

X11 features and services

SUPPLEMENT

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

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Introduction

This document describes the software features available with the system. The features are described in feature modules *arranged alphabetically by feature name*. An alphabetized index of feature modules, enhancements and alternate feature names is provided for easy reference. The enhancements, and alternate feature names are italicized, with a reference to the appropriate module which describes the functionality/capability. Each feature module contains the following information.

Status box

Feature description

Operating parameters

Feature interactions

Feature packaging

Feature implementation

Feature operation

Status box In the upper right hand corner of the module's first page, the status box identifies the minimum X11 release this feature is available, as well as the latest issue date of the feature module.

Feature description Immediately following the title, a description explains this feature and any enhancement made to the original design. **When an enhancement is included, be sure to note the required X11 release identified in the description text, as it may differ from the X11 release of the original feature.**

Operating parameters These details explain the hardware and software items required or prohibited for operating this feature.

Feature interactions An interaction description explains how this 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 A brief list provides the package information (name, number, and mnemonic) for this feature and its dependencies.

Feature implementation This shows the individual overlays (LDs) necessary to activate this feature. The overlays listed show only prompts requiring responses for this feature. For a complete discussion of prompts and responses, refer to *X11 input/output guide* (553-3001-400).

Feature operation Use these procedures to learn how to operate this feature.

Information concerning software packaging and dependencies is discussed in the chapters listed below.

Index An alphabetized index of feature modules, enhancements and alternate feature names is for easy reference. The enhancements, and alternate feature names are italicized, with a reference to the appropriate module which describes the functionality/capability.

Systems and releases A table documents the highest X11 release supported for each machine type.

Features and software options An alphabetical list of features shows the software package number, feature mnemonic, and the earliest X11 release the feature is available.

Software options and package dependencies A numerical list of software packages shows the feature name and package dependencies.

Feature modules and issue dates An alphabetical list of feature modules includes the latest issue date of the module.

Special features like Electronic Switched Network and Automatic Call Distribution are documented in separate Northern Telecom Publications. The modules in this manual that discuss these special features provide high-level overviews, with the appropriate Northern Telecom Publication references.

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Table 1-1 lists the systems, and the lowest and highest supported X11 release for each system.

Meridian 1 XT and system option 71 require a hard disk with X11 release 16 and X11 release 17.

X11 release 18 and later require hardware upgrades. For further information, refer to *Software conversion procedures* (553-2001-320), or *Upgrade systems installation* (553-3001-250).

Table 1-1
System and supported X11 release

System type	System number	Lowest supported X11 release	Highest supported X11 release
ST	1011	9	17
STE	1511	18	19
NT	1111	8	19
XT	1211	8	19
RT	1311	12	19
21	1011	15	17
21E	1511	18	19
51	1111	15	19
61	1111	15	19
71	1211	15	19
81	1611	18	19

Features and software options

Feature name	Number	Mnemonic	Release
ACD Activity Code Entry	155	ACNT	R13
ACD CDR Queue Record	83	CDRQ	R3
ACD Load Management (C2)	43	LMAN	R1
ACD Package A	45	ACDA	R1
ACD Package B	41	ACDB	R1
ACD Package C1	42	ACDC	R1
ACD Package D	50	ACDD	R2
ACD Package D, Auxiliary Link Processor	51	LNK	R2
ACD Priority Agent	116	PAGT	R12
ACD Timed Overflow	111	TOF	R10
ACD-D Auxiliary Security	114	AUXS	R13
Advanced Network Services	148	NTWK	R13
Alarm Filtering	243	ALARM_FILTER	R19
ANI Route Selection	13	ANIR	R1
Application Module Link	153	IAP3P	R13
Attendant Administration	54	AA	R1
Attendant Alternative Answering	174	AAA	R15
Attendant Overflow Position	56	AOP	R1

Feature name	Number	Mnemonic	Release
Automatic Answerback	47	AAB	R1
Automatic Line Selection	72	LSEL	R4
Automatic Number Identification	12	ANI	R1
Automatic Trunk Maintenance	84	ATM	R7
Automatic Wake Up	102	AWU	R10
Auxiliary Processor Link	109	APL	R10
Background Terminal	99	BGD	R10
Basic Alternate Route Selection	57	BARS	R1
Basic Authorization Code	25	BAUT	R1
Basic Automatic Call Distribution	40	BACD	R1
Basic Call Processing	0	BASIC	R1
Basic Queuing	28	BQUE	R1
Basic Rate Interface	216	BRI	R18
Basic Routing	14	BRTE	R1
Call Detail Recording	4	CDR	R1
Call Detail Recording Expansion	151	CDRE	R13
Call ID	247	CALL ID	R19
Call Party Name Display	95	CPND	R10
Call Park	33	CPRK	R2
Call-by-Call Service Selection	117	CBC	R16
Call Waiting Notification	225	CWNT	R19
Calling line ID in CDR	118	CCDR	R13
CDR on Data Link	6	CLNK	R1
CDR on Teletype Machine (TTY)	5	CTY	R1
Centralized Attendant Services (Main)	26	CASM	R1

Feature name	Number	Mnemonic	Release
Centralized Attendant Services (Remote)	27	CASR	R1
Centrex Switchhook Flash	157	THF	R14
Charge Account for CDR	23	CHG	R1
Charge Account/Authorization Code	24	CAB	R1
Command Status Link	77	CSL	R9
Console Presentation Group Level Services	172	CPGS	R15
Controlled Class Of Service	81	CCOS	R7
Coordinated Dialing Plan	59	CDP	R1
CSL with Alpha Signaling	85	CSLA	R8
Customer Controlled Routing	215	CCR	R18
Deluxe Hold	71	DHLD	R4
Departmental Listed Directory Number	76	DLDN	R5
Dial Intercom	21	DI	R1
Dialed Number Identification Service	98	DNIS	R10
Digit Display	19	DDSP	R1
Digit Key Signaling	180	DKS	R16
Digital Telephones	88	DSET	R7
Direct Inward System Access	22	DISA	R1
Directed Call Pickup	115	DCP	R12
Directory Number Expansion	150	DNXP	R13
Distinctive Ringing/New Distinctive Ringing	74	DRNG	R4/R9
Do Not Disturb, Group	16	DNDG	R1
Do Not Disturb, Individual	9	DNDI	R1
End-to-End Signaling	10	EES	R1
Enhanced ACD Routing	214	EAR	R17

Feature name	Number	Mnemonic	Release
Enhanced Conference, TDS and MFS card	204	XCT0	R15
Enhanced Controlled Class of Service	173	ECCS	R15
Enhanced Music	119	EMUS	R12
Enhanced Overflow	178	EOVF	R15
Extended PBX Features	1	OPTF	R1
Extended Peripheral Equipment (Superloop)	203	XPE	R15
Fast Tone and Digit Switch	87	FTDS	R7
FCC Compliance for DID Answer Supervision	223	FC68	R17/R18
Feature Group D	158	FGD	R17
Flexible Call Back Queuing	61	FCBQ	R1
Flexible Feature Codes	139	FFC	R15
Flexible Tones and Cadences	125	FTC	R16
Forced Charge Account	52	FCA	R1
Group Call	48	GRP	R1
History File	55	HIST	R1
Hold in Queue for IVR	218	IVR	R18
Hospitality Screen Enhancement	208	HSE	R17
Hospitality Voice Services	179	HV5	R16
Hot Line Services, Enhanced Hot Line	70	HOT	R4/R10
Incoming DID Digit Conversion	113	IDC	R12
Integrated Message System	35	IMS	R2
Inter-Exchange Carrier	149	IEC	R13
Intercept Treatment	11	INTR	R1
Internal Call Detail Recording (CDR)	108	ICDR	R10
ISDN Basic Rate Interface	216	BRI	R18

Features and software options				1-17
Feature name	Number	Mnemonic	Release	
ISDN Primary Rate Access	146	PRA	R13	
ISDN Signaling	145	ISDN	R13	
ISDN Signaling Link	147	ISL	R13	
Last Number Redial	90	LNR	R9	I
Limited Access to Overlays	164	LAPW	R16	
Line Load Control	105	LLC	R13	
M2250 TCM Console	140	DCON	R15	
M2317 Digital Display Telephone	91	DLT2	R9	
M3000 Touchphone	89	TSET	R7	
Maid Identification	210	MAID	R17	
Make Set Busy	17	MSB	R1	
Malicious Call Trace	107	MCT	R10	
Meridian Link Module	209	MLS	R16	I
Meridian Mail Voice Mailbox Administration	246	VMBA	R19	
Meridian Modular Telephones	170	ARIE	R14	
Meridian 1 Packer Handler	248	MPH	R19	
Meridian 1 ST/System Option 21	96	SLST	R9	
Meridian 911	224	M911,	R19	
Message Center	46	MWC	R1	
Message Registration	101	MR	R10	
Message Waiting Indication Interworking with DMS	219	MWI	R19	
MSDL Serial Data Interface	227	MSDL SDI	R19	
Multiple-Customer operation	2	CUST	R1	
Multi-Language Wake Up	206	MLWU	R16	
Multi-Purpose Serial Data Link	222	MSDL	R18	
X11 features and services				553-3001-305

