push-button models, such as the Link and Unity, which do not have feature buttons normally found on business telephones.

Although analog (500/2500 type) telephones do not have feature keys, you can access various system features using Special Prefix (SPRE) codes. SPRE codes are also useful for Meridian 1 proprietary telephones to access features without using feature keys. Dial the SPRE code (unique to each customer within the system) and then the feature code that applies to the operation you desire.

Table 131 lists the feature codes available using SPRE.

Table 131
Feature codes used with SPRE (Part 1 of 2)

Dial SPRE +	Operation performed
1	Ring Again
2	Cancel Ring Again
3	Ringling Number, Call Pickup
4	TAFAS (Trunk Answer From Any Station)
5	Charge Account for CDR
6	Authorization Code Access
70 + ACOD + mmm (Trunk Route Access Code and Member)	Trunk Verification From Station
71 + DN	Call Park, To Park
72 + DN	Call Park, To Retrieve
73	System Speed Call, To Use
74	Call Forward activate or cancel (500-type telephones)
75 + Entry Access Code + DN (500-type telephones)	Speed Call, Individual To Program Entry
76 + Entry Access Code (500-type telephones)	Speed Call, Individual To Use Entry
77	Permanent Hold (500-type telephones)
78	Stored Number Redial, To Store
79	Stored Number Redial, To Redial
81	Automatic Set Relocation
83	Malicious Call Trace
84	Integrated Messaging System
86 + x (status)	Room Status
86 + 1	Cleaning Request
86 + 2	Cleaning In Progress
86 + 3	Room Cleaned

Table 131
Feature codes used with SPRE (Part 2 of 2)

Dial SPRE +	Operation performed
86 + 4	Passed Inspection
86 + 5	Failed Inspection
86 + 6	Cleaning Skipped
86 + 7	Not For Sale
87	Disconnect Trunk, Conference 6 (analog (500/2500 type) telephones)
89	Last Number Redial
91	Access to maintenance programs by Maintenance Telephone
92	Terminal Diagnostics, telephones and Attendant Consoles
93	Conference Circuit Testing
94	Ringing Number, Group Pickup
95	Ringing Number, DN Pickup
96	Centrex Switchhook Flash
97	Unassigned Automatic Call Distribution (ACD) analog (500/2500 type) telephone Log in/out
98	Unassigned ACD analog (500/2500 type) telephone Activate/deactivate Not Ready

Table 132
2500-type telephone features (no SPRE code used)

# + 1 + DN	Call Forward
# + 2 + Speed Call code + DN	Speed Call, Individual, To Program Entry
# + 2 + Speed Call code + *	Speed Call, Individual, To Erase Entry
# + 3 + Speed Call code	Speed Call, Individual, To Use Entry
# + 4	Permanent Hold

SL-1 telephones

The SL-1 telephone is designed specifically for the Meridian 1 system and allows the user to access many system features. All SL-1 telephones are equipped with a 12-key dial pad, 10 feature keys and three fixed control keys. Table 133 summarizes the different models of SL-1 telephones.

Table 133
SL-1 telephones

Set type	Comments
QSU1	No display.
QSU3	Same as QSU1, with a 16-character display window.
QSU6	Same as QSU1, with two headset or handset jacks. Intended for Automatic Call Distribution (ACD) operations.
QSU7	Same as QSU3, with two headset or handset jacks. Intended for Automatic Call Distribution (ACD) operations.
QSU60	Similar to QSU1, with minor alterations for the U.S. market.
QSU61	Similar to QSU3, with minor alterations for the U.S. market.
QSU71	The Meridian M1109 telephone. Similar to the QSU1, with built-in Handsfree.

The SL-1 telephone is designed to accommodate various add-on modules to increase its functionality. Table 134 lists the modules you can add on to an SL-1 telephone.

Table 134
Add-on modules available for SL-1 telephones

Add-on module	Description	Comments
QMT1	10 key/lamp strip	Requires additional power
QMT2	20 key/lamp strip	Requires additional power
QMT3	Lamp Field Array	Requires additional power
QKK1	Handsfree Interface kit	Requires additional power
QKK3	Automatic Handsfree Interface kit	Requires additional power
QKK8	Answerback Interface kit	QSU71 only
QKN1	Headset interface kit	
QSAM3	Group listening switch	Allows caller to be heard through set's loudspeaker
QMT15	Amplified Handset	Requires Current Limiting Kit (P0630408)
QKM13	Light Probe Kit	For sight-impaired users

M2000 series digital telephones

M2000 series digital telephones are available on X11 Release 7 and later software. They are designed to provide integrated voice and data communication. Use the M2000 Asynchronous Data Option to make data calls. There are three models in the M2000 series:

- M2009 has nine programmable keys;
- M2018 has 18 programmable keys; and
- M2112 has 11 programmable keys and one fixed Handsfree key.

M2000 series digital telephones are not designed for use in an ACD environment.

M2317 digital telephones

The M2317 digital telephone is available on X11 Release 9 and later software. It is equipped with a two-line (40 characters per line) liquid crystal display (LCD) screen and integrated Handsfree. To make data calls, you need an M2000 Asynchronous Data Option.

Five soft, or screen-dependent, keys are located beneath the display screen. These keys, when operated, activate the function that the screen describes as being accessible. Each softkey is associated with a label, seven characters wide, on the display screen immediately above the key.

Softkeys are designated as key numbers 17 through 29. When the M2317 is configured in the system software, certain default features are automatically assigned to the softkeys. Some features cannot be added to the softkeys. See Table 135 for a description of softkey feature assignments.

Key 11 automatically defaults to Handsfree and cannot be assigned. Keys 12 through 16 and key 18 are reserved for future development and cannot be assigned. The second appearance of a data DN must be assigned to key 10 on the voice TN for keypad dialing.

Table 135
M2317 softkey feature assignments

Key No.	Mnemonic	Feature
Default feature assignments:		
11		Handsfree/mute
17	PRK	Call Park
23	AO6	Conference 6
24	CPN	Calling Party Number
Note: Default key assignments are activated only if the feature is part of your software package, the feature is defined for this customer, and the feature is allowed for the telephone.		

Table 135
M2317 softkey feature assignments

Key No.	Mnemonic	Feature
25	CHG	Charge Account
26	TRN	Call Transfer
27	RGA	Ring Again
28	PRS	Privacy Release
29	LNG	Language
Keys reserved for specific features (programmed in LD 11):		
19	RNP	Ringin Number Pickup
20	MWK	Message Waiting
21	SSU, SSC SCU, SCC	Speed Call or System Speed Call
22	CFW	Call Forward
Note: Default key assignments are activated only if the feature is part of your software package, the feature is defined for this customer, and the feature is allowed for the telephone.		

M3000 Touchphone

The M3000 Touchphone is available on X11 release 7 and later software. It is a digital, integrated voice/data telephone with a touch-sensitive liquid crystal display (LCD) screen and integrated Handsfree. An M3000 Asynchronous Data Option provides data call capability.

All features are displayed on the screen and are accessed by touching the appropriate name on the screen. The M3000 can display a number of online feature descriptions and operating instructions in user-friendly language.

The M3000 has a directory that can store from 150 to 450 numbers (up to 28 digits) and names (up to 15 characters) that you can access by simply touching the screen. You can search the directory or scroll the display up or down, and dial the desired telephone number by touching the name on the screen.

The M3000 Touchphone is not designed for use in an ACD environment.

When the M3000 is configured in the system software, certain default features are automatically assigned to the telephone. Table 136 gives information on feature key assignments.

The second appearance of a data DN must be assigned to key 17 on the voice TN for keypad dialing.

Table 136
M3000 feature key assignments (Part 1 of 2)

Key No.	Mnemonic	Feature
0-5	SCR	Single Call Ringing
	MCR	Multiple Call Ringing
	DIG	Dial Intercom Group
	PVR	Private Line Ringing
	COS	Controlled Class of Service
6-16		Reserved for future development
17	SCR	Second appearance of data DN (if CLS = DTA)
18	SIG	Manual Signaling (Buzz)
19		Reserved for future development
20	MWK	Message Waiting
21	SCU	Speed Call User
	SCC	Speed Call Controller
	SSU	System Speed Call User
	SSC	System Speed Call Controller
22	CFW	Call Forward All Calls

Table 136
M3000 feature key assignments (Part 2 of 2)

Key No.	Mnemonic	Feature
M3000 default feature assignments:		
23	AO6	Conference 6
24	CWT	Call Waiting
25	CHG	Charge Account
26	TRN	Call Transfer
27	RGA	Ring Again
28	PRS	Privacy Release
29		Reserved for future development
30	MSB	Make Set Busy
31	PRK	Call Park
32	CPN	Calling Party Number
33	ARC	Attendant Recall
34	OVR	Override
35	AAK	Automatic Answerback
36	DSP	Display
Features not supported by the M3000:		
	NHC	No Hold Conference
	CS	Combined No Hold Conference and Speed Call
	DPU	Directed Call Pickup
	GRC	Group Call
	GPU	Group Number Pickup
	VCC	Voice Call
Note: Default key assignments are activated only if the feature is part of your software package, the feature is defined per customer, and the feature is allowed in Class of Service.		

Meridian Modular Telephones

The Meridian Modular Telephones are available with X11 Release 14 and later software. They are designed to provide cost-effective integrated voice and data communication capability. These telephones communicate with the Meridian 1 and SL-100, using digital transmission over standard twisted-pair wiring. Table 137 summarizes the different models of Meridian Modular Telephones.

When a modular telephone is equipped with either a display or data option, a PROGRAM key (key 5 for M2006, key 7 for all remaining modular telephones) is automatically assigned to the upper right-hand feature key. This feature provides user control over such display features as screen format, contrast and language. It also provides user control over such parameters as transmission speed, parity and terminal mode.

Table 137
Meridian Modular Telephones

Set type	Programmable keys	Additional comments
M2006	6	Single-line only
M2008	8	Multi-line
M2616	16	Programmable Handsfree
M2016S	16	Telephone Security Group Class II approved
M2216ACD-1	16	ACD Display module and two RJ-32 headset jacks
M2216ACD-2	16	ACD Display module; one RJ-32 and one PJ-327 headset jack

The Meridian Modular Telephones are designed to accommodate various add-on modules to increase their functionality. Table 138 lists the modules you can add on to a Meridian Modular Telephone.

Table 138
Add-on modules for Meridian Modular Telephones

	M2006	M2008	M2016S	M2616	M2216ACD-1	M2216ACD-2
Display		x	x	x	Standard	Standard
Key Expansion Module			x	x	x	x
Programmable Data Adapter	x	x	x	x	x	x
External alerter interface	x	x		x	x	x
Note: In this table, x indicates available add-ons for the telephone listed along the top row.						

M2006

The M2006 is a digital single-line telephone that provides on-hook dialing, volume control, Release and Hold keys and a Message Waiting indicator. In addition, it provides four or five programmable feature keys (five if the data option is not in use). It also has a one-way speaker and a programmable data option.

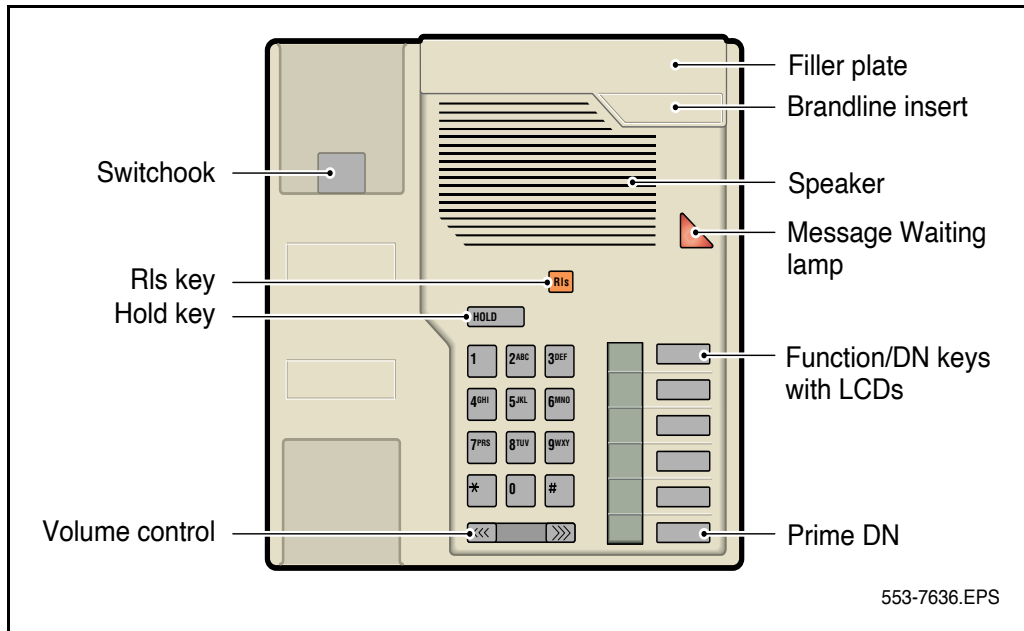
The M2006 can have an optional external alerter interface, which connects to any standard remote alerting device.