Feature name	Number	Mnemonic	Release
Multi-User Login	242	MULTI_USER	R19
Multi-Tenant Service	86	TENS	R7
Music	44	MUS	R1
Network ACD	207	NACD	R15
Network Alternate Route Selection	58	NARS	R1
Network Authorization Code	63	NAUT	R1
Network Call Transfer	67	NXFR	R3
Network Class of Service	32	NCOS	R1
Network Message Services	175	NMS	R16
Network Queuing - Main	38	MCBQ	R2
Network Signaling	37	NSIG	R2
Network Speed Call	39	NSC	R2
Network Traffic Measurements	29	NTRF	R1
New Flexible Code Restriction	49	NFCR	R2
Off Hook Queuing	62	OHQ	R1
Office Data Administration System	20	ODAS	R1
Optional Outpulsing Delay	79	OOD	R5
PBX Interface for DTI	75	PBXI	R5
Pretranslation	92	PXLT	R8
Priority Queuing	60	PQUE	R1
Property Management System Interface	103	PMSI	R10
Recorded Announcement	7	RAN	R1
Recorded Overflow Announcement	36	ROA	R2
Remote Peripheral Equipment	15	RPE	R1
Remote Virtual Queuing	192	RVQ	R18

Feature name	Number	Mnemonic	Release
Room Status	100	RMS	R10
Set Relocation	53	SR	R1
Single Terminal Access	228	STA	R19
Station Category Indication	80	SCI	R7
Station Loop Preemption	106	SLP	R13
Station Specific Authorization Code	229	SSAU	R19
Stored Number Redial	64	SNR	R3
Superloop Administration (LD97)	205	XCT1	R15
Supervisory Attendant Console	93	SUPV	R8
System Errors and Events Lookup	245	SYS_MSG_LKUP	R19
System Speed Call	34	SSC	R2
Time and Date	8	TAD	R1
Tone Detector	65	TDET	R7
Trunk Verification from a Station	110	TVS	R9
Voice Mailbox Administration	246	VMBA	R19
VIP Auto Wake Up	212	VAWU	R17
2.0 Mb/s Primary Rate Interface	154	PRI2	R14
2500 Telephone Features	18	SS25	R1
500 Telephone Features	73	SS5	R4

Software options and package dependencies

Number	Feature Name	Mnemonic	Release
0	Basic Call Processing Includes the following features: <ul style="list-style-type: none">- Call Transfer- Conference- Call Forward No Answer- Hunt- Call Pickup	BASIC	R1
1	Extended PBX Features Includes the following features: <ul style="list-style-type: none">- Autodial- Call Forward All Calls- Override- Ring Again- Secretarial Filtering- Speed Call- Voice Call	OPTF	R1
2	Multiple-Customer Operation	CUST	R1

Number	Feature Name	Mnemonic	Release
4	Call Detail Recording This is the base package for CDR. See also <ul style="list-style-type: none"> - CDR with Charge Account (CHG-24) - CDR Magnetic Tape (CLNK-6) (package 6 is not supported on Release 19 and later) - CDR TTY (CTY-5) - CDR Queue Record (CDR-83) - Internal CDR (ICDR-108) Without CTY (5) or CLNK (6), CDR cannot output statistics or reports.	CDR	R1
5	CDR on Teletype Machine (TTY) Package dependencies: <ul style="list-style-type: none"> - CDR (4) 	CTY	R1
6	CDR on Data Link Package dependencies: <ul style="list-style-type: none"> - CDR (4) 	CLNK	R1
7	Recorded Announcement Package dependencies: <ul style="list-style-type: none"> - INTR (11) 	RAN	R1
8	Time and Date	TAD	R1
9	Do Not Disturb, Individual	DNDI	R1
10	End-to-End Signaling	EES	R1
11	Intercept Treatment	INTR	R1
12	Automatic Number Identification	ANI	R1
13	ANI Route Selection Package dependencies: <ul style="list-style-type: none"> - ANI (12) 	ANIR	R1

Number	Feature Name	Mnemonic	Release
14	Basic Routing Package dependencies: - NCOS (32)	BRTE	R1
15	Remote Peripheral Equipment	RPE	R1
16	Do Not Disturb, Group Package dependencies: - DNDI (9)	DNDG	R1
17	Make Set Busy	MSB	R1
18	2500 Type Features	SS25	R1
19	Digit Display	DDSP	R1
20	Office Data Administration System	ODAS	R1
21	Dial Intercom	DI	R1
22	Direct Inward System Access	DISA	R1
23	Charge Account for CDR Package dependencies: - CDR (4) - CAB (24)	CHG	R1
24	Charge Account/Authorization Code	CAB	R1
25	Basic Authorization Code Package dependencies: - CAB (24)	BAUT	R1
26	Centralized Attendant Services (Main) CASM cannot be used with AOP (56)	CASM	R1
27	Centralized Attendant Services (Remote) CASR cannot be used with AOP (56)	CASR	R1
28	Basic Queuing	BQUE	R1

Number	Feature Name	Mnemonic	Release
29	<p>Network Traffic Measurements</p> <p>One of the following packages must be equipped:</p> <ul style="list-style-type: none"> - BARS (57) - NARS (58) - CDP (59) - PQUE (60) - FCBQ (61) - OHQ (62) 	NTRF	R1
32	Network Class of Service	NCOS	R1
33	Call Park	CPRK	R2
34	System Speed Call	SSC	R2
35	<p>Integrated Message System</p> <p>Package dependencies:</p> <ul style="list-style-type: none"> - BACD (40) - ACDA (45) - MWC (46) <p>Meridian Mail IMS applications require the following additional packages:</p> <ul style="list-style-type: none"> - CSL (77) - CDRQ (83) - CSLA (85) 	IMS	R2
36	<p>Recorded Overflow Announcement</p> <p>Package dependencies:</p> <ul style="list-style-type: none"> - RAN (7) 	ROA	R2
37	<p>Network Signaling</p> <p>Package dependencies:</p> <ul style="list-style-type: none"> - NCOS (32) 	NSIG	R2

Number	Feature Name	Mnemonic	Release
38	Network Queuing - Main Package dependencies: - NCOS (32) - NSIG (37) - FCBQ (61)	MCBQ	R2
39	Network Speed Call Package dependencies: - SSC (34) - BARS (57) or NARS (58)	NSC	R2
40	Basic Automatic Call Distribution This is the minimum package for ACD. See also - ACD Basic; package A (ACDA-45) - ACD Advanced; package B (ACDB-41) - ACD Management Reports; package C1 (ACDC-42) - ACD Load Management; package C2 (LMAN-43) - ACD Package D (ACDD-50) - ACD Auxiliary Link Processor (LNK-51) - ACD/CDRQ record (CDRQ-83) - ACD Timed Overflow (TOF-111) - Dialed Number Identification Service (DNIS-98)	BACD	R1
41	ACD Package B Package dependencies: - BACD (40) - ACDA (45)	ACDB	R1
42	ACD Package C1 Package dependencies: - BACD (40) - ACDB (41) - ACDA (45)	ACDC	R1

Number	Feature Name	Mnemonic	Release
43	ACD Load Management (C2) Package dependencies: - BACD (40) - ACDB (41) - ACDC (42) - ACDA (45)	LMAN	R1
44	Music Package dependencies: - RAN (7)	MUS	R1
45	ACD Package A Package dependencies: - BACD (40)	ACDA	R1
46	Message Center	MWC	R1
47	Automatic Answerback	AAB	R1
48	Group Call	GRP	R1
49	New Flexible Code Restriction Package dependencies: - NCOS (32)	NFCR	R2
50	ACD Package D Package dependencies: - BACD (40) - ACDB (41) - ACDC (42) - ACDA (45) - LNK (51)	ACDD	R2
51	ACD Package D, Auxiliary Link Processor Package dependencies: - ACDD (50)	LNK	R2

Number	Feature Name	Mnemonic	Release
52	Forced Charge Account Package dependencies: - CHG (23) - CAB (24)	FCA	R1
53	Set Relocation	SR	R1
54	Attendant Administration	AA	R1
55	History File	HIST	R1
56	Attendant Overflow Position AOP cannot be used with CASM (26) or CASR (27).	AOP	R1
57	Basic Alternate Route Selection Package dependencies: - BRTE (14) - NCOS (32)	BARS	R1
58	Network Alternate Route Selection Package dependencies: - BRTE (14) - NCOS (32)	NARS	R2
59	Coordinated Dialing Plan Package dependencies: - BRTE (14) - FCBQ (61) - NCOS (32)	CDP	R1
60	Priority Queuing Package dependencies: - NCOS (32)	PQUE	R1

Number	Feature Name	Mnemonic	Release
61	Flexible Call Back Queuing Package dependencies: - BQUE (28) - BARS (57) or NARS (58) or CDP (59)	FCBQ	R1
62	Off Hook Queuing Package dependencies: - BQUE (28) - BARS (57) or NARS (58)	OHQ	R1
63	Network Authorization Code Package dependencies: - CAB (24) - BAUT (25) - BARS (57) or NARS (58) or CDP (59)	NAUT	R1
64	Stored Number Redial	SNR	R3
65	Tone Detector	TDET	R7
67	Network Call Transfer Package dependencies: - NCOS (32) - NSIG (37)	NXFR	R3
70	Hot Line Services Enhanced Hot Line Package dependencies: - NCOS (32) - SSC (34)	HOT HOT	R4 R10
71	Deluxe Hold	DHLD	R4
72	Automatic Line Selection	LSEL	R4

Number	Feature Name	Mnemonic	Release
73	500 Telephone Features Package dependencies: - SS25 (18)	SS5	R4
74	Distinctive and New Distinctive Ringing	DRNG	R4/R9
75	PBX Interface for DTI	PBXI	R5
76	Departmental Listed Directory Number	DLDN	R5
77	Command Status Link	CSL	R8
79	Optional Outpulsing Delay	OOD	R5
80	Station Category Indication	SCI	R7
81	Controlled Class of Service	CCOS	R7
83	ACD CDR Queue Record Package dependencies: - CDR (4) - BACD (40)	CDRQ	R3
84	Automatic Trunk Maintenance Package dependencies: - TDET (65)	ATM	R7
85	CSLA with Alpha Signaling Package dependency: - DDSP (19) - CSL (77) - PBXI (75) for Meridian Mail MP systems	CSLA	R8
86	Multi-Tenant Service	TENS	R7
87	Fast Tone and Digit Switch	FTDS	R7
88	Digital Telephones	DSET	R7

Number	Feature Name	Mnemonic	Release
89	M3000 Touchphone Package dependencies: - DSET (88)	TSET	R7
90	Last Number Redial	LNR	R9
91	M2317 Digital Display Telephone Package dependencies: - DSET (88)	DLT2	R9
92	Pretranslation/Enhanced Pretranslation	PXLT	R8/R14
93	Supervisory Attendant Console	SUPV	R8
95	Call Party Name Display Package dependencies: - DDSP (19) - DSET (88) - TSET (89) - ODAS (20)* - BGD (99)* *The ODAS package is required for DES. *The BGD package is required for Hotel/Motel applications.	CPND	R10
96	Meridian 1 ST/System Option 21	SLST	R9
98	Dialed Number Identification Service Package dependencies: - DDSP (19) - ACDA (45) - APL (109)* - IDC (113)* *The APL package is required for DP link. * The IDC package is required for routing by DNIS.	DNIS	R10

Number	Feature Name	Mnemonic	Release
99	Background Terminal Facility Package dependencies: - CCOS (81) - RMS (100), MR (101), AWU (102), or PMSI (103)	BGD	R10
100	Room Status Package dependencies: - CCOS (81) - BGD (99) - DNDI (9) - MWC (46) Packages DNDI (9) and MWC (46) are required for lamp status.	RMS	R10
101	Message Registration Package dependencies: - CCOS (81) - BGD (99)	MR	R10
102	Automatic Wake Up Package dependencies: - RAN (7) - CCOS (81) - BGD (99)	AWU	R10
103	Property Management System Interface Package dependencies: - CCOS (81) - BGD (99) - RMS (100)	PMSI	R10
105	Line Load Control	LLC	R13
106	Station Loop Preemption	SLP	R10

Number	Feature Name	Mnemonic	Release
107	Malicious Call Trace	MCT	R10
108	Internal Call Detail Recording (ICDR)	ICDR	R10
	Package dependencies:		
	- CDR (4)		
109	Auxiliary Processor Link	APL	R10
110	Trunk Verification from a Station	TVS	R9.32
111	ACD Timed Overflow	TOF	R10
	Package dependencies:		
	- ACDB (41)		
113	Incoming DID Digit Conversion	IDC	R13
	Package dependencies:		
	NFCR (49)		
114	ACD-D Auxiliary Security	AUXS	R12
	Package dependencies:		
	- ACDD (50)		
	- LNK (51)		
115	Directed Call Pickup	DCP	R12
116	ACD Priority Agent	PAGT	R12
	Package dependencies:		
	- ACDA (45)		
117	Call-by-Call Service Selection	CBC	R16
	Package dependencies:		
	- ISDN (145)		
	- PRA (146)		
	- IEC (149)*		
	*The IEC package is required for Inter-Exchange Carrier.		

Number	Feature Name	Mnemonic	Release
118	Calling line ID in CDR Package dependencies: - CDR (4) - ISDN (145)	CCDR	R13
119	Enhanced Music Package dependencies: - MUS (44)	EMUS	R12
125	Flexible Tone and Cadences	FTC	R16
139	Flexible Feature Codes Package dependencies: - CCOS (81)* - SS5 (73)* *The SS5 package is required if you are using FFCs on 500 telephones. *The CCOS package is required for the Electronic Lock feature.	FFC	R15
140	M2250 TCM Console Package dependencies: - DSET (88)	DCON	R15
145	ISDN Signaling	ISDN	R13
146	ISDN Primary Rate Access Package dependencies: - PBXI (75) - ISDN (145) - The DDSP (19) package is required for CLID.	PRA	R13
147	ISDN Signaling Link Package dependencies: ISDN (145)	ISL	R14

Number	Feature Name	Mnemonic	Release
148	Advanced Network Services Package dependencies: <ul style="list-style-type: none">- BRTE (14)- NCOS (32)- ISDN (145)- NARS (58) or CDP (59)- PRA (146) or ISL (147)- NSIG (37) for tandem node	NTWK	R14
149	Inter-Exchange Carrier Package dependencies: <ul style="list-style-type: none">- ISDN (145)- PRA (146)	IEC	R13
150	Directory Number Expansion The CDRE (151) package is required if CDR is equipped.	DNXP	R13
151	Call Detail Recording Expansion Package dependencies: <ul style="list-style-type: none">- CDR (4)- DNXP (150)	CDRE	R13
153	Application Module Link Package dependencies: <ul style="list-style-type: none">- CSL (77)- IMS (35) MSDL requires MSDL package 222	IAP3P	R13
154	2.0 Megabit Primary Rate Interface Package dependency: <ul style="list-style-type: none">- ISDN (145)	PRI2	R14

Number	Feature Name	Mnemonic	Release
155	ACD Activity Code Entry Package dependencies: <ul style="list-style-type: none">- ACDD (50)- LNK (51)- AUXS (114)	ACNT	R13
157	Centrex Switchhook Flash	THF	R14
158	Feature Group D Package dependencies: <ul style="list-style-type: none">- BARS (57)- NARS (58) (recommended)	FGD	R17
164	Limited Access to Overlays	LAPW	R16
170	Meridian Modular Telephone Package dependencies: <ul style="list-style-type: none">- DSET (88) or TSET (89)	ARIE	R14
172	Console Presentation Group Level Services Package dependencies: <ul style="list-style-type: none">- TENS (86)	CPGS	R15
173	Enhanced Controlled Class of Service Package dependencies: <ul style="list-style-type: none">- CCOS (81)	ECCS	R15
174	Attendant Alternative Answering	AAA	R15