The M2006 works off any digital line card.

Figure 75 shows the M2006 telephone.

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Figure 75
M2006 telephone



M2008

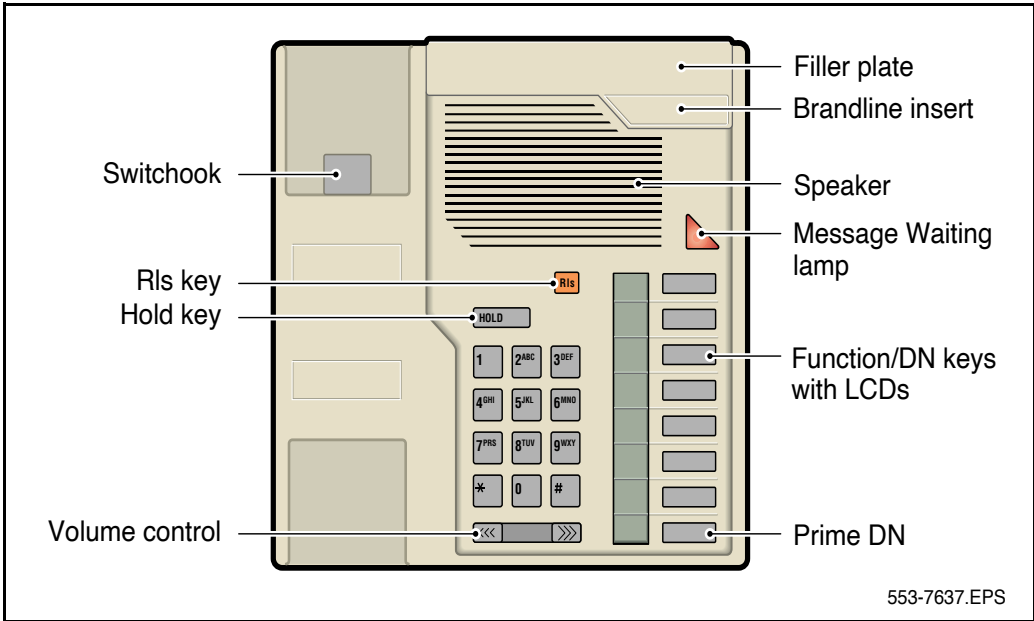
The M2008 digital telephone has eight programmable feature/line keys, on-hook dialing, volume control, Release and Hold keys and a Message Waiting indicator.

The M2008 also supports the programmable data adapter, alphanumeric display and external alerter interface options.

Figure 76 shows the M2008 telephone.

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Figure 76
M2008



M2616, M2216 (Models 1 and 2)

The M2616 telephone has 16 programmable feature/line keys, on-hook dialing, volume control, Release and Hold keys, Message Waiting indicator and Handsfree/mute features. It supports up to two add-on modules (each of 22 keys), an alphanumeric display option (two lines of 24 characters each), programmable data adapter and an external alerter interface.

The M2216 Model 1 and the M2216 Model 2 are almost identical to the M2616 with the following exceptions:

- They have no switchhook because they are designed for plug-in handset or headset operation.
- Display is standard rather than optional.

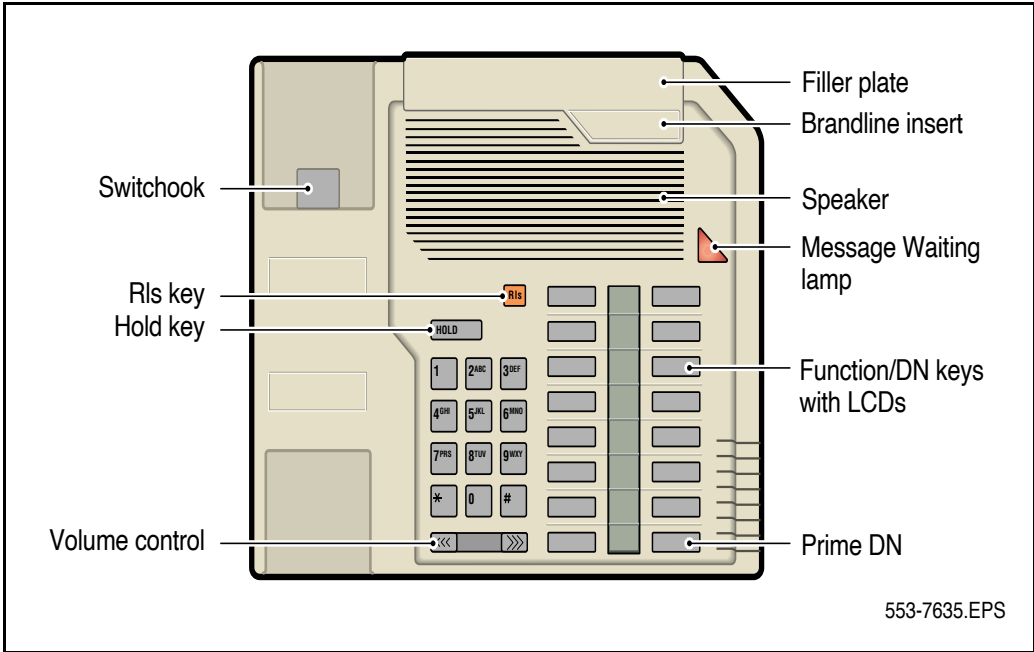
Model 1 and Model 2 refer to the types of headsets with which the M2216 operates.

Release 22 Enhancements to M2216 Voice Parameters

With Release 22, the receive voice parameters on the M2216 can be increased up to 6 decibels. To program this capability, the ACD Set Objective Loudness Rating (AOLR) must be configured in LD 17. See “LD 17 – Meridian Modular Telephones related prompts and responses for X11 Release 22 and later” on page 1837.

Figure 77 shows the M2616 telephone.

Figure 77
M2616 telephone



Related documentation

Refer to the following publications for additional information on telephones and add-on modules.

- *Meridian 1 telephones description and specifications* (553-3001-108);
- *Digital telephone line engineering* (553-2201-180);
- *Telephone and Attendant Console Installation* (553-3001-215); and
- X11 input/output guide.

Operating parameters

Refer to the preceding Northern Telecom publications.

Feature interactions

Refer to the preceding Northern Telecom publications.

Feature packaging

Analog (500/2500 type) telephone and SL-1 telephone capabilities are included in base X11 system software.

Digital Sets (DSET) package 88 has no feature package dependencies (Meridian M2000 series telephones).

M2317 telephone (DLT2) package 91 requires Digital Sets (DSET) package 88.

M3000 Touchphone (TSET) package 89 requires Digital Sets (DSET) package 88.

Meridian Modular Telephones (ARIE) package 170 requires Digital Sets (DSET) package 88, and M3000 Touchphone (TSET) package 89.

Feature implementation

LD 15 – Add, or change an existing Special Prefix Code (SPRE).

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options.
CUST	xx	Customer Number.
SPRE	xxxx	Special Prefix number. The prefix must not conflict with the numbering plan.

LD 10 – Add or change analog (500/2500 type) telephone.

Prompt	Response	Description
REQ:	NEW, CHG	Add, or change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
CDEN	SD, (DD), 4D	Card density (single, double, quad). This prompt appears only if no units on the card have been defined.
DES	a...x	Set designator (1-6 characters, alphanumeric).
CUST	xx	Customer number.
DN	xxx...x	Directory number.
TGAR	0-xx	Trunk Group Access Restriction.
CLS	aaa	Class of Service mnemonics for feature assignment.

LD 11 – Add or change Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	NEW, CHG	Add, or change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
CDEN	SD, DD, 4D	Card density (single, double, quad). Not prompted for octal density. This prompt appears only if no units on the card have been defined. Card density must be 4D if TYPE is not SL-1.
DES	a...x	Designator (1-6 characters, alphanumeric).
CUST	xx	Customer number.
AOM	(0)-2	Number of key expansion modules. Prompted if TYPE = 2016, 2216, or 2616.
KLS	1-7	Number of key/lamp strips (SL-1 telephones only).
TGAR	0-xx	Trunk Group Access Restriction.
CLS	aaa	Class of Service mnemonics for feature availability.
KEY	xx aaa yyy...y	DN and feature key assignment (key number, feature mnemonic, directory number if applicable).
Note 1: A Message Waiting Allowed (MWA) Class of Service must be defined to enable the message waiting lamp. Note 2: Key 7 (key 5 for M2006) is reserved for the PROGRAM key (M2008, M2016S, M2216ACD, M2616) only if display or data is equipped.		

LD 17 – Meridian Modular Telephones related prompts and responses.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATRN	Release 19 gate opener.
ATRN	(NO), YES	Change transmission parameters for Meridian Modular or Aries telephones.
- CODE	(0)-2	CODEC coding law.
- SOLR	(0)-4	Sidetone Objective Loudness Rating.
- ROLR	(0)-12, 32-50	Receive Objective Loudness Rating.
- TOLR	(0)-63	Transmit Objective Loudness Rating.
Note: Default settings are recommended. See <i>Summary of transmission parameters</i> (553-2201-182) before changing these parameters.		

LD 17 – Meridian Modular Telephones related prompts and responses for
X11 Release 18 and later.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATRN	Release 19 gate opener.
ATRN	(NO), YES	Change transmission parameters.
- CODE	(0)-2	CODEC Coding Law.
- SOLR	0-(1)-4	Sidetone Objective Loudness Rating.
- ROLR	(0)-63	Receive Objective Loudness Rating.
- AOLR	(0)-12 32-50	2216 ACD Set Objective Loudness Rating.
- TOLR	(0)-63	Transmit Objective Loudness Rating.
- AGCD	(NO), YES	Automatic Gain Control disabled.
Note: Default settings are recommended. See <i>Summary of transmission parameters</i> (553-2201-182) before changing these parameters.		

LD 17 – Meridian Modular Telephones related prompts and responses for X11 Release 22 and later

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATRN	Release 19 gate opener.
ATRN	(NO), YES	Change transmission parameters.
- CODE	(0)-2	CODEC coding law.
- SOLR	0-(1)-4	Sidetone Objective Loudness Rating.
- ROLR	(0)-63	Receive Objective Loudness Rating.
- AOLR	(0)-12 32-50	2216 ACD Set Receive Objective Loudness Rating.
- TOLR	(0)-63	Transmit Objective Loudness Rating.
- AGCD	(NO), YES	Automatic Gain Control disabled.
Note: Default settings are recommended. See <i>Summary of transmission parameters</i> (553-2201-182) before changing these parameters.		

LD 11 – Add data TN to Meridian Modular telephones.

Prompt	Response	Description
REQ:	NEW	New.
TYPE:	aaaa	Telephone type, where: aaaa = 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
DES	a...x	Set designator (1-6 characters alphanumeric).
CLS	aaa	Class of Service mnemonics for feature availability.
DTYP	IOS	Inbound/outbound data station.

ADCP	(NO), YES	All digital connection prefix.
KEY	xx aaa yyy...y	DN and feature key assignment (key number, feature mnemonic, directory number if applicable). Note: Recommended key assignments for data TN are: Key 0 = DN (for data) Key 1 = DN (secondary) Key 2 = TRN (Transfer) Key 3 = ADL xxxx (Auto Dial Directory Number) Key 4 = RGA (Ring Again) Key 5 = SSC, Sc u, SSC, SSU (Speed Call, System Speed Call, controller or use – not available on M2006), and Key 6 = DSP (Display key for M2008, M2016S, M2216ACD, M2616).

LD 11 – Add data TN to SL-1 telephones with data module.