Number	Feature Name	Mnemonic	Release
175	<p>Network Message Services</p> <p>Package dependencies:</p> <p>Network Message Center:</p> <ul style="list-style-type: none"> - Originating or Terminating PBX: EES (10), MWC (46), ISDN (145), PRA (146) or ISL (147), NTWK (148) - Tandem PBX: ISDN (145), PRA (146) or ISL (147), NTWK (148) <p>Meridian Mail</p> <ul style="list-style-type: none"> - Originating PBX: EES (10), BACD (40), ACDA (45), MWC (46), NTWK (148), ISDN (145), PRA (146), or ISL (147) - Tandem PBX: NTWK (148), ISDN (145), PRA (146), or ISL (147) - Terminating PBX: EES (10), IMS (35), BACD (40), ACDA (45), MWC (46), CSL (77), ISDN (145), PRA (146) or ISL (147), NTWK (148) <p>ACD Message Center:</p> <ul style="list-style-type: none"> - Originating PBX: EES (10), MWC (46), ISDN (145), PRA (146) or ISL (147), NTWK (148) - Tandem PBX: ISDN (145), PRA (146) or ISL (147), NTWK (148) - Terminating PBX: EES (10), BACD (40), ACDA (45), MWC (46), ISDN (145), PRA (146) or ISL (147), NTWK (148) 	NMS	R16
178	<p>Enhanced Overflow</p> <p>Package dependencies:</p> <ul style="list-style-type: none"> - TOF (111) 	EOVF	R15

Number	Feature Name	Mnemonic	Release
179	Hospitality Voice Services	HVS	R16
	Package dependencies:		
	Pretranslation and DND enhancements:		
	- RAN (7)		
	- EES (10)		
	- MSB (17)		
	- IMS (35)		
	- BACD (40)		
	- ACDA (45)		
	- MWC (46)		
	- CSL (77)		
	- CSLA (85)		
	- APL (109)		
	PMSI enhancements:		
	- CCOS (81), BGD (99), RMS (100), PMSI (103)		
	Meridian Mail:		
	- APL (109)		
180	Digit Key Signaling	DKS	R16
	Package dependencies:		
	- RAN (7)		
	- EES (10)		
	- MSB (17)		
	- IMS (35)		
	- BACD (40)		
	- ACDA (45)		
	- MWC (46)		
	- CSL (77)		
	- CSLA (85)		
	- APL (109)		

Number	Feature Name	Mnemonic	Release
192	Remote Virtual Queuing Package dependencies: <ul style="list-style-type: none">- NTKW (148)- PRA (146) or ISL (147)- ISDN (145)- FCBQ (61)- MCBQ (38)	RVQ	R18
202	International PRA Package dependencies: <ul style="list-style-type: none">- ISDN (145)- PRI2 (154)	IPRA	R15
203	Extended Peripheral Equipment (Superloop) Package dependencies: <ul style="list-style-type: none">- XCT1 (205)	XPE	R15
204	Enhanced Conference, TDS and MFS card Package dependencies: <ul style="list-style-type: none">- XCT1 (205)	XCT0	R15
205	Superloop Administration (LD97)	XCT1	R15
206	Multi-Language Wake Up Package dependencies: <ul style="list-style-type: none">- AWU (102)- PMSI (103)	MLWU	R16
207	Network ACD Package dependencies: <ul style="list-style-type: none">- BQUE (28)- NTKW (148)- EOVF (178)	NACD	R15

Number	Feature Name	Mnemonic	Release
208	Hospitality Screen Enhancement Package dependencies: <ul style="list-style-type: none">- ARIE (170)	HSE	R17
209	Meridian Link Module Package dependencies: <ul style="list-style-type: none">- IAP3P (153) (before X11 release 17 only) MSDL requires package 222 (X11 release 18 and later)	MLS	R16
210	Maid Identification Package dependencies: <ul style="list-style-type: none">- CCOS (81)- BGD (99)- RMS (100)- PMSI (103) The PMSI (103) package is required to capture Maid ID for statistic reports. The HSE (208) package is required to bring up Maid ID screen for Meridian Modular Telephones with Hospitality Screen Enhancement feature.	MAID	R17
212	VIP Auto Wake Up Package dependencies: <ul style="list-style-type: none">- AWU (102)	VAWU	R17
214	Enhanced ACD Routing Package dependencies: <ul style="list-style-type: none">- MUS (44)- ACDB (41)- ACDA (45)	EAR	R17

Number	Feature Name	Mnemonic	Release
215	Customer Controlled Routing Package dependencies: <ul style="list-style-type: none">- CSL (77)- EAR (214)- CALL ID (247) for Release 19 and later	CCR	R18
216	Basic Rate Interface Package dependencies: <ul style="list-style-type: none">- ISDN (145) (required for Packet Handler options)- XPE (203)- MSDL (222)	BRI	R18
218	Hold in Queue for IVR Package dependencies: <ul style="list-style-type: none">- CCR (215)	IVR	R18

Number	Feature Name	Mnemonic	Release
219	<p>Message Waiting Indication Interworking with DMS</p> <p>Package dependencies:</p> <p>Originating Node:</p> <ul style="list-style-type: none"> - MWI (219) if connected to DMS (BCS 36) for Interworking - NWC/NMS (175) - BACD (40) and ACDA (45) if ACD DN is used as the Message Center DN - ISDN Signaling (145) - ISDN Primary Rate Access (146) or ISDN Signaling Link (147) - NTWK (148) - MWC (46) - EES (10) <p>Host Node:</p> <ul style="list-style-type: none"> - MWI (219) if connected to DMS (BCS 36) for Interworking - NWC/NMS (175) - IMS (35) - CSL (77) - BACD (40) - ACDA (45) - ISDN Signaling (145) - ISDN Primary Rate Access (146) or ISDN Signaling Link (147) - NTWK (148) - MWC (46) - EES (10) <p>Tandem Node:</p> <ul style="list-style-type: none"> - MWI (219) if connected to DMS (BCS 36) for Interworking - ISDN Signaling (145) - ISDN Primary Rate Access (146) or ISDN Signaling Link (147) - ISDN Network Services (148) 	MWI	R 19

Number	Feature Name	Mnemonic	Release
222	Multi-Purpose Serial Data Link	MSDL	R18
223	FCC Compliance for DID Answer Supervision	FCC	R17
224	Meridian 911	M911	R19
	Package dependencies:		
	- DDSP (19)		
	- IAP3P (153)		
	- EAR (214)		
	- CALL ID (247)		
	- CWNT (225) for full M911 operation		
	- MLM (209) for Meridian Link		
	Recommended:		
	- CDR (4)		
	- CTY (5)		
	- LMAN (43)		
	- ACDC (42) or ACDD (50) and LNK (51)		
	- CPND (95)		
	- MCT (107)		
	- CCCR (118)		
225	Call Waiting Notification	CWNT	R19
227	MSDL Serial Data Interface	MSDL SDI	R19
	Package dependency:		
	- MSDL (222)		
228	Single Terminal Access	STA	r19
	Package dependencies:		
	- MSDL (222)		
	- MSDL SDI (227)		

Number	Feature Name	Mnemonic	Release
229	Station Specific Authorization Code Package dependency: - BAUT (25)	SSAU	R19
242	Multi User Login	MULTI_ USER	R19
243	Alarm Filtering Package dependency: - HIST (55)	ALARM_ FILTER	R19
245	System Message Look-up Facility	SYS_MSG _LKUP	R19
246	Voice Mailbox Administration Package dependency: - CPND (95)	VMBA	R19
247	Call ID	CALL ID	R19
248	Meridian 1 Packet Handler Package dependency: - BRI (216) - ISDN (145) for 1.5 Mbps PRI link - PRI2 (154) for 2 Mbps PRI link	MPH	R19

Feature modules and issue dates

Feature module	Issue date
Access restrictions	92 12 31
Application Module	92 12 31
Application Module Link	92 12 31
Attendant Administration	92 12 31
Attendant Alternative Answering	92 12 31
Attendant Barge-In	93 10 31
Attendant Busy Verify	92 12 31
Attendant call selection	92 12 31
Attendant Calls Waiting Indication	92 12 31
Attendant consoles	92 12 31
Attendant Incoming Call Indicators	92 12 31
Attendant Interpositional Transfer	92 12 31
Attendant Lockout	92 12 31
Attendant Overflow Position	92 12 31
Attendant Position Busy	92 12 31
Attendant Recall	92 12 31
Attendant Secrecy	92 12 31