Prompt	Response	Description
REQ:	NEW	New.
TYPE:	SL1	SL-1 telephone.
TN	l s c u	TN location (loop, shelf, card, unit). Unit number equals the voice TN unit number plus eight.
	c u	For option 11C.
CUST	xx	Customer number.
CLS	WTD	Warning Tone Denied.
KEY	xx aaa yyy...y	DN and feature key assignment (key number, feature mnemonic, directory number if applicable). Note: Recommended key assignments for data TN are: Key 0 = DN (for data) Key 1 = DN (secondary) Key 2 = TRN (Transfer) Key 3 = ADL xxxx (Auto Dial Directory Number) Key 4 = RGA (Ring Again) Key 6 = SSC, SSU (Speed Call controller or user), and Key 9 = Rls (Release).

Feature operation

Refer to the appropriate Telephone User Guide for more information on how to operate your telephone sets.

Time and Date

The Time and Date feature provides the capability to display or modify the system time and date from the Attendant Console. If Display Time or Display Date keys are installed on the console, pressing the respective key causes the time or date to be shown on the digit display. However, these keys only allow information to be displayed, not changed.

The Change Time or Change Date keys allow the attendant to change the time or date. When a change is made, the system clock is altered to the new values. The change keys also allow display of the time or date.

Operating parameters

The Time and Date feature is available with QCW, M1250, and M2250 consoles.

If the Change Time (MTM) and Change Date (MDT) keys are provided on a console, there is no need to for the Display Time (DTM) and Display Date (DDT) keys because the MTM and MDT keys provide the display capability. DTM and DDT keys are used when the console is only allowed to view, but not change, the time and date.

When using the MTM and MDT keys, the date must be entered in the day, month, and year format; and the time must be entered in the 24-hour clock format. This is true even if the M1250 or M2250 has selected a different date and time format.

The M1250 and M2250 consoles continuously show the time and date on line one of the display. The attendant can change the format of time and date by using the Options menu.

The M1250 attendant can also change the date and time by using the Options menu. However, this only changes the time and date on the console and does not change the system clock. The MTM and MDT keys are required to change the system clock.

The date and time are downloaded to the M2250 console from the system clock and cannot be changed by the Options menu. The change time and date keys are required.

A call cannot be answered while the display/change key is activated; however, the keys can be used once the call is established.

Feature interactions

Hold

Loops used when updating time or date cannot be put on hold.

Feature packaging

Time and Date (TAD) package 8 has no feature package dependencies.

Feature implementation

LD12 – Assign Time and Date keys on Attendant Consoles.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT, 1250, 2250	Console type.
TN	l s c u	Terminal Number.
KEY	xx DDT xx DTM xx MDT xx MTM	Add a Display Date key. Add a Display Time key. Add a Display/Change Date key. Add a Display/Change Time key. Note: The range of key numbers (xx) is 0-19 on the M2250 console, and 0-9 on all other consoles.

Feature operation

To view the Time, press **Display Time (DTM)**.

To view the Date, press **Display Date (DDT)**.

To change the time, follow these steps:

- 1 Select an idle loop key.
- 2 Press **Change Time (MTM)**.
- 3 Enter the time using the 24-hour clock for hours and minutes (00 00).
- 4 Press **Change Time (MTM)**.
- 5 Press **Rls**.

To change the date, follow these steps:

- 1 Select an idle loop key.
- 2 Press **Change Date (MDT)**.
- 3 Enter the date using two digits for day, month, and year (dd mm yy).
- 4 Press **Change Date**.
- 5 Press **Rls**.

Tones and Cadences

A tone is the frequency and level of the sound produced while the telephone is ringing, providing dial tone, or providing feature activation tones. A cadence defines the time duration for the on and off phases of a ringing or tone cycle.

A set of basic tones and cadences is available on all systems. Flexible Tones and Cadences (FTC) package 125 in X11 Release 16 allows the tones to be changed.

Basic Tones and Cadences

Special dial tone

Special dial tone is supplied by the system to indicate a request for Call Transfer, Conference, and Ring Again. Special dial tone differs from regular dial tone in that it has three 128 ms interruptions at the beginning of the tone.

Overflow tone

Overflow tone can be provided on an optional basis to a station user who tries to access a trunk group when all trunks are busy, or who attempts to access features that are unavailable to their telephone. Overflow tone is best described as a fast busy signal.

Tone buzzing

Tone buzzing is used in conjunction with such features as Call Waiting and Manual Signaling (Buzz) to alert the user by a buzz tone through the telephone's loudspeaker. This applies when the telephone is off-hook or has a headset plugged in.

Flexible Tones and Cadences

X11 Release 16 introduces the Flexible Tones and Cadences (FTC) feature, allowing the system to adapt to tone specifications of different countries. Tones such as dial, special dial, busy, ringback, overflow, test, normal, and distinctive ringing are hardware controlled from the Tone and Digit Switch (TDS) circuit card (see Table 139). Tones such as camp-on, call waiting, intrusion, and override are software controlled, although the basic tone is still coming from the TDS card (see Table 140).

The desired cadences for the software controlled tones are defined by providing the system with the time length of the on and off phases. Software also controls ringing for analog (500/2500 type) telephones, although the voltage is supplied by the ring generator card.

The tone data is stored in tables. Every customer and route must select which tone table to use. Table 0 is filled in with default hexadecimal codes when the first customer is created and must not be changed.

All data related to the flexible tones is kept in isolated areas called Flexible Tone tables. Software Cadence tones and Master Cadence tables have an index into the MCAD table for its corresponding software cadence.

Most of the cadences are expressed in multiples of five milliseconds (ms). Therefore, in addition to the existing 128 ms timing mark, a 96 ms timing mark is introduced by a new read only memory (ROM) pack with new firmware.

Refer to *Flexible Tone and Digit Switch cards description* (553-2711-180) for complete details.

Operating parameters

The tones that can be produced are limited to the tones available on the particular TDS card being used.

Gradual level change is not allowed when a tone is activated.

If the Distinctive Ringing package is equipped, and a trunk route is classmarked for that feature, the cadence chosen for each call comes from the same tone table as for a normal call. The Distinctive Ringing field determines the cadences.

If a parked call was originally distinctive, and FTC is equipped, the Call Park Recall cadence takes precedence. If FTC is not equipped, the distinctive precedence ringing is given.

Because Enhanced Flexible Tones and Cadences (EFTC) is an enhancement to Flexible Tones and Cadences (FTC), the FTC package must be equipped.

A customer option determines whether the cadence will be defined by the originating or the terminating end of the call.

Feature interactions

Audible Reminder of Held Call

This feature allows for a definable cadence as a reminder of a held call. With an analog (500/2500 type) telephone, the cadence is determined by the customer's Flexible Tones and Cadence (FTC) table for the holding party. Ringing on an analog (500/2500 type) telephone is not affected by definitions for the Incoming Route option. The cadence for the reminder, and the duration between reminder rings, is always defined within the customer's tone table.

Call Forward Reminder Tone

The Call Forward Reminder Tone feature provides a way to determine whether the call forwarding feature on an analog (500/2500 type) telephone is active. For systems equipped with the FTC package, the Call Forward Reminder Tone Allowed option gives the dial tone defined by CFDT to a 500 or 2500 telephone that has CFW active with no message waiting and the dial tone defined by CFMW to a 500 or 2500 telephone that has CFW active and a message waiting. To get different Call Forward and Call Forward Message Waiting reminder dial tones, it is necessary to define a distinct tone and cadence for CFDT and a distinct tone and cadence for CFMW in LD 56, as well as to specify Call Forward Reminder Tone Allowed in LD 15.

Call Park Recall and Group Call Ring

Recall Ring and Group Call Ring are given special entries in the FTC table. New entries are added to the FTC overlay (LD 56) to define the cadence for Meridian 1 proprietary, and analog (500/2500 type) telephones. The new Recall Ring entry is used to ring a telephone when recalling a Parked Call.

Conference Warning Tone Enhancement

There are no changes to the limitations to cadence numbers entry values. The same restriction still applies.

Ringing Based on Incoming Route

Enhanced Flexible Tones and Cadences (EFTC) allows the route's tone table to determine the cadence and ringing frequency for incoming calls.

10-Phase Cadence

Programming of software controlled cadences expands with EFTC from 4 intervals to 10, offering greater versatility with the cadences and cadence phases. This affects all cadences under software control.

Feature packaging

Flexible Tones and Cadences (FTC) package 125 has no feature package dependencies.

Feature implementation

Refer to *Flexible Tone and Digit Switch cards description* (553-2711-180).

Table 139
Hardware controlled tones (Part 1 of 2)

Tone	Description
Dial tone	Indicates the system can accept dialing.
Message Waiting dial tone	Indicates a message is waiting at the message center.
Call Forward dial tone	Indicates that the user has call forwarded the phone.
Call Forward Message Waiting dial tone	Indicates that the user has call forwarded the phone and a message is waiting at the message center.
Control Dial tone	Used for broker service to indicate a control digit is required after the switchhook (only for 2500-type telephones with Digitone class of service).
Busy tone	Indicates that the called DN is busy.
Ringback tone	Given to the calling party while the called party is ringing. Also given to Central Office trunks waiting for the DN to answer.

Table 139
Hardware controlled tones (Part 2 of 2)

Tone	Description
ACD RGA Ringback tone	Given to a caller to an Automatic Call Distribution (ACD) group when entering the waiting call queue and having RGA (Ring Again).
Overflow tone	Indicates that the trunk route is busy, or the DN is blocked or disabled, or that a not-allowed action has been carried out.
LDN tone	Indicates to a Centralized Attendant Service (CAS) attendant that the incoming call is a Listed DN (LDN) call from a remote site.
Camp-On tone	Provided as an initial burst when the attendant extends a call to a busy DN that is not equipped with the Call Waiting feature.
Camp-On Confirm tone	Confirms to a CAS attendant that a call to a busy DN at remote site has camped on, or that the called DN has not answered after a specified time and the calling party has come back.
Dial "0" Recall tone	Indicates to a CAS attendant that a call is a recall occurring due to attendant recall or call forward busy to an attendant from a remote site.
Hold Confirm tone	Indicates to a CAS attendant that a call placed on silent hold has timed out and is recalling.
Test tone	Provided during testing of trunk circuits.
Distinctive Ring tone	Used to differentiate between routes.
Normal Ring tone	Provided for internal calls and incoming calls if distinctive ringing or precedence ringing is not in use.

Table 140
Software controlled tones

Tone	Description
Agent Observe tone	Given to an agent being observed by a supervisor.
Call Waiting tone	Indicates to a busy station that another call is coming in.
Intrusion tone	Provided when the attendant initiates the Barge-In, Busy Verify, or Break-In feature.
Override tone	Provided when a user operates the Override key and enters the conversation of a busy extension.
Observe Blocking tone	Given to the supervisor who encounters blocking while attempting to observe an agent.
Off-Hook Queuing tone	Given to the call originator when the call enters the off-hook queue.
Set Relocate tone	Given after all information needed to relocate the phone is given and proven to be correct. Also given to indicate all is correct after plugging the phone back in at the relocated Terminal Number (TN).
Telset Messaging Alert tone	Indicates to caller that Telset messaging facilities have been entered.
Telset Messaging OK tone	Indicates to caller that the message has been received correctly and everything is fine.
Tel Status Update tone	Indicates a successful status update process.
Special Dial tone	Indicates the availability of a special function such as Conference, Transfer, etc.
Expensive Route Warning tone	When Automatic Route Selection is in use, indicates that all inexpensive routes are busy and an expensive route must be chosen to complete the call.
ACD Call Force tone	Indicates to the ACD agent that the current call has been disconnected and a new caller is about to be given to the agent.

Feature operation

No specific operating procedures are required to use this feature.

Tones, Flexible Incoming

When a telephone is off-hook, the user is alerted to a second incoming call by a buzz tone. Flexible Incoming Tones (FIT) allows the replacement of the standard buzz tone with a buzz with an on/off cadence. This feature is defined on an individual telephone basis.

When a call is presented to a telephone in any of the following situations, a tone with a special cadence alerts the user:

- Call on DN key while busy on another DN
- Call to a station that is off-hook
- Call Park recall when station is busy on another DN
- Call on Group Call key while busy on another call
- Call Waiting, and
- Call on Dial Intercom key while busy on another call.

The buzz cadence is the same as the ringing cadence that applies to a particular kind of call. For example, if a user receives a call that is a Group Call, FIT alerts users with a buzz cadence unique to group calls. If the user receives a call on the Call Waiting key, FIT provides a buzz cadence signifying call waiting.

Operating parameters

Flexible Incoming Tones applies only to Meridian 1 proprietary telephones.

Flexible Incoming Tones does not apply to the following:

- Automatic Call Distribution (ACD) call forcing
- ACD agent receiving a call on ASP key
- ACD supervisor receiving a call on AMG key
- Manual signaling
- Signal Source activated by an Attendant Console, and
- Ring Again.

Digital telephones in Handsfree mode receive the regular buzz, even if FIT is enabled.

The telephone buzzes with a cadence only if the customer and telephone options are activated. If either option is off, the telephone receives the standard buzz.

Feature interactions

Automatic Call Distribution (ACD)

If an ACD agent telephone has FIT allowed and either is off-hook in the handset mode or has the headset plugged in, the agent receives a buzz cadence when a new call is presented. If FIT is not allowed, the agent telephone receives the standard buzz tone.

Dial Intercom Groups

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

Flexible Incoming Tones is included in base X11 system software.

Feature implementation

LD 15 – Allow or deny Flexible Incoming Tones (FIT) at the customer level.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- OPT	(SBD), SBA (DBD), DBA	FIT (denied) allowed for SL-1 sets. FIT (denied) allowed for Meridian digital telephones.

LD 11 – Allow or deny Flexible Incoming Tones for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(FITD), FITA	Flexible Incoming Tone (denied) allowed.

Feature operation

No specific operating procedures are required to use this feature.

Trunk Barring

The Trunk Barring feature provides the option of denying or allowing a direct or modified connection between customer defined routes.

Trunk Barring works in conjunction with Route Access Restriction Tables (ARTs) defined in LD 56. Trunk Barring is applied on a route basis. The four route categories that Trunk Barring recognizes, and the types of routes in each category, appear in the following table:

Route Category	Route Types
Central Trunk Office (COT)	COT, FEX, WAT
Direct Inward Dialing	DID
TIE	TIE, CAA, CAM, CSA
Other trunk types	ADM, DIC, MDM, PAG, RCD

Trunk Barring applies to all methods of connecting the trunks (e.g., dialing route access, call modification, or attendant extension). A route is allocated an Access Restriction Table (ART) linked by a table number (ART number) in the Route Data Block. The ART to be used for a connection is determined by the first trunk in the connection independent of whether the trunks are incoming or outgoing. The first trunk in the connection is referred to as the Originating Trunk Connection (OTC).

A default table exists so that LD 56 does not have to be used to assign an ART number to a newly created route. If the default value for each Route Category is ART number 0, no trunk barring will occur.

Operating parameters

When activated in conjunction with the Route Access Restriction Tables, Trunk Barring prohibits previously allowed connections. Previously restricted connections cannot be lifted or circumvented by Trunk Barring.

Trunk Barring does not apply to Recorded Announcement (RAN), Music (MUS), Automatic Wake-Up (AWU), or Centralized Attendant Service (CAS) trunks as it is inconsistent with their defined purposes.

Feature interactions

Access Restrictions

Trunk Barring is at the top of the hierarchy for access restrictions.

Attendant-Extended Calls

When an attendant attempts to extend an Originating Trunk Connection on a barred route, overflow tone is given.

Call Forwarding

If an Originating Trunk Connection is forwarded to a barred route, the caller receives the intercept treatment specified in the Customer Data Block.

Call Transfer

The originator of a call transfer, unless otherwise restricted, is able to connect to a denied party on a consultation basis. Operating the Transfer key on a Meridian 1 proprietary set or going on-hook on an analog (500/2500 type) set does not result in a call transfer if the Originating Trunk Connection is barred. The user of a Meridian 1 proprietary set remains connected to the denied party until releasing the connection and returning to the held Originating Trunk Connection. The user of an analog (500/2500 type) set is re-rung by the Originating Trunk Connection when a transfer is attempted and denied.

Conference Calls

The originator of a conference call can only connect to a barred route on a consultation basis. A switchhook flash from an analog (500/2500 type) set results in a re-established connection with the Originating Trunk Connection. The user of a Meridian 1 proprietary set must release the barred connection to return to the Originating Trunk connection, or the conference containing the Originating Trunk connection; operating the Conference key on a Meridian 1 proprietary set has no effect. An attendant can return to the Originating Trunk Connection, or the conference containing the Originating Trunk Connection, by releasing the barred connection. This is done by pressing the RLS DEST key; pressing the Conference key has no effect.

Direct Trunk Access

When an Originating Trunk Connection attempts a trunk connection to a route which is restricted by its Access Restriction Table, the connection is not allowed. The intercept treatment specified in the Customer Data Block is applied.

Network Alternate Route Selection (NARS)/Basic Alternate Route Selection (BARS)

If one route is barred, the system will look for the next route in the Route List Index (RLI) and if this route is not barred, the call will go through on this route. If the second route is barred, the system will continue searching the next route in the Route List Index, until an unbarred route is found.

When implementing Trunk Barring caution must be exercised not to circumvent the intended NARS/BARS restrictions.

Toll Operator Break-In

Trunk Barring results in intercept treatment for all route types that can be barred, except Toll Operator Break-In.

Trunk to Trunk Connection

Trunk Barring takes precedence over the Trunk to Trunk Connection feature.

Feature packaging

Trunk Barring (TBAR) is package 132.

Feature implementation

In most cases that require barring, only one ART is necessary, although multiple ARTs may be defined per route. Whenever a new route is created (in LD 16), the default ART defined for that route type is assigned to the route. This default depends on the route type being created.

The flexibility of assigning ART by route is also available. The default table which specifies which ART table is to be assigned to a route type is changeable in LD 56. Until this is done, the default ART is used.

The following is a guideline on how to set up Trunk Barring

- 1** Gather all information regarding the type of route to be used in the Meridian 1 system.
- 2** For each route type, list beside it the route types that are barred from connecting to it.
- 3** For each route type, assign a code number from 1 to 63. Look for the route types that are barred from accessing the same types and assign the same code number to them. If a route type is not barred from accessing any other route type, it is assigned code number 0.
- 4** When each route type is assigned a code number, go back to step 2 and replace the route types that the route is barred from accessing with their code number.
- 5** Using LD 56, create all necessary Access Restriction Tables (ARTs). Using the code number of the originating route type as the ART number, deny the necessary route type using the code numbers assigned in the previous step.
- 6** Assign each ART to a route in one of two methods:
 - a** Use LD 56 to create the Route Category Default Table (RCDT). As each route is created using LD 16, it is assigned the default ART according to route type.
 - b** Use LD 56 to assign to existing routes the desired ART.

The following is an example of how to set up trunk barring using the procedures listed above. This example is not reflective of the typical situation, but is only used to show the steps involved.

List all route types.

- COT
- TIE
- DID
- PAG
- DIC
- RAN – ignore because it cannot be barred.
- MDM

List route types to which the originator is barred access.

- COT is not barred from accessing any type.
- TIE is barred from accessing COT, PAG, DIC, and DID.
- DID is barred from accessing TIE, DIC, and MDM.
- PAG cannot be originator, but can be barred by other route types.
- DIC cannot be originator, but can be barred by other route types.
- MDM is barred from accessing COT, DID, PAG, and DIC.

Assign each originating route type a code number from 0 to 63.

- COT is assigned 0 (it is not barred access to any route type).
- TIE is assigned 1.
- DID is assigned 2.
- PAG is assigned 0 (this cannot be an originating route, but it can be barred by other route types).
- DIC is assigned 0 (this cannot be an originating route, but it can be barred by other route types).
- MDM is assigned 3.

Replace the route types the originator is barred from accessing with their code numbers.

- COT (ART 0) – not barred.
- TIE (ART 1) – is barred from accessing 0, and 2.
- DID (ART 2) – is barred from accessing 0, 1, and 3.
- PAG/DIC (ART 3) – not barred.
- MDM (ART 4) – bars 0, and 2.

Set up the Route Category Default Table (RCDT)

- COT 0.
- TIE 1.
- DID 2.
- OTH 0 – MDM will initially be assigned ART 0 like DIC and PAG, but can be changed using the RART prompt.

LD 56 – Modify trunk barring Access Restriction Tables (ARTs).

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	TBAR	Add or change Access Restriction Table(s) (ARTs).
ART	(0)-63	Select ART to add or change. If ART table 0 is defined, no restrictions apply.
	<CR>	Return to REQ prompt.
DENY	yyy yyy	Enter ART numbers denied to Originating Trunk Connection (OTC).
	ALL	Deny all ARTs to OTC.
	xALL	All ART numbers allowed to OTC.
	Xyyy Xyyy	Enter ART numbers allowed to OTC, or change to remove previously blocked connections.
	<CR>	Return to REQ prompt with no table being stored.

LD 56 – Change, or print ART number for the route.

Prompt	Response	Description
REQ	CHG, PRT	Change or Print. Note: REQ = NEW, or OUT is disallowed for RART.
TYPE	RART	Change ART number for the route.
CUST	(0)-99	Customer number.
ROUT	(0)-127	Route number.
ART	(0)-63	ART to assign to route(s). If ART table 0 is defined, no restrictions apply.
	<CR>	Return to REQ prompt. ART remains unchanged.

LD 56 – Change, or print the route category default table.

Prompt	Response	Description
REQ	CHG, PRT	Change or Print. Note: REQ = NEW, or OUT is disallowed for RCDT.
TYPE	RCDT	Change the route category default table.
COT	(0)-63	COT, FEX, and WAT routes are assigned the entered ART when the route is created in LD 16.
DID	(0)-63	DID routes are assigned the entered ART when the route is created in LD 16.
TIE	(0)-63	CAA, CAM, CSA, and TIE routes are assigned the entered ART when the route is created in LD 16.
OTH	(0)-63	ADM, DIC, MDM, PAG, and RCD routes are assigned the entered ART when the route is created in LD 16.
	<CR>	Return to the REQ prompt.

Feature operation

No specific operating instructions are required by the user. Barring is implemented via service change by a qualified technician. If the connection is not allowed, intercept treatment defined by the ACCD prompt in LD 15 is implemented.

Trunk to Trunk Connection

The Trunk to Trunk Connection feature introduces the following capabilities: transfer on ringing of external trunk across the network, transfer of one supervised outgoing external trunk to another, conference of external trunks and outgoing trunk to trunk charging. These capabilities are available on an analog (500/2500 type) set, Meridian 1 proprietary set or an Attendant Console.

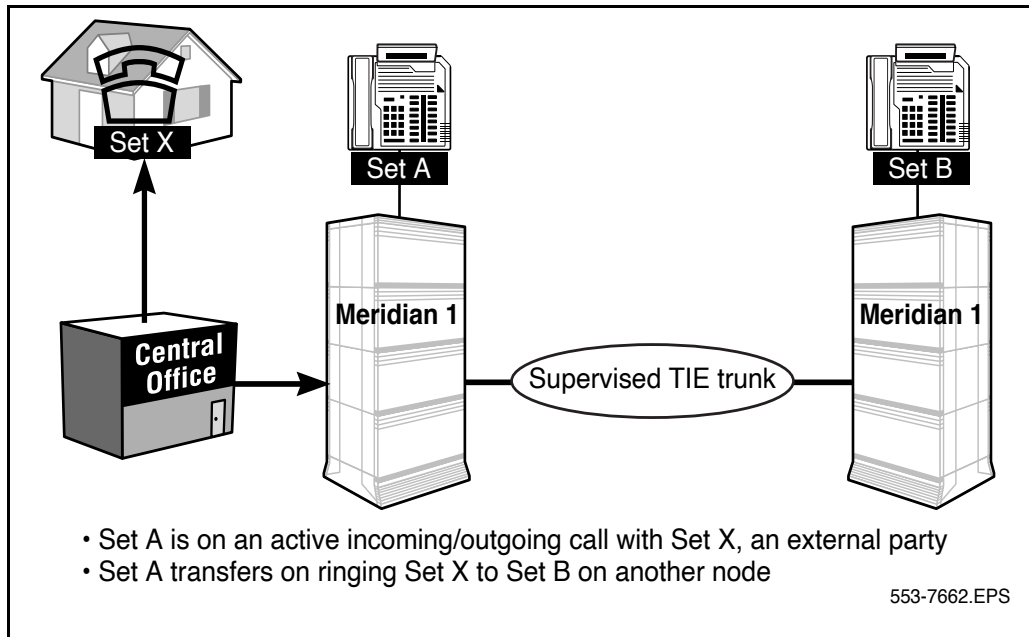
Transfer on Ringing of External Trunk over Network

Allows the transfer on ringing of an established external trunk call over a supervised analog network TIE trunk. If the called party does not answer within a specified time, the call will slow answer recall to the attendant on the transferring node. This capability ensures that available network resources are not occupied indefinitely.

Transfer of External Trunks

Allows the transfer of one outgoing external trunk to another trunk provided both calls are answered and both trunks have answer supervision.