Feature module	Issue date
Attendant Splitting	92 12 31
Attendant Supervisory Console	92 12 31
Attendant Trunk Group Busy Indication	92 12 31
Audible Reminder of Held Calls	92 12 31
Autodial	92 12 31
Automatic Answerback	92 12 31
Automatic Call Distribution	93 10 31
Automatic Line Selection	92 12 31
Automatic Number Identification	92 12 31
Automatic Number Identification on DTI	92 12 31
Automatic Preselection of Prime Directory Number	92 12 31
Automatic Set Relocation	93 10 31
Automatic Timed Reminders	92 12 31
Automatic Trunk Maintenance	92 12 31
Automatic Wake Up	92 12 31
Auxiliary Processor Link	92 12 31
Auxiliary Signaling	92 12 31
Background Terminal	92 12 31
Bridging	92 12 31
Busy Lamp Field	92 12 31
Call Detail Recording	92 12 31
Call Forward All Calls	93 10 31
Call Forward Busy	93 08 01
Call Forward by Call Type	92 12 31

Feature module	Issue date
Call Forward External Deny	92 12 31
Call Forward, Internal Calls	93 10 31
Call Forward No Answer/Flexible Call Forward No Answer	92 12 31
Call Forward No Answer, Second Level	92 12 31
Call Hold, Deluxe	93 10 31
Call Hold, Permanent	92 12 31
Call Park	93 10 31
Call Party Name Display	93 10 31
Call Pickup	93 10 31
Call Pickup, Directed	92 12 31
Call Transfer	92 12 31
Call Waiting/Internal Call Waiting	92 12 31
Called Party Disconnect Control	92 12 31
Camp-On	92 12 31
Capacity Expansion	92 12 31
Centralized Attendant Service	92 12 31
Centrex Switchhook Flash	92 12 31
Charge Account and Calling Party Number	92 12 31
Charge Account, Forced	92 12 31
Conference	92 12 31
Console Presentation Group Level Services	92 12 31
Controlled Class of Service	92 12 31
Controlled Class of Service, Enhanced	93 10 31
Departmental Listed Directory Number	92 12 31

Feature module	Issue date
Dial Intercom	93 08 01
Dial Pulse/Dual Tone Multifrequency Conversion	92 12 31
Dialed Number Identification Service	92 12 31
Digit Display	92 12 31
Digital Trunk Interface	92 12 31
Direct Inward System Access	92 12 31
Directory Number	92 12 31
Directory Number Expansion	92 12 31
Distinctive/New Distinctive Ringing	92 12 31
Do Not Disturb	92 12 31
Electronic Switched Network	92 12 31
End-to-End Signaling	93 08 01
Equal Access Compliance	92 12 31
Fast Tone Digit Switch	92 12 31
FCC Compliance for DID Answer Supervision	92 12 31
Flexible Feature Codes	93 08 01
Group Call	92 12 31
History File	93 08 01
Hot Line	93 08 01
Hunting	93 10 31
In-Band ANI	92 12 31
Incoming DID Digit Conversion	92 12 31
Incremental Software Management	92 12 31
Integrated Messaging System Link	92 12 31

Feature module	Issue date
Integrated Services Digital Network	92 12 31
Integrated Voice and Data	92 12 31
Intercept Treatment	92 12 31
ISDN Basic Rate Interface	92 12 31
Last Number Redial	92 12 31
Limited Access to Overlays	92 12 31
Line Load Control	92 12 31
Line Lockout	92 12 31
Line and Trunk Cards	93 10 31
Maid Identification	93 10 31
Make Set Busy	92 12 31
Malicious Call Trace	92 12 31
Manual Line Service	92 12 31
Manual Signaling (Buzz)	92 12 31
Manual Trunk Service	92 12 31
Meridian Hospitality Voice Services	92 12 31
Meridian Mail	92 12 31
Meridian Mail Voice Mailbox Administration	93 10 31
Meridian Manager	92 12 31
Meridian MAX/ACD-MAX	92 12 31
Message Center	92 12 31
Message Registration	93 08 01
Message Waiting Indication (MWI) Interworking	93 10 31
Message Waiting Lamp Maintenance	92 12 31

Feature module	Issue date
MSDL Serial Data Interface	93 08 01
Multiple Appearance DN Redirection Prime	92 12 31
Multiple Console operation	92 12 31
Multiple Customer Operation	92 12 31
Multi-Tenant Service	92 12 31
Multi-User Login	93 08 01
Music	93 08 01
Music, Enhanced	92 12 31
Network Message Services	92 12 31
New Flexible Code Restriction	92 12 31
Night Key for DID Digit Manipulation	92 12 31
Night Service	92 12 31
No Hold Conference	92 12 31
Off Hook Alarm Security	93 08 01
Off-Premise Extension	92 12 31
Office Data Administration System	92 12 31
On Hook Dialing	92 12 31
Optional Outpulsing Delay	92 12 31
Overlay Cache Memory	93 08 01
Override	92 12 31
Paging	92 12 31
Pretranslation	93 08 01
Privacy	92 12 31
Privacy Override	93 08 01

Feature module	Issue date
Privacy Release	92 12 31
Private Line Service	92 12 31
Property Management System Interface	93 08 01
Public Switched Data Service	93 10 31
Recorded Announcement	92 12 31
Recorded Overflow Announcement	92 12 31
Recorded Telephone Dictation	92 12 31
Remote Call Forward	93 08 01
Remote Peripheral Equipment	92 12 31
Ring Again	92 12 31
Room Status	93 08 01
Secretarial Filtering	92 12 31
Short Buzz for digital telephones	92 12 31
Speed Call	92 12 31
Speed Call/Autodial with Authorization Codes	92 12 31
Speed Call, System	93 08 01
Station Category Indication	92 12 31
Station Specific Authorization Code	93 08 01
Station-to-Station Calling	92 12 31
Stored Number Redial	92 12 31
Telephones	93 08 01
Time and Date	92 12 31
Tones and Cadences	92 12 31
Tones, Flexible Incoming	92 12 31

Feature module	Issue date
Trunk Verification from a Station	92 12 31
Uninterrupted Line Connections	92 12 31
User Selectable Call Redirection	92 12 31
Voice Call	93 08 01
2500 Telephone Features	93 10 31
500 Telephone Features	92 12 31
500/2500 Type Line Disconnect	93 08 01

Access restrictions

Access restrictions limit individual user access to the exchange network, private network, and certain services and features. These restrictions can be arranged to control all calls originated by or terminating on stations. Access restrictions can be temporarily overridden by the use of other Meridian 1 features, if equipped, such as Forced Charge Account, Authorization Code, and System Speed Call.

When a call is originated, access checks are made by the Meridian 1 on

- the class of service (CLS) of the individual station
- the Trunk Group Access Restriction (TGAR) code of the station
- the area and exchange codes dialed by stations with a Toll Denied (TLD) class of service
- the Network Class of Service (NCOS) of the station, if Basic Alternate Route Selection/Network Alternate Route Selection (BARS/NARS) or Coordinated Dialing Plan (CDP) is equipped

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

Class of Service restrictions

The Class of Service (CLS) restrictions assigned to telephones and Tie trunks control the degree of access to and from the exchange network. CLS restrictions also control access to certain features within the system. There are eight possible CLS access restrictions assigned to telephones, Tie trunks, Direct Inward System Access (DISA) trunks, and Authorization Codes that access the public exchange network. They are listed in order, from the most restricted to least restricted. Each of these restriction levels builds upon the capabilities of those listed before it. For example, a telephone with FR1 CLS can call anywhere a telephone with FR2 can, and can also access Tie trunks. See Table 2-1.

Fully Restricted Service There are three levels:

- 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, for example, 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 using call modification from an unrestricted telephone

Note: 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.

Table 2-1
Class of Service chart

	UNR	CTD/CUN	TLD	SRE	FRE	FR1	FR2
Incoming trunk calls	Yes	Yes	Yes	Yes	Yes using call modification No	No	No
Outgoing non-toll trunk calls	Yes	Yes	Yes	Yes using attendant or UNR telephone	Yes using UNR telephone	No	No
Outgoing toll trunk calls (0 or 1+ on COT or FX)	Yes	Yes using BARS/NARS No direct access	No direct access	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

- 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 LD17 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
- 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 and to dial the local exchange network or selected local exchanges, if code restriction is in effect. Allowed to originate calls through the toll exchange network through an attendant or an unrestricted telephone only. TLD is commonly used with Forced Charge Account and Code Restriction Blocks.

Conditionally Toll Denied Service (CTD) Allowed access for calls placed through Basic/Network Alternate Route Selection (BARS/NARS) and Coordinated Dialing Plan (CDP). Then the telephone NCOS restriction is checked. When using dial access of routes, CTD are seen as TLD telephones.

Conditionally Unrestricted Service (CUN) Allowed access for calls placed through Automatic Number Identification (ANI). Denied access for all other types of outgoing calls.

Unrestricted Service (UNR) Allowed to originate and receive calls from the exchange network.