Figure 78
Transfer on ringing of external call



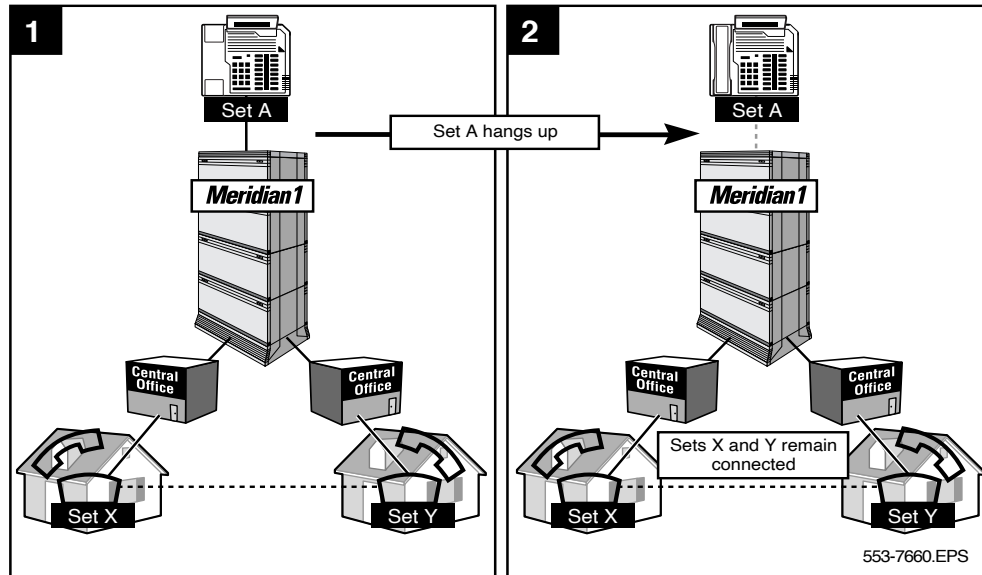
As illustrated in Figure 78, Set A is on an incoming/outgoing call with Set X, an external trunk. Set A initiates a call transfer of Set X to Set B. With the Trunk to Trunk Connection feature, Set A can transfer on ringing without waiting for Set B to answer. If Set B does not answer the transferred call, the external trunk slow answer recalls to the attendant on the transferring node.

Conference of External Trunks

Allows external trunks to remain established in a conference call in circumstances when all external trunks involved in the call offer disconnect supervision.

Figure 79 illustrates the Conference of External Trunk capabilities of this feature. Set A is on an established conference call with two or more external trunks, Set X and Set Y. When Set A disconnects during the conference, Set X and Set Y continue in the established call.

Figure 79
Conference of external trunks



Outgoing Trunk to Trunk Charging

Ensures that outstanding charging information, relevant to both outgoing calls, is contained in relevant Call Detail Recording records.

Operating parameters

Slow answer recall occurs when an external trunk is transferred on ringing across an answer supervised network TIE trunk to a set that does not answer. However, the resulting recall will be to an attendant on the transferring node and not to the original set which transferred the call.

When transferring one outgoing trunk to another, it is required that the two external calls involved are both answered prior to completing the transfer. Both external trunks involved must have both answer and disconnect supervision.

When the last internal party disconnects from a conference call, involving 2 or more external trunks, all external trunks must have disconnect supervision for the call to remain established. If any one of the remaining external trunks does not have disconnect supervision, all external trunks will be dropped.

No change is made to existing VNS operation.

Feature interactions

Busy Tone Detection for Japan

Busy Tone Detection for Japan does not impact Trunk to Trunk Connection. However, which ever occurs first prevails.

Call Transfer

To transfer an external trunk on ringing across a supervised analog network TIE trunk, the external trunk and internal TIE line must have both answer and disconnect supervision, and the external call must be established. To transfer one outgoing external trunk to another, both external trunks must have answer and disconnect supervision, and both external calls must be established.

Centralized Answering Position

The Option 11C system may not have an actual attendant console. Instead, the Option 11C will use Centralized Answering Position (CAP). The CAP Directory Number (DN) is the customer Night DN. Since no attendant is configured, the customer is viewed to be in Night Service and any calls for the attendant are directed to the CAP. Slow Answer Recall may be presented to a CAP when no attendant console is configured for the customer.

Conference

Trunk to Trunk Connection allows external trunks to remain established in a call, provided that all external trunks involved have disconnect supervision. With respect to charging costs associated with a conference call, once the last set involved in the conference call disconnects, a search is made of all remaining trunks in the call to determine which call is established in the call for the longest period of time. This trunk is the chargeable Terminal Number (TN). This process is repeated to find the next chargeable TN.

Multi-Party Operations - Ringing No Answer

In a standalone environment, the RGNA prompt in the Customer Data Block will be used when an external trunk is transferred on ringing and the called party does not answer. In a network environment, the RTIM timer value in the Customer Data Block will be used for slow answer recall.

Message Registration

The last party releasing the call collects the total value of outstanding Periodic Pulse Metering (PPM) generated on outgoing trunks. If the last party is an internal set, the outstanding PPM is stored against the meter of the set. If the last party is an internal TIE trunk, the outstanding PPM is stored against the meter associated with the internal TIE trunk access code. If the last party is an outgoing external trunk, the outstanding PPM is stored against the meter associated with the external trunk access code.

Night Service

If an attendant is placed in Night Service, calls to the attendant are directed to a station with the Night DN. Recalls are not directed to the Night DN. Recalls are put in the attendant call waiting queue when in Night Service.

Night Service Enhancement

Recalls made while the attendant is in Night Service are routed to the Night DN, if the original call is an external call. In such a case, the destination party is disconnected, the internal network trunk is released and the original extended call is presented to the Night DN. If the original call is internal, recalls are put in the attendant call waiting queue when in Night Service.

Trunk Barring**Trunk Group Access Restriction**

Trunk Barring and Trunk Group Access Restriction takes precedence over the Trunk to Trunk Connection feature.

Feature packaging

Trunk to Trunk Connection is included in base X11 system software.

Note: DID to TIE (DTOT) for Japan package 176 must be restricted to enable this feature.

Feature implementation

LD 15 – Modifications to Customer Data Block.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	ATT	Attendant console prompts.
CUST	xx	Customer number.
RTIM	xxx yyy zzz	Enter defined value for the Slow Answer Recall timer where: xxx = 0-(30)-378 Slow Answer Recall yy y= 0-(30)-510 Camp On Recall zzz = 0-(30)-510 Call Waiting Recall

LD 15 – Modifications to Customer Data Block

Prompt	Response	Description
REQ:	CHG	Change
TYPE	NET	Trunk and network options.
CUST	xx	Customer number.
...		
ISDN	YES	Change the Integrated Services Digital Network options.
- PSTN	NO	Public Switched Telephone Network. Limit the number of PSTNs allowed in a network connection to one PSTN. NO= Puts no limit on the number of PSTN connections. YES = Limits the number of PSTN connections.
...		

TRNX	YES	YES = Allows transfer on ringing of an external trunk over a supervised analog network TIE trunk across private network. NO= Prevents transfer on ringing of an external trunk over a supervised analog network TIE trunk across private network.
EXTT	YES	YES = Allows connection of supervised external trunks. NO = Prevents connection of supervised external trunks.

Feature operation

No specific operating procedures are required to use this feature.

Trunk Traffic Reporting Enhancement

The following modifications to trunk traffic reporting have been implemented to improve the accuracy of TFC002 traffic reports. The options are selected in the Configuration Data Block.

Traffic Period Option

Without enabling this option, trunk usage added its entire duration into the traffic period in which the disconnection occurred. If the duration was longer than 36 CCS (CCS = 100 call seconds), but less than 50 CCS, a TFS401 message was output. However, that duration was still accumulated and included in the traffic reports. If the duration was longer than or equal to 50 CCS, a TFS402 message was output. This duration was not accumulated, and was excluded from the traffic reports.

The Traffic Period Option enables the CCS to be reported in each traffic report interval. The peg count still is reported at disconnect time as per existing operation.

Note that when the Traffic Period Option is first enabled, the first traffic report may get some TFS403 messages.

Trunk Seizure Option

Without enabling this option, Meridian 1 traffic statistics began accumulating when a call was established. Meridian 1 software determined that the call was established when one of the following occurred: the End-of-Dialing (EOD) timer timed out after the last digit was dialed; the octothorpe (#) was dialed; or answer supervision was received. In some situations, customers could not match Meridian 1 traffic reports with their carrier reports, because many carriers start accumulating statistics when a trunk is seized.

The Trunk Seizure Option provides the ability to start accumulating statistics upon trunk seizure, rather than when the call is established.

Operating parameters

If the duration of a call is less than two to four seconds, the peg count is not accumulated. This functionality only applies when the trunk seizure option is enabled.

Due to the accumulation at trunk seizure, peg counts occur even if a call is unanswered.

Feature interactions

Automatic Call Distribution (ACD)

A trunk call to an ACD DN will only be considered established once this call is answered. It is not considered established while the call is waiting in the ACD queue. Therefore, at the end of a traffic period, if a trunk call is in the ACD queue, the Traffic Period Option will not accumulate the duration for this call.

Note that when the duration is accumulated at disconnect or at the end of a traffic period after this call is answered, the total duration including the time the call was in the ACD queue is accumulated. This total duration may be longer than a single traffic period due to the time in the ACD queue and a TFS401, TFS402, or TFS403 message may be output.

Music Trunks

The Trunk Seizure Option is not supported on Music trunks.

Recorded Announcement (RAN) Trunks

The Trunk Seizure Option is not supported on RAN trunks.

Traffic Monitor

The Traffic Monitor feature outputs certain traffic data approximately every minute.

The trunk usage and peg count output by the Traffic Monitor feature can be enhanced by enabling the Trunk Seizure Option. The accumulated duration and peg count of a call will begin at trunk seizure time instead of at the time the call was established.

The Traffic Monitor output that starts during the same time that the regular traffic report starts is impacted if the Traffic Period Option is enabled. With this option enabled, the duration of all currently established calls is accumulated at the end of the traffic period. Therefore, this additional duration is also accumulated in the next minute's traffic monitor output. For example, the Traffic Monitor feature and the Traffic Period Option are both enabled. Regular traffic reports are output every half hour. The difference in the accumulated duration from 10:29 to 10:30 may increase dramatically due to the additional durations accumulated for currently established calls at the end of this traffic period.

Feature packaging

Trunk Traffic Reporting Enhancement is included in base X11 system software.

Feature implementation

LD 17 – Both options can be allowed or denied on a system-wide basis using this overlay.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PARM	Release 19 gate opener.
...		
- TPO	(NO), YES	Traffic Period Option. Enter YES to enable, NO to disable, and <CR> to keep the current value.
- TSO	(NO), YES	Trunk Seizure Option. Enter YES to enable, NO to disable, and <CR> to keep the current value.
Note: When converting pre-X11 Release 21 software, both the TPO and TSO options are disabled. For new systems with X11 Release 21 or later software, these options will be enabled.		

Feature operation

No specific operating procedures are required to use this feature.

Trunk Verification from a Station

Trunk Verification from a Station (TVS) provides the capability for a classmarked 2500-type telephone (i.e., basic push-button set having no feature keys) to seize a particular trunk within a trunk group, receive a dial tone, and outpulse digits to complete a call to a remote maintenance site. This feature is used as part of a PC-based Network Management system to allow physical testing of each trunk in the network.

Any compatible, customer-provided PC-based analog (500/2500 type) administration and maintenance system accesses the trunk to be tested and calls a remotely located customer-provided responder. The responder supplies the various tones needed to perform the trunk test. The PC then stores and processes the results. Once the testing is complete, the PC disconnects from the tested trunk and accesses the next trunk in the route.

To the system, the PC appears as a 2500-type telephone, which requires the capability to seize a particular trunk member within a trunk route.

Operating parameters

It is recommended that the telephone with a Trunk Verification Allowed (TVA) Class of Service also have CFW All Calls To External DN Denied (CXFD), CFW Busy Denied (FBD), and CFW No Answer Denied (FND) Classes of Service. This setup prevents any restricted telephone from accessing trunks by calling the TVA telephone and subsequently getting transferred or forwarded.

Also, it is strongly recommended that this unit not be configured with an LPA. This will prevent the unit from initiating the PBXT (test message waiting lamps) command in LD 32.