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.

Note: No area codes, local exchange, on special numbers such as 911 and 411 can be successfully dialed unless allowed in a Code Restriction Block for COTs.

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 outpulsed with the dialed number to complete the call successfully.

For more information, see *New Flexible Code Restriction* or *Basic and Network Alternate Route Selection description* (553-2751-100).

Trunk Group Access Restrictions

Trunk Group Access Restrictions (TGARs) control access to the exchange network, tie and CCSA access lines, and paging and dictation services. Telephones, Tie trunks, Direct Inward System Access (DISA) trunks, and Authorization Codes are assigned a Trunk Group Access Restriction (TGAR) code which defines the trunks that may be accessed. Up to 16 TGAR codes can be assigned for each customer. X11 release 13 and later software allows the assignment of 32 TGAR codes per customer. Any TGAR that is not allowed access to a route is assigned in the Trunk Route Data Block in response to the prompt TARG (Trunk Access Restriction Group).

When a telephone or Tie trunk accesses a trunk route, the Meridian 1 checks the class of service of the originating party. If access is allowed, the system then compares the TGAR of the station against the TARG codes defined for the route being accessed. If a match is found, the call is denied and Intercept Treatment (INTR)-defined in the Customer Data Block-is applied.

When dial access to a trunk group is denied, the station may access the trunk route through the attendant or a nonrestricted station. If a route is busied-out by the attendant, stations with a TGAR code 0 to 7 are intercepted to the attendant. Stations with a TGAR code 8 to 31 continue to seize and use the trunks on the busied route to which they have access.

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 2-2 summarizes the trunk signaling arrangements.

Table 2-2
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			

Operating parameters

If a conflict exists between the class of service (CLS) and TGAR restrictions, 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 interaction

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

Feature packaging

These capabilities are included in basic X11 system software.

Feature implementation

Use the overlays on the following pages to configure access restrictions.

LD10-Assign a Class of Service and TGAR code for 500/2500 telephones.

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)	Unrestricted (default)
	CUN	Conditionally Unrestricted
	TLD	Toll Denied
	CTD	Conditionally Toll Denied
	SRE	Semi Restricted
	FRE	Fully Restricted
	FR1	Fully Restricted 1
	FR2	Fully Restricted 2

LD11-Assign a Class of Service and TGAR code for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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)	Unrestricted (default)
	CUN	Conditionally Unrestricted
	TLD	Toll Denied
	CTD	Conditionally Toll Denied
	SRE	Semi Restricted
	FRE	Fully Restricted
	FR1	Fully Restricted 1
	FR2	Fully Restricted 2

LD14-Assign a Class of Service and TGAR code for Tie trunks.

REQ	CHG	Change
TYPE	TIE, ISA, CSA	Trunk 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)	Unrestricted (default)
	CUN	Conditionally Unrestricted
	TLD	Toll Denied
	CTD	Conditionally Toll Denied
	SRE	Semi Restricted
	FRE	Fully Restricted
	FR1	Fully Restricted 1
	FR2	Fully Restricted 2

LD88-Assign a Class of Service to the Authorization Code classcode.

REQ	CHG	Change
TYPE	AUB	Authcode Data Block
CUST	0-99	Customer number
SPWD	xxxx	Secure data password (see LD15 for description)
CLAS	0-115	Classcode number
COS	(UNR)	Unrestricted
	CUN	Conditionally Unrestricted
	TLD	Toll Denied
	CTD	Conditionally Toll Denied
	SRE	Semi Restricted
	FRE	Fully Restricted
	FR1	Fully Restricted 1
	FR2	Fully Restricted 2
TGAR	X, (0)-31	Class code TGAR Network Class of Service
NCOS	(0)-99	Toll Restricted

LD24-Assign a Class of Service to Direct Inward System Access (DISA) numbers.

REQ	CHG	Change
TYPE	DIS	DISA data
CUST	0-99	Customer number
SPWD	xxxx	Secure data password (see LD15 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
COS	(UNR)	Unrestricted
	CUN	Conditionally Unrestricted
	TLD	Toll Denied
	CTD	Conditionally Toll Denied
	SRE	Semi Restricted
	FRE	Fully Restricted
	FR1	Fully Restricted 1
	FR2	Fully Restricted 2

LD17-Allow/deny incoming calls to telephones with an FRE Class of Service for all customers.

REQ	CHG	Change
TYPE	CFN	Configuration record
FRPT	OLFR	Allow incoming trunk calls to telephones with FRE CLS, using call modification
	(NEFR)	Deny incoming trunk calls to FRE telephones using call modification

LD16-Add/change the TARG code for a trunk route.

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.

LD19-Implement Code Restriction on trunk routes.

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

LD16-Define toll access digits that are to be ignored for Code Restriction.

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

Not applicable.

Application Module

The Application Module (AM), formerly 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* (553-3201-200)
- *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 ISDN network services on the Meridian 1. Tasks performed by the Application Module Link (AML) include link activation, fault detection, maintenance, and traffic reporting. The Application Module Link (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

Application Module Link (IAP3P), package 153, requires:

- Command Status Link (CSL), package 77
- Digit Display (DDSP), package 19
- Automatic Call Distribution (ACD) Basic features (ACD-A), package 45
- ACD Advanced features (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 features that are not included in the list cannot be modified or changed by the Attendant Administration feature.

- SL-1 and Meridian digital telephone key assignments
- Call Forward (500/2500 telephones only)
- Call Forward Busy (all telephones)
- Call Forward No Answer (all telephones)

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

For details on 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 may 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, however. 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 into 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 a 500/2500 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 data base is automatically dumped during the midnight routine if a transaction has been successfully completed during the previous day. If this data dump fails, the minor alarm lamp on the console will light.

Feature interaction

- 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 data dump (for system reload) is lost and must be input again.
- Initialize
The Attendant Administration password is preserved over an initialization and set to the value on the tape when the system is reloaded.
- 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.

Feature packaging

Attendant Administration (AA), package 54, has no feature package dependencies.

Feature implementation

LD15-Assign an Attendant Administration access code.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	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 LD17 at the PWD2 prompt.

LD12-Add/change Attendant Administration key.

REQ	NEW, CHG	New or change
TYPE	ATT, 1250, 2250	Console type
CUST	0-99	Customer number. Prompted only when REQ = NEW
TN	l s c u	Terminal Number
KEY	xx PRG	Add an Attendant Administration key

Feature operation

Not applicable.

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 time 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 may 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 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 LD15.
- 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. It 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; thus, 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 interaction

- 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, then 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, then 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, then 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.
- 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.

Feature implementation

LD15-Implement the Attendant Alternate Answering feature in the customer data block.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
ATIM	(0)-126	AAA timer in 2-second increments. Odd numbers are rounded down. ATIM = 0 disables the feature

LD12-Define the AAA DN for each attendant console affected.

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

Feature operation

Not applicable.

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-ms 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 interaction

None.

Feature packaging

Attendant Barge-In is included in basic X11 system software.

Feature implementation

LD12-Add/change a Barge-In key on attendant consoles.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	I s c u	Terminal Number
KEY	1 BIN	Add a Barge-In key

LD10-Allow/deny a warning tone Class of Service for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	(WTA), WTD	(Allow), deny warning tone

LD11-Allow/deny a warning tone Class of Service for SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000
TN	I s c u	Terminal Number
CLS	(WTA), WTD	(Allow), deny warning tone

LD14-Allow/deny warning tone Class of Service for trunks

REQ	CHG	Change
TYPE	COT, DID, FEX, RAN, TIE, WAT	Trunk type
TN	I 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)
- fast busy (trunk is either disabled or has Warning Tone Denied CLS)

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

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-ms 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.

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 interaction

- 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 basic X11 system software.

Feature implementation

LD12-Add/change a Busy Verify key on attendant consoles.

REQ	CHG	Request change
TYPE	ATT, 1250, 2250	Console type
TN	I s c u	Terminal Number
KEY	0 BVR	Add a Busy Verify key

LD10-Allow/deny warning tone Class of Service for 500/2500 telephones

REQ	CHG	Request change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	(WTA), WTD	Allow or deny warning tone

LD11-Allow/deny warning tone Class of Service for SL-1 and digital telephones.

REQ	CHG	Request change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
CLS	(WTA), WTD	Allow or deny warning tone

LD14-Allow/deny warning tone Class of Service for trunks

REQ	CHG	Request change
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)
 - fast busy (station is disabled or has Warning Tone Denied CLS)
- 4 Press the release key to disconnect from the call.