The telephone with a Trunk Verification Allowed (TVA) Class of Service should also be assigned Warning Tone Denied (WTD) Class of Service. This will prevent Attendant Busy Verification, which could impair the trunk frequency measurements that take place during a TVS call. This also prevents the trunk that this telephone has seized from being barged into by the attendant.

Trunk Verification from a Station is not applicable to B-channels on digital links.

When using the Trunk Verification feature to test network trunks, any trunk state other than an idle, such as busy, disabled or maintenance busy, an overflow tone is returned.

Feature interactions

The environment in which the TVS feature will be invoked is a machine environment. That is, the user of the 2500-type telephone with this feature will usually be a PC-based maintenance system. Therefore, minimal interaction exists with other features.

When the 2500-type telephone with a TVA Class of Service makes a TVS call, any Trunk Group Access Restrictions/Trunk Access Restriction Groups (TGAR/TARG) defined in the system are removed for this call.

When a trunk group is busied out by an Attendant Console, access to that trunk group is not allowed with the TVS feature.

Feature packaging

Trunk Verification from a Station (TVS) is package 110 and has no feature package dependencies.

Feature implementation

LD 10 – Allow or deny Trunk Verification from a 2500 telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(TVD), TVA	(Deny) allow TVS.
	DTN	Digitone service is required for 2500 telephones.

Feature operation

To verify that a trunk is working properly (from a 2500 telephone with TVA Class of Service), follow these steps:

- 1 Lift the handset.
- 2 Dial SPRE + 70 + ACOD + mmm

where:

SPRE is the special function access prefix

70 is the special access code for the TVS feature

ACOD is the access code of the trunk group to be tested, and

mmm is the number of the trunk member that is to be seized; mmm must be three digits (e.g., 001).

Uninterrupted Line Connections

Uninterrupted Line Connections are connections assigned Warning Tone Denied (WTD) Class of Service. The feature prohibits the imposition of any Camp On or intrusion tones on that line.

This feature is recommended for modem or data lines.

Operating parameters

There are no feature requirements.

Feature interactions

Attendant Barge-In
Busy Verify
Override

These features cannot be applied to stations with a WTD Class of Service.

Camp-On

A call can be camped on to a station with a WTD Class of Service, but tone is not provided.

Feature packaging

The Uninterrupted Line Connections feature is included in base X11 system software.

Feature implementation

LD 10 – Assign Warning Tone Allowed for Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(WTA), WTD	Warning tone (allowed) denied.

LD 11 – Assign Warning Tone Allowed for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
CLS	(WTA), WTD	Warning tone (allowed) denied.

LD 14 – Assign Warning Tone Allowed for trunks.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaa	Trunk type, where: aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, or WAT.
TN	l s c u	Terminal Number.
CLS	(WTA), WTD)	Warning tone (allowed) denied.

Feature operation

No specific operating procedures are required to use this feature.

Introduced in X11 Release:	19
Networking:	No

User Selectable Call Redirection

X11 Release 19 and later includes User Selectable Call Redirection (USCR), which enhances the implementation of several existing features. First, it enables the user to modify DNs at the telephone for the following redirections:

- Flexible Call Forward No Answer DN (FDN)
- Hunt DN (HUNT)
- External Flexible Call Forward No Answer DN (EFD), and
- External Hunt DN (EHT).

The Station Control Password feature must be active, with passwords defined in LD 15, for the user to change these redirection DNs.

Second, it expands the number of selectable Ringing Cycle Options (RCOs) for Flexible Call Forward No Answer (CFNA) from one to three.

User assignment of redirection DNs

Prior to X11 Release 19, changing the redirection DNs for FDN, HUNT, EFD, and EHT required a service change to LDs 10 and 11. USCR permits the user to modify any of these four DNs from a rotary, push-button, or digital telephone.

Depending on the type of telephone, there are three ways to access this feature: using a Special Service Prefix Code (SPRE 9915), a Flexible Feature Code (FFC), or the User Selectable Redirection (USR) key.

The user can also change the RCO from a telephone after accessing USCR. For security reasons, the user must enter the Station Control Password (SCPW) before changing the redirection DNs or the RCO.

Ringing Cycle Options (RCOs) for CFNA

The original implementation of Call Forward No Answer provided a single option (CFNA in LD 15) that defined the number of normal ringing cycles before CFNA treatment. The value could be in the range of 1-15, with a default of 4. This value determined how many times the telephone rang before CFNA treatment was initiated.

The CFNA prompt is now replaced with prompts CFN0, CFN1, and CFN2, each of whose value can be in the range of 1-15, with a default of 4. The number of distinctive ringing cycles for CFNA is also expanded. The DFNA prompt in LD 15 is replaced with DFN0, DFN1, and DFN2, with the same value range and default.

Additionally, the Ringing Cycle Option (RCO) prompt appears in LD 10 and 11 for each telephone. Its value, in the range of 0-2, is a pointer to the CFNx and DFNx entries in the Customer Data Block. The following chart explains the relationship of the RCO value and the CFNx and DFNx entries in the Customer Data Block.

Table 141
Relationship between RCO value and CFNx, DFNx contents

An RCO value (per telephone) of	Selects these CFNA and DFNA entries (with sample contents shown)	And has this effect
0	CFN0 (Default value of 4) DFN0 (Value set to 2)	CFNA treatment after four rings CFNA treatment after two distinctive rings
1	CFN1 (Value set to 6) DFN1 (Value set to 5)	CFNA treatment after six rings CFNA treatment after five distinctive rings
2	CFN2 (Value set to 3) DFN2 (Default value of 4)	CFNA treatment after three rings CFNA treatment after four distinctive rings

Operating parameters

To assign or print the RCO for a telephone requires that it have the Flexible Call Forward No Answer Allowed (FNA) Class of Service or Message Waiting Allowed (MWA) Class of Service.

The user's telephone must have User Selectable Redirection Allowed (USRA) Class of Service and a Station Control Password (SCPW). The user must enter the correct password to access USCR.

Basic Rate Interface (BRI) telephones do not support USCR because they cannot access SPRE or FFC, and have no feature keys. Therefore, BRI telephones will always use the entries for CFN0 and DFN0.

The user cannot use USCR to initially configure call redirection features. The features must be equipped, and the initial call redirection DN must be established, via a service change.

This feature cannot be used remotely. A user can only change redirection DN or the RCO for the telephone being used to access USCR.

Feature interactions

Automatic Call Distribution

An Automatic Call Distribution (ACD) DN cannot be stored as a redirection DN unless the ACD queue is defined as a Message Center.

Attendant Administration

Attendant Administration does not support assigning the USR key, RCO, or USRA/USRD Class of Service.

Autodial

USCR does not support Autodial; Autodial cannot be used to dial all or part of the digits for USCR programming.

Call Forward All Calls

When CFW redirects a call from telephone A to telephone B, and telephone B does not answer, the RCO of telephone B determines how long it rings. After the designated number of rings, the FDN of telephone A redirects the call.

Call Forward by Call Type

USCR enables a user to assign EFD from the telephone.

Call Forward No Answer Flexible Call Forward No Answer

In X11 Release 19 and later, the single parameters previously used to define normal ringing cycles (CFNA) and distinctive ringing cycles (DFNA) are expanded to three (CFN0-2 and DFN0-2), with the Ringing Cycle Options (RCO) parameter used to select the specific CFNA and DFNA entries for each telephone.

Call Forward No Answer, Second Level

The number of ringing cycles before Second Level Call Forward No Answer (SFA) is determined by the RCO for the ringing DN, as with CFNA.

Call Redirection by Time of Day

User Selectable Call Redirection is not supported by Call Redirection by Time of Day.

Dial Access to Features and Services

The 9915 feature code accesses USCR from an analog (500/2500 type) telephone or a Meridian 1 proprietary telephone. The user dials this code after dialing the SPRE.

Directory Number Delayed Ringing

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 Directory Number Delayed Ringing timer runs out, none of the SCN/MCN keys will receive an audible notification.

Distinctive/New Distinctive Ringing

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.

DPNSS1 Diversion

The User Selectable Call Redirection feature triggers Diversion Validation. If the numbering plan is DPNSS1 then diversion occurs. Numbering plan routes are checked to determine if redirection DN's are through DPNSS1 on a first choice route basis. If the number plan is not a DN through DPNSS1, then User Selectable Call Redirection works as usual.

**Enhanced Hot Line
Flexible Hot Line**

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.

Hunting

User Selectable Call Redirection permits a user to change the HUNT DN or EHT from a telephone. An attendant DN is only allowed for HUNT and EHT if the customer has the attendant defined as a message center (LD 15 – MATT=YES).

Message Center (MC) and Message Waiting

USCR affects the number of times the DN rings before the call is forwarded to the Message Center. The RCO in the Terminal Number (TN) block of the Multiple Appearance Redirection Prime (MARF) for the called DN determines the number of times the DN rings.

Multiple Appearance Redirection Prime (MARF)

When a Multiple Appearance DN is rung, the determination of the number of ringing cycles for CFNA depends on the value of the MARF prompt in LD 17. If the value is "YES," the number of ringing cycles is determined by the RCO number of the DN that is classified as a MARF TN. If the DN is a Multiple Appearance DN (MADN), the RCO values in the other TN blocks for that DN are ignored.

If the MARF value is "NO," the RCO is taken from the first TN in the DN block with a primary appearance of the DN. If there is none, the last TN in the DN block is used.

Pretranslation

If Pretranslation (package 92) is enabled, the digits entered as the redirection DN are pretranslated before they are stored. Note that no Pretranslation occurs when the redirection DNs are used in such call processing features as Hunting or CFNA, eliminating the possibility that the redirection DN is pretranslated twice.

Short Hunting

USCR does not support changing the HUNT or EHT for a telephone with Short Hunt enabled. USCR also does not support entering “000” from a telephone as the HUNT.

Speed Call

Speed Call is not supported by USCR.

Feature packaging

User Selectable Call Redirection is available as part of X11 Release 19. Flexible Feature Codes (FFC) package 139 is a prerequisite for the user activation part of this feature because it provides for the Station Control Password.

Feature implementation

Responses to the LD prompts shown in the following tables set up USCR. Responses differ depending on the type of telephone and the type of access being set up.

LD 15 – Setting up USCR in the Customer Data Block.

Prompt	Response	Description
REQ	NEW CHG	ADD, or change.
TYPE	CDB RDR	Customer Data Block. Release 21 gate opener.
CUST	0-99 0-31	Customer number. For Option 11C.
- CFN0	1-(4)-15	Number of normal rings for CFNA, Option 0.
- CFN1	1-(4)-15	Number of normal rings for CFNA, Option 1.
- CFN2	1-(4)-15	Number of normal rings for CFNA, Option 2.
- DFN0	1-(4)-15	Number of distinctive rings for DFNA, Option 0.
- DFN1	1-(4)-15	Number of distinctive rings for DFNA, Option 1.
- DFN2	1-(4)-15	Number of distinctive rings for DFNA, Option 2.
TYPE	FFC	Release 21 gate opener.
...		
- SCPL	(0-8	Length of Station Control Password. If 0 = password disabled, USCR cannot be used.

LD 10 – Setting up USCR for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	500	Telephone type.
RCO	(0) 1 2	Ringing Cycle Option for CFNA, in the range of 0-2, with a default of 0.
SCPW	xxx...xx	Station Control Password.
CLS	(USRD) USRA	User Selectable Redirection Class of Service (permitting SPRE and FFC access) (denied) allowed.
Note: The technician can use easy change to change the RCO and USRA/USRD CLS. At the ITEM prompt, type RCO <value> where the value is 0-2.		

LD 11 – Setting up USCR for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
RCO	(0) 1 2	Ringing Cycle Option for CFNA, in the range of 0-2, with a default of 0.
SCPW	xxx...xx	Station Control Password.
CLS	(USRD) USRA	User Selectable Redirection Class of Service (permitting SPRE, FFC, and USR key access) (denied) allowed.
KEY	xx USR	Key number of the USR key.
Note: The technician can use easy change to change the RCO and USRA/USRD CLS. At the ITEM prompt, type RCO <value> where the value is 0-2.		

LD 57 – Setting up USCR.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
CUST	0-99 0-31	Customer number. For Option 11C.
CODE	USCR ALL	Prompt for USCR FFC, or all FFC code types.
USCR	xxxxxxx yyyyyyy <CR>	USCR FFC (1-7 digits). Define additional FFC codes, as needed. Ends the entry of FFC codes.

Feature operation

As a prerequisite to accessing the feature, the conditions shown in [Table 142](#) must be met for the selected access method.

Table 142
Requirements for accessing USCR

Requirement	Access Method		
	USR Key	SPRE	FFC
FFC package equipped	Yes	Yes	Yes
SCPL is defined (>0)	Yes	Yes	Yes
SCPW is defined	Yes	Yes	Yes
Telephone has USR key	Yes	No	No
USRA Class of Service defined	Yes	Yes	Yes
SPRE defined	No	Yes	Yes
USCR FFC defined	No	No	Yes

To assign/query a redirection DN using SPRE:

- 1 Take the telephone off-hook, or press the DN key on a digital telephone.
- 2 Enter the SPRE.
- 3 Enter the USCR feature access code (9915).
- 4 Enter the Station Control Password.
- 5 Enter the USCR option code, as shown in [Table 143](#).

Table 143
USCR option codes

Code	Used to assign
1	FDN redirection DN
2	HUNT redirection DN
3	EFD redirection DN
4	EHT redirection DN
5	RCO

- 6 Enter the new RCO if assigning the RCO; enter the redirection DN if assigning the DN.
- 7 Place telephone on-hook, or press the RIs key on a Meridian 1 proprietary telephone.

To assign or query a redirection DN using the USR key:

- 1 Press the dark USR key.
- 2 Enter the Station Control Password.
- 3 Enter the USCR option code from [Table 143](#).
- 4 Enter the new RCO if assigning the RCO; enter the redirection DN if assigning the DN.
- 5 Press the USR key again.

To assign or query a redirection DN using an FFC:

- 1** Take the telephone off-hook, or press the DN key on a Meridian 1 proprietary telephone.
- 2** Enter the USCR FFC.
- 3** Enter the Station Control Password.
- 4** Enter the USCR option code, as shown in Table [143](#).
- 5** Enter the new RCO if assigning the RCO; enter the redirection DN if assigning the DN.
- 6** Place telephone on-hook, or press the **Rls** key on a Meridian 1 proprietary telephone.

Voice Call

Voice Call allows you to talk through the speaker of a Meridian digital telephone from another Meridian digital telephone. The called party does not have to lift the handset to hear you. For a two-way conversation, the called party must lift the handset or activate Handsfree, unless Handsfree Voice Call is enabled.

If the called telephone is busy on another DN, the caller hears continuous ringing. The called party hears a single beep and the Voice Call DN key flashes. If the telephone is busy on the Voice Call DN, the caller hears a busy tone. A fast busy tone may indicate that the Voice Call DN is no longer available (it may not be a Single Appearance DN).

Handsfree Voice Call

Handsfree Voice Call is an X11 Release 19 system feature that can be used with such telephones as the M2112, M2317, and M2616.

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 a one-way voice path from the calling telephone to the destination telephone.

Operating parameters

Both telephones must be Meridian digital telephones.

The Voice Call DN must be single appearance.

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 the M2112, M2317, M2616). It requires Handsfree Allowed/HFA Class of Service on the destination telephone, which is set at the telephone level. Basic Rate Interface (BRI), M3000, and SL-1 telephones do not support the Handsfree feature.

Feature interactions

Auto Answer Back (AAB)

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

Flexible Voice/Data Terminal Number

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.

Manual Signaling

The same DN can be used for both Voice Call and Manual Signaling (Buzz) as long as it remains a Single Appearance DN.

Multiple Appearance DNs

If a Voice Call DN is added to a second telephone, the DN becomes a Multiple Appearance DN (MADN). Voice Call no longer works on that DN and fast busy tone is returned.

Feature packaging

Voice Call requires the Optional Features (OPTF) package 1.

Handsfree Voice Call requires X11 Release 19 or later.

Feature implementation

LD 11 – Add or change Voice Call for the originating Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx SCR yyy...y	Adds a single appearance single call key on the terminating telephone, where: xx = key number, and yyy...y = the DN assigned to the Voice Call key for the originating telephone.
KEY	xx VCC yyy...y	Adds a Voice Call key on the originating telephone, where: xx = key number, and yyy...y = the DN of the terminating telephone. This key activates the feature.

LD 15 – Add or change Handsfree Voice Call for the Meridian 1 system.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
- OPT	(HVD), HVA	Handsfree Voice Call (denied) allowed.

Feature operation

Voice Call

To make a Voice Call:

- Lift the handset and press **Voice Call**. The DN is automatically dialed. If the called telephone is busy on another DN, you hear continuous ringing. If the telephone is busy on the Voice Call DN, you hear busy tone.

To end a Voice Call:

- Press **Rls**.

To answer a Voice Call on an idle telephone:

- Let the call ring once. The call is answered automatically, activating the Voice Call DN over the speaker. For a two-way conversation, lift the handset.

If busy on another DN, you hear a single beep and the Voice Call DN flashes. You must end your present call to receive the Voice Call.

Handsfree Voice Call

HVA option

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

- 1 Telephone B rings once.
- 2 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.

- 1** Telephone B rings once.
- 2** 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 reestablish a two-way voice path, telephone B must either go off-hook or press the Handsfree button.

Note: Busy calls are not changed by Handsfree Voice Call.

500 Telephone Features

This feature allows 500-type (rotary dial) telephones to use Call Forward, Speed Call, and Permanent Hold. Since 500-type telephones do not have an octothorpe (#), the following features are activated by dialing SPRE and a two-digit access code.

— System Speed Call	SPRE + 73
— Call Forward All Calls	SPRE + 74
— Speed Call Controller	SPRE + 75
— Speed Call User	SPRE + 76
— Permanent Hold	SPRE + 77

Operating parameters

Allow or deny these features in LD 10.

Except for the SPRE codes used, feature operation is the same as with Meridian 1 proprietary telephones.

Feature interactions

2500 Telephone Features

When Special Service for 2500 Sets (SS25) package 18 is equipped, 2500 telephones also access the above listed features by dialing the SPRE and a two-digit access code.

Feature packaging

500 Set Dial Access to Features (SS5) package 73 requires Special Service for 2500 Sets (SS25) package 18.

Feature implementation

LD 10 – Enable 500 Telephone Features.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XFD), XFA	(Deny) allow transfer.
FTR	CFW xx	Call Forward All Calls and DN length (4-23). Enter X CFW to remove.
	SCC xxxx	Speed Call Controller and list number. Enter X SCC to remove.
	SCU xxxx	Speed Call User and list number. Enter X SCU to remove.
	SSU xxxx	System Speed Call User and list number. Enter X SSU to remove.
	PHD	Allow Permanent Hold. Enter X PHD to remove.

Feature operation

Call Forward All Calls

To forward your calls, follow these steps:

- 1 Lift the handset and dial SPRE + 74. You hear dial tone.
- 2 Dial the DN to where you want your calls forwarded.
- 3 Hang up.

To cancel forwarding, follow these steps:

- 1 Lift the handset and dial SPRE + 74. You hear dial tone.
- 2 Hang up.

Speed Call Controller

To update a predefined Speed Call list, follow these steps:

- 1** Lift the handset and dial SPRE + 75. You hear dial tone.
- 2** Dial the Speed Call code (0-999), followed by the telephone number it represents. If the entry is accepted, you hear silence. If the entry is not accepted, you hear fast busy tone.
- 3** Hang up.

To change a number associated with a list, follow these steps:

- 1** Lift the handset and dial SPRE + 75. You hear dial tone.
- 2** Dial the Speed Call code (0-999), followed by the new telephone number. The new number automatically replaces the old one. If the entry is accepted, you hear silence. If the entry is not accepted, you hear fast busy tone.
- 3** Hang up.

To remove an entry in a Speed Call list, follow these steps:

- 1** Lift the handset and dial SPRE + 75. You hear dial tone.
- 2** Dial the Speed Call code (0-999) you want to remove.
- 3** Hang up.

Speed Call User

To make a Speed Call, follow these steps:

- 1** Lift the handset and dial SPRE + 76. You hear dial tone.
- 2** Dial the Speed Call code (0-999).
- 3** The number is dialed automatically.

System Speed Call User

To make a System Speed Call, follow these steps:

- 1** Lift the handset and dial SPRE + 73. You hear dial tone.
- 2** Dial the System Speed Call code (0-999).
- 3** The number is dialed automatically.

Permanent Hold

To activate Permanent Hold while active on a call, follow these steps:

- 1** Flash the switchhook. You hear dial tone.
- 2** Dial SPRE + 77.
- 3** Hang up.

The call remains on hold until you lift the handset again or the other party disconnects.

500/2500 Line Disconnect

500/2500 Line Disconnect is invoked when the Meridian 1 system detects on-hook/disconnect supervision from a party connected to a 500/2500 type port. Dial tone is sent to this port for a specified period of time (the default is six seconds) which is defined in LD 15 at the Line Disconnect Tone Timer (LDTT) prompt. Refer to the feature implementation for a list of LD 15 prompts.

It is used when the 500/2500 type port is connected to an automated attendant or voice mail. It allows the Meridian 1 system to know that it is not connected to a telephone, and to disconnect if the other telephone has hung up (e.g., during an automated message or a voice mail message).

Figure 80 illustrates how an incoming trunk call or internal call functions with 500/2500 Type Line Disconnect. This illustration shows the incoming trunk call or internal call disconnected and dial tone being provided by the 500/2500 type port with the new Class of Service (CLS) Line Disconnect Tone Allowed (LDTA).

Figure 80
Incoming Trunk Call of Internal Call Disconnects

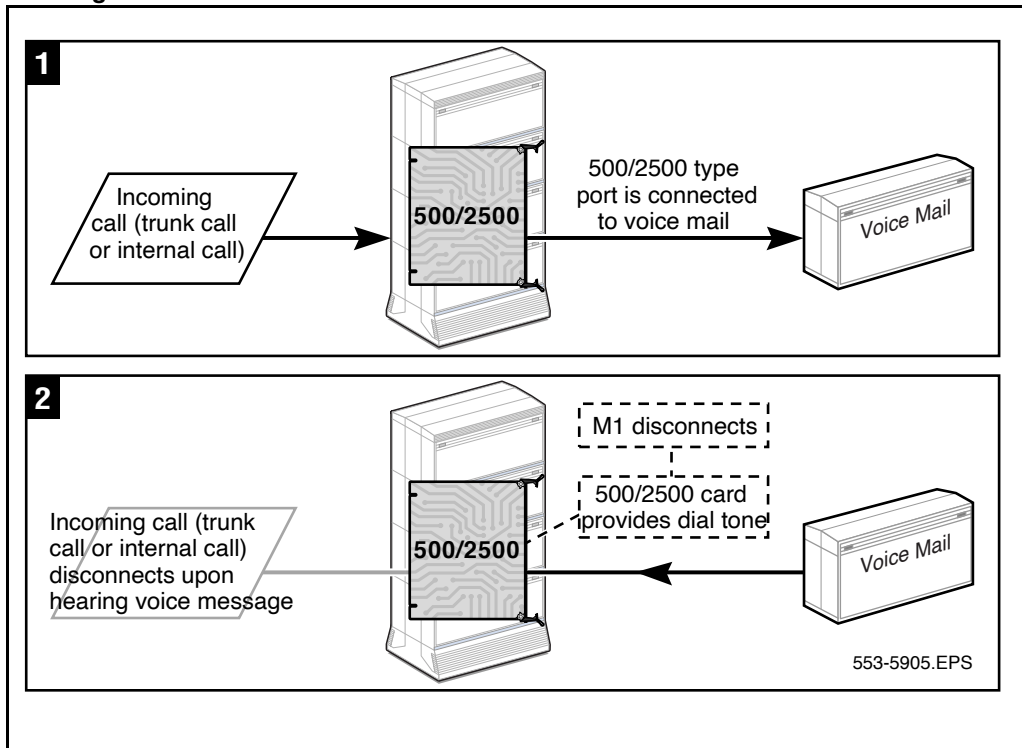
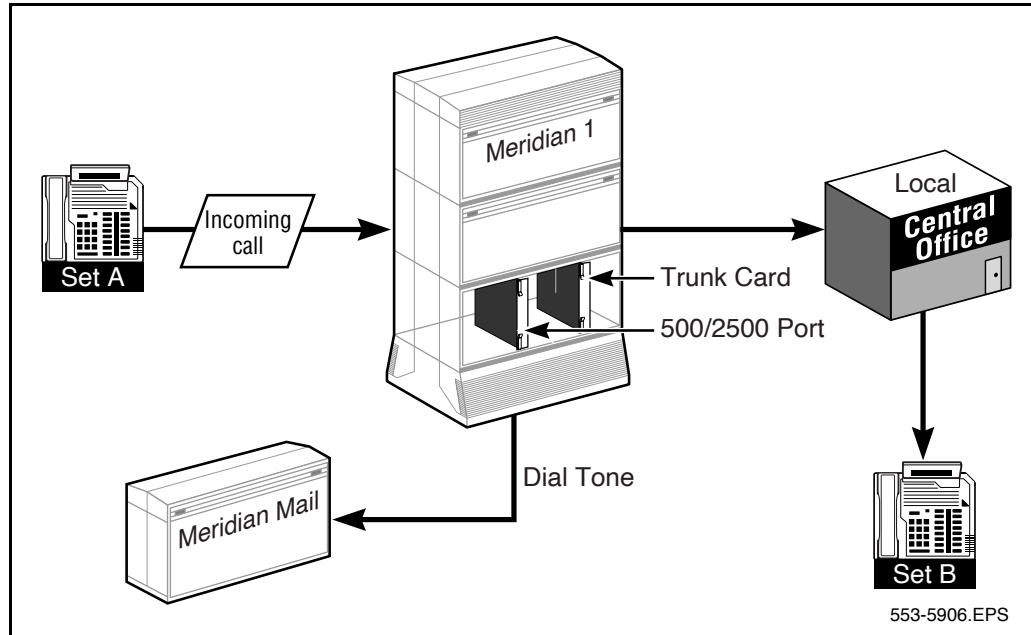


Figure 81 illustrates how an outgoing call functions with this feature. This illustration shows an outgoing call from the Meridian 1 system to the Central Office. Station A transfers Station B to Meridian Mail and goes on-hook. When Station B disconnects dial tone is provided by the 500/2500 type port with the new Class of Service LDТА.