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 depressing 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 assignment.

Feature interaction

None.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

Not applicable.

Note: To implement ICI, see Attendant Incoming Call Indicators on page 12-1.

Feature operation

Not applicable.

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 waiting.

If CWUP (notify change in Calls Waiting status) is set to YES in LD15, the number of calls waiting are displayed on the M2250 console. If CWUP is set to NO, a Display Calls Waiting (DCW) key is required to display the number of waiting calls.

Operating parameters

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

Feature interaction

None.

Feature packaging

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

Feature implementation

LD15-Define Call Waiting thresholds and indications for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CWUP	Yes, (No)	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 (default is 0)
CWTM	(0)-511 (0)-511	Lower and upper bound of the threshold for the time calls are waiting (default is 0)
CWBZ	Yes, (No) Yes, (No)	The two options are 1. Enable (Disable) a buzz to the attendant when either the CWCL or CWTM thresholds are exceeded. 2. Enable (Disable) a buzz to the attendant when the first call enters the queue.

LD12-Add/change a Display Calls Waiting key on an attendant console.

REQ	CHG	Change
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

Not applicable.

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.

The following attendant consoles are available with the Meridian 1 system:

- QCW 2 Basic console with an eight-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 four-line, 40-character wide, alphanumeric liquid crystal display
- M2250 Digital console with a four-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 following visual indication of the 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 utilized 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:

- Dark No calls of this type are waiting.
- Steadily lit One call of this type is waiting in queue.
- Flashing 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 11-1.

Table 11-1
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 11-2 can be defined on this keystrip.

Table 11-2

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
00-09	DPS	Display Source

Table 11-2
Attendant console optional feature key assignments (Part 2 of 2)

Key	Mnemonic	Meaning
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 following information:

- Line 1 Displays the time and date
- Line 2 Displays call source information
- Line 3 Displays call destination information
- Line 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 Attendant Console User Guide and the M2250 Console User Guide.

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:

- *Attendant consoles and add-on modules* (553-2001-115)
- *M1250 and M2250 Attendant Consoles description* (553-2201-117)
- *Telephone and attendant console installation* (553-3001-215)
- *Fault clearing* (553-3001-510)

Operating parameters

Refer to the preceding Northern Telecom Publications.

Feature interaction

Refer to the preceding Northern Telecom Publications.

Feature packaging

QCW and M1250 attendant console capabilities are included in basic X11 system software.

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

M2250 attendant console (DCON), package 140, requires Digital Telephones (DSET), package 88.

Feature implementation

LD15- Attendant console related prompts and responses (Part 1 of 3).

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	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)
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
ATDN	(0) xxx...x	Attendant DN
NCOS	(0)-99	Attendant Network Class of Service for all consoles
CAS	Yes, (No)	Change Centralized Attendant Service options

LD15- Attendant console related prompts and responses (Part 2 of 3).

OPT	IC2, (IC1) ITG, (XTG) LOA, (LOD) IDP, (XDP) ILF, (XLF) SYA, (SYD)	10 or 20 Incoming Call Indicators Trunk Group Busy keys equipped/not equipped Allow (Deny) Lockout Digit Display equipped/not equipped Lamp Field Array equipped/not equipped Allow (Deny) Secrecy
ANAT	xxx x	Attendant Billing number
ANLD	xxx...x	ANI listed DN
LFTN	I s c u	TN of first Lamp Field Array
LFTN	I s c u	TN of second Lamp Field Array
LFFD	xxx...x	First DN of Lamp Field Array
AATT	xxxx	AIOD attendant identifier
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 11-1) 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
AODN	xxxx...x	Attendant overflow DN

LD15- Attendant console related prompts and responses (Part 3 of 3).

ATAC	xxxx	Attendant Administration access code
CWUP	Yes, (No)	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	Yes, (No)	Buzz when Call Waiting thresholds are exceeded
	Yes, (No)	Buzz when first call enters queue
MATT	Yes, (No)	Attendant consoles used as Message Center
SPVC	0-63	Attendant number for supervisor Cconsole
AWU	Yes, (No), X	Enable Automatic Wake Up (X erases AWU information)
ATRC	Yes, (No)	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.		

LD12- Add an attendant console.

REQ	ADD	Add a console
TYPE	ATT	Attendant console
	1250	M1250 console
	2250	M2250 console
	PWR	Power TN
TN	l s c u	TN of attendant console
CDEN	SD, (DD)	Card density
SETN	l 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 (default 8) Not prompted if TYPE = 1250 or 2250
SSU	0-4095	System Speed Call user list number
ICDR	ICDA, (ICDD)	Allow (Deny) internal call detail
CPND	CNDA, (CNDD)	Allow (Deny) Call Party Name Display Prompted if TYPE is 1250 or 2250
DNDI	DNDA, (DNDD)	Allow (Deny) dialed name display
EBLF	BLFA, (BLFD)	Allow (Deny) 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 11-2)

Feature operation

Not applicable.

Attendant Incoming Call Indicators

Attendant consoles can be equipped with up to 20 Incoming Call Indication (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
- Call Forward No Answer calls

Three lamp states are associated with each Incoming Call Indicator key:

- Dark There are no calls of this type waiting.
- Steadily lit One call of this type is waiting in queue.
- Flashing 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 interaction

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

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD15-Assign ICI keys for attendant consoles.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	(IC1), IC2	10 or 20 Incoming Call Indicators
ICI	0-19 CAx	Station category number x = category number 1 through 7
	0-19 CFB	Call Forward Busy
	0-19 CFN	Call Forward No Answer
	0-19 DF0	Dial 0 fully restricted
	0-19 DL0	Dial 0 (attendant)
	0-19 IAT	Inter-attendant call
	0-19 INT	Call intercept
	0-19 LCT	Line Lockout Intercept
	0-19 LD0-3	Listed Directory Number (0 through 3)
	0-19 MWC	Attendant message center
	0-19 RLL	Recall
	0-19 xxx	Route number

Feature operation

Not applicable.

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 interaction

None.

Feature packaging

Attendant Interpositional Transfer is included in basic X11 system software.

Feature implementation

LD15-Add/change an Interpositional Call Incoming Call Indicator (ICI) key on attendant consoles.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
ICI	0-19 IAT	Add an Interattendant Call ICI to all consoles

Feature operation

To transfer a call to a busy attendant (attendant console), follow these steps:

- 1 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 these steps:

- 1 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 reenter 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 interaction

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

Feature packaging

Attendant Lockout is included in basic X11 system software.

Feature implementation

LD15-Allow/deny Lockout for attendant consoles.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	LOA, (LOD)	Allow (Deny) attendant lockout

Feature operation

Not applicable.

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, an SL-1 or digital telephone can busy out the AOP DN for all appearances.

A 500/2500 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 500/2500 telephone have an AOP DN, the AOP DN must also appear on an SL-1 or digital 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 an SL-1 or digital telephone's secondary DN.

SL-1 or Meridian digital 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 ISDN or 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 modes.
- 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).

- A 500/2500 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 interaction

- **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 ACD DN. 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 a 500/2500 telephone is forwarded, AOP is cancelled.

- **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.

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

- 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

LD15-Assign/change an Attendant Overflow Position DN and queue threshold timing.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	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

LD11-Add/change an AOP DN and AOP Busy key.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx yyy...y	Attendant Overflow Position DN xx = key number yyy...y = DN
KEY	xx OVB	Attendant Overflow Position Busy key

LD10-Add/change an Attendant Overflow Position DN on a 500/2500 telephone.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
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 Position Busy 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 (500/2500 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 interaction

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

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

Not applicable.

Feature operation

Not applicable.

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 SL-1 and Meridian digital 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 interaction

- 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.

Feature packaging

Attendant Recall is included in basic X11 system software.

Feature implementation

LD15-Add/change a Recall Incoming Call Indicator (ICI) key on attendant consoles.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
ICI	xx RLL	Add a Recall ICI to all consoles

LD10-Implement Attendant Recall for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	XFA, (XFD)	Allow (Deny) call transfer which allows automatic Attendant Recall

LD11-Add/change an Attendant Recall key for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx ARC	Add an Attendant Recall key (M3000 must use key 33) xx = key number

Feature operation

To contact an attendant during a call (SL-1 or digital 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 (500/2500 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 (500/2500 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 on trunk calls only.

Feature interaction

- Attendant Recall
Attendant Secrecy does not apply on an attendant recall or when the attendant re-enters 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 basic X11 system software.

Feature implementation

LD15-Allow/deny Attendant Secrecy for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	SYA, (SYD)	Allow (Deny) Attendant Secrecy

Feature operation

Not applicable.