Figure 81
Outgoing Call from the Meridian 1 to a Central Office



Operating parameters

A 500/2500 port with LDTA Class of Service receives disconnect tone in the following cases:

- an incoming internal call is placed to an LDTA port and then disconnects
- incoming call from a trunk with disconnect supervision is placed to an LDTA port and then the incoming trunk disconnects, or
- an internal DN places an outgoing call on a trunk with disconnect supervision, then transfers the call to the LDTA port and then the trunk disconnects.

Line Disconnect Tone is not provided on outgoing calls from the LDTA port.

Feature interactions

Conference

No Hold Conference

If one of the parties in the conference is connected to a 500/2500 port that is in turn connected to a Voice Response Unit (VRU), dial tone is provided to the 500/2500 port when all the other parties in the conference disconnect. This feature enhancement applies in the same way to Call Transfer and Hunting.

Attendant Extended Call

500/2500 Line Disconnect applies if the attendant extends a call to a 500/2500 port that is connected to a VRU; or the attendant extended a call to a 500/2500 port that is connected to a VRU and remains in the call, and the other party has disconnected.

500/2500 Automatic Call Distribution (ACD) agent

If a call is involved with a 500/2500 ACD agent that is connected to a VRU and the other party has disconnected, 500/2500 Line Disconnect applies. When the other party disconnects, the 500/2500 agent will be returned to the idle agent queue.

Feature packaging

500/2500 Line Disconnect is included in base X11 system software.

Feature implementation

LD 10 – Allow Line Disconnect Tone for 500/2500 ports.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
CLS	(LDTD), LDTA (WTA), WTD	(Deny) allow Line Disconnect Tone. (Allow) deny Warning Tone.

LD 15 – Specify the dial tone timer for 500/2500 ports.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	CDB TIM	Customer Data Block. Release 21 gate opener.
CUST	0-99	Customer number.
...		
- LDTT	2-(6)-30	Line Disconnect Tone timer for the 500/2500 port, in seconds.

Feature operation

No specific operating procedures are required to use the 500/2500 Line Disconnect feature.

500/2500 Line Disconnect for Outgoing Calls (Release 21)

When devices such as dictation machines are connected to a 500/2500 line port they rely on detecting a tone to indicate that the far end has released. This is necessary because the line conditions on a 500/2500 circuit do not change regardless of the status of the far end.

Currently, when a Meridian 1 detects an on-hook/disconnect supervision signal from a party on a trunk that provides disconnect supervision, and the trunk is connected to a 2500/500 port with the Line Disconnect Tone Allowed (LDTA) Class of Service, dial tone is sent for the time specified in the Customer Data Block. Thus, the device physically connected to the 500/2500 port disconnects itself and the line port as well. This functionality is used in applications requiring predictive dialing; however, previously it was limited to incoming calls.

In X11 Release 21, the 500/2500 Line Disconnect for Outgoing Calls feature expands the 500/2500 Disconnect capability to encompass outgoing calls.

Operating parameters

This feature only works with internal calls or with trunks that provide disconnect supervision. If a trunk is used that does not have disconnect supervision, the Meridian 1 does not detect the far end disconnection and the release of the call is still dependent upon the internal timing of the Automated Dialing Equipment.

This feature only applies to Automated Dialing Equipment systems capable of recognizing dial tone as a disconnect signal.

When a 500/2500 port is receiving a disconnect dial tone, it is not possible to dial a number. Dial tone cannot be broken. The port has to be released before dialing out.

Feature interactions

Attendant Extended Call

The 500/2500 Line Disconnect for Outgoing Calls feature applies if an attendant extends a call originated from a 500/2500 line port with LDTA Class of Service to a trunk or an internal extension, and the attendant has disconnected from the call. When the far end disconnects and this is a simple call, dial tone is provided to the 500/2500 line port.

Call Forward All Calls**Call Forward No Answer****Call Forward Busy****Call Forward by Call Type**

The 500/2500 Line Disconnect for Outgoing Calls feature applies if a call originated from a 500/2500 line port with LDTA Class of Service is Call Forwarded to a trunk or another internal extension.

Call Transfer

The 500/2500 Line Disconnect for Outgoing Calls feature applies if a call originating from a 500/2500 line port with LDTA Class of Service is transferred by the called party to a trunk or another internal extension.

Conference**No Hold Conference**

If Automated Dialing Equipment is connected to an internal extension that uses transfer or conference to include a trunk or another internal extension in the call, dial tone will be provided to the 500/2500 port when all the other parties disconnect.

Hunting

The 500/2500 Line Disconnect for Outgoing Calls feature applies if a call originated from a 500/2500 line port with LDTA Class of Service reaches a busy set that hunts to a trunk or to another internal extension.

Tone to Last Party

With the Tone to Last Party (TLP) feature configured, tones given to sets, whether involved in an internal or external call, are defined in the Tone Tables defined for the customer. If the TLP timer in the tone table is set to zero, the feature is disabled. If the TLP timer has a value greater than zero, this feature is active for all analog (500/2500 type) sets at the customer location. The 500/2500 Line Disconnect feature takes precedence if the Tone to Last Party feature is enabled for a customer and the 500/2500 set has LDTA Class of Service.

500/2500 Automatic Call Distribution (ACD) Agents

If an Automated Dialing Equipment (ADE)/Voice Response Unit (VRU) is involved in a call with a 500/2500 ACD agent and the party disconnects, the ADE will be provided dial tone when the last party (except for the ADE/VRU) has disconnected.

Feature packaging

500/2500 Line Disconnect for Outgoing Calls feature is contained in base X11 system software.

Feature implementation

Use the same implementation procedures as for the original 500/2500 Line Disconnect feature.

Feature operation

No specific operating procedures are required to use the 500/2500 Type Line Disconnect for Outgoing Calls feature.

2500 Telephone Features

This feature allows 2500 telephones (i.e., basic push-button sets having no feature keys) to access features otherwise available only on Meridian 1 proprietary telephones. By dialing an octothorpe (#) and a single-digit access code, 2500 telephones can access the following features:

- Call Forward All Calls Dial #1
- Speed Call Controller Dial #2
- Speed Call User Dial #3
- Permanent Hold Dial #4

Operating parameters

Allow or deny these features in LD 10.

Except for the access codes used, feature operation is the same as Meridian 1 proprietary telephones.

Feature interactions

500 Telephone Features

When 500 Set Dial Access to Features (SS5) package 73 is equipped, 2500-type telephones also access by dialing SPRE and a two-digit access code as follows:

- System Speed Call User SPRE + 73
- Call Forward All Calls SPRE + 74
- Speed Call Controller SPRE + 75
- Speed Call User SPRE + 76
- Permanent Hold SPRE + 77

Remote Call Forward

When Flexible Feature Codes (FFC) package 139 is defined and active on your system, a telephone provisioned for Call Forward in LD 10 can also Call Forward All Calls from a remote internal DN.

Feature packaging

Special Service for 2500 Sets (SS25) package 18 has no feature package dependencies.

Feature implementation

LD 10 – Enable 2500 Telephone Features.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(XFD), XFA	(Deny) allow transfer.
FTR	CFW xx	Call Forward All Calls and DN length (4-23). Enter X CFW to remove.
	SCC xxxx	Speed Call Controller and list number. Enter X SCC to remove.
	SCU xxxx	Speed Call User and list number. Enter X SCU to remove.
	SSU xxxx	System Speed Call User and list number. Enter X SSU to remove.
	PHD	Allow Permanent Hold. Enter X PHD to remove.

Feature operation

Call Forward All Calls

Case 1: FFC active, CFW not active

On a telephone with Flexible Feature Codes implemented, but without Call Forward currently active, use these steps to activate the feature:

- 1** Lift the handset and dial SPRE + 74. You hear dial tone.
- 2** Dial the DN where you want calls to be forwarded. The dial tone disappears.
- 3** Hang up to complete the activation.

To deactivate Call Forward, follow these steps:

- 1** Lift the handset and dial SPRE + 74. You hear dial tone.
- 2** Hang up to complete deactivation.

Case 2: FFC not active, CFW not active

On a telephone without Flexible Feature Codes or Call Forward currently Active, use these steps to activate the feature:

- 1** Lift the handset and dial #1. You hear dial tone.
- 2** Dial the DN where you want calls to be forwarded. The dial tone disappears.
- 3** Hang up to complete the activation.

To deactivate Call Forward, follow these steps:

- 1** Lift the handset and dial #1. You hear dial tone.
- 2** Hang up to complete deactivation.

Case 3: FFC active, CFW active

On a telephone with Flexible Feature Codes and Call Forward currently active, use these steps to deactivate the feature:

- 1** Lift the handset and dial #1. You hear confirmation tone.
- 2** Hang up to complete the deactivation.

To reactivate Call Forward, follow these steps:

- 1 Lift the handset and dial #1. You hear dial tone.
- 2 Dial the DN where you want calls to be forwarded. The dial tone disappears.
- 3 Hang up to complete the activation.

– *or* –

- 1 Lift the handset and dial #1. You hear dial tone.
- 2 Dial the DN where you want calls to be forwarded. The dial tone disappears.
- 3 Dial the EOD string. You hear a confirmation tone.
- 4 Hang up to complete the activation.

– *or* –

- 1 Lift the handset and dial #1. You hear dial tone.
- 2 Hang up to complete the activation. Calls are forwarded to the last Call Forward DN used by this telephone.

Speed Call Controller

To update a predefined Speed Call list, follow these steps:

- 1 Lift the handset and dial #2. You hear dial tone.
- 2 Dial the Speed Call code (0-999), followed by the telephone number it represents. If the entry is accepted, you hear silence. If the entry is not accepted, you hear a fast busy tone.
- 3 Hang up.

To change a number associated with a list, follow these steps:

- 1** Lift the handset and dial #2. You hear dial tone.
- 2** Dial the Speed Call code (0-999), followed by the new telephone number. The new number automatically replaces the old one. If the entry is accepted, you hear silence. If the entry is not accepted, you hear a fast busy tone.
- 3** Hang up.

To remove an entry from a Speed Call list, follow these steps:

- 1** Lift the handset and dial #2. You hear dial tone.
- 2** Dial the Speed Call code (0-999) you want to remove.
- 3** Hang up.

Speed Call User

To make a Speed Call, follow these steps:

- 1** Lift the handset and dial #3. You hear dial tone.
- 2** Dial the Speed Call code (0-999).
- 3** The number is dialed automatically.

System Speed Call User

To make a System Speed Call, follow these steps:

- 1** Lift the handset and dial SPRE 73. You a dial tone.
- 2** Dial the System Speed Call code (0-999).
- 3** The number is dialed automatically.

Permanent Hold

To activate Permanent Hold while on a call, follow these steps:

- 1** Flash the switchhook. You hear dial tone.
- 2** Dial #4.
- 3** Hang up.

The call remains on hold until you lift the handset again or the other party disconnects.

Meridian 1

X11 features and services

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