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 interaction

None.

Feature packaging

Attendant Splitting is included in basic X11 system software.

Feature implementation

Not applicable.

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.

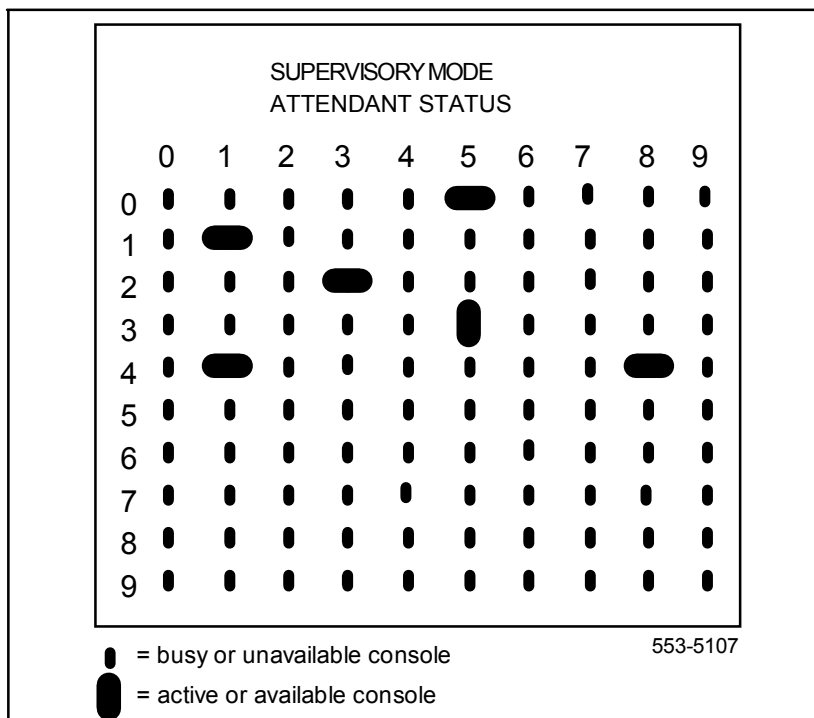
Attendant Status using Lamp Field Array

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 20-1 shows an example of Supervisory monitoring in Enhanced Busy Lamp Field mode on the Busy Lamp Field/Console Graphics Module.

Figure 20-1
Enhanced Busy Lamp Field Supervisory mode



Visual indication of calls in queue

An attendant call queue holds incoming calls to the SL-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-type 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-type 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 interaction

- 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, then it cannot be used for other functions during any mode of the attendant console.
- 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.
- 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 groups so that it can serve all groups when operating in the Normal mode.
- 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.

Feature packaging

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

Feature implementation

LD15-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.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	ITG, (XTG)	Include/exclude Trunk Group Busy Indication Requires OPT = IC2 for QCW consoles
	ILF, (XLF)	Include/exclude Lamp Field Array Module
LFTN	I s c u	Secondary TN of supervisory console (required when Lamp Field Array is equipped)
SPVC	1-63	Attendant number for supervisory console
	0	No supervisory console
SBLF	Yes, (No)	Supervisory lamp field array is or is not to be used to monitor other attendant consoles
ITH1	1-255	Visual indication threshold 1 (number of calls in queue \geq ITH1 but $<$ ITH2)
ITH2	2-255	Visual indication threshold 2 (number of calls in queue \geq ITH2 but $<$ ITH3)
ITH3	3-255	Visual indication threshold 3 (number of calls in queue \geq ITH3)

LD15-Enable/disable feature for an M1250/2250 console with a Console Graphics Module in the Enhanced Busy Lamp Field mode.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	IBL, (XBL)	Include/exclude Busy Lamp Field or Console Graphics Module
SPVC	1-63	Attendant number for supervisory console
	0	No supervisory console
ITH1	1-255	Visual indication threshold 1 (number of calls in queue \geq ITH1 but $<$ ITH2)
ITH2	2-255	Visual indication threshold 2 (number of calls in queue \geq ITH2 but $<$ ITH3)
ITH3	3-255	Visual indication threshold 3 (number of calls in queue \geq ITH3)

LD12-Enable/disable supervisory console Silent Observe.

REQ	CHG	Change
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

LD12-Enable/disable supervisory console for M1250/2250 consoles with Enhanced Busy Lamp Field and Silent Observe.

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



LD15-Enable/disable an M1250/2250 console using Trunk Group Busy keys as status keys.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	ITG, (XTG)	Include/exclude Trunk Group Busy Indication.
SPVC	1-63	Attendant number for supervisory console
	0	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 \geq ITH1 but $<$ ITH2)
ITH2	2-255	Visual indication threshold 2 (number of calls in queue \geq ITH2 but $<$ ITH3)
ITH3	3-255	Visual indication threshold 3 (number of calls in queue \geq 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:

- Off Some of 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 type 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 interaction

None.

Feature packaging

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

Feature implementation

LD15-Allow Trunk Group Busy keys.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	(IC1), IC2	Allow Trunk Group Busy keys IC1 = 10 IC2 = 16 for M1250, or 20 for M2250
OPT	ITG/XTG	Include/exclude Trunk Group Busy Indicator keys (default is XTG)

Feature operation

To restrict access to a trunk route (make it busy to users), follow these steps:

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

To allow access to the trunk route, follow these steps:

- 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 500/2500 telephones and a tone on SL-1 and Meridian digital 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 Call (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 500/2500 telephones, Audible Reminder of Held Calls (ARHC) applies only to permanent hold. When using ARHC on an SL-1 or Meridian digital telephone, the station user must not be originating, receiving, or active on another call.

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

This feature does not operate on attendant consoles.

Feature interaction

- Permanent Hold
Permanent Hold must be enabled in LD10 for the single-line telephone; however, the ARHC timer takes precedence over the Permanent Hold timer.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD15-Set duration between reminder cadences for Audible Reminder of Held Calls.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	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.

LD10-Allow/deny Audible Reminder of Held Call for 500/2500 telephones.

REQ	CHG	Change
TYPE	500, 2500	Telephone type
TN	I s c u	Terminal Number
CLS	XFA, (XFD)	Allow (Deny) call transfer
	ARHA, (ARHD)	Allow (Deny) Audible Reminder of Held Call
FTR	PHD	Permanent Hold allowed

LD11-Allow/deny Audible Reminder of Held Call for SL-1 or digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
CLS	ARHA, (ARHD)	Allow (Deny) Audible Reminder of Held Call

Feature operation

Not applicable.

Autodial

Autodial allows users to dial a number by pressing a single key. SL-1 telephones, Meridian digital 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 when a pause is 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 + #
- SPRE code + digit 6 + authorization code + # + ESN access code and dialed number

Operating parameters

Autodial must be assigned to a key/lamp pair so it is not available on 500/2500 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.

NARS and BARS does not support the asterisk (*) as a pause when dialing an autodial number.

Feature interaction

- Last Number Redial
A number dialed using Autodial will become the Last Number Redial number on all telephones except the M2317 and M3000.

Feature packaging

Extended PBX 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 (CAB), package 24, OR
Basic Authorization Code (BAUT), package 25, OR
Network Authorization Code (NAUT), package 63
- Extended PBX Features (OPTF), package 1, OR
System Speed Call (SSC), package 34, OR
Network Speed Call (NSC), package 39

Feature implementation

LD11-Assign Autodial key for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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)

LD12-Assign Autodial key for M1250 and M2250 attendant consoles

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)

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.

Automatic Answerback

Automatic Answerback (AAB), when assigned to an SL-1 or Meridian digital 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 only 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 DN's other than the PDN, or calls presented to the PDN when active on another DN, will not receive Automatic Answerback treatment.

Feature interaction

- Message Center
If a telephone is in the Automatic Answerback mode, incoming calls are not routed to the Message Center.

Automatic Answerback can be provided as a Class of Service or on a key/lamp pair. You cannot assign both in service change.

Feature packaging

Automatic Answerback (AAB), package 47, has no feature package dependencies.

Feature implementation

LD11-Assign Automatic Answerback as a Class of Service to SL-1, M2112, M2317, M2616, or M3000 telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2112, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	AAA, (AAD)	Allow (Deny) Automatic Answerback for all calls. AAA cannot be entered if the AAK key is already programmed.
	HFA (HFD)	Allow (Deny) Handsfree (see Note)
Note: HFA is allowed for M2216 only.		

LD11-Assign Automatic Answerback key to SL-1, M2112, M2317, M2616, or M3000 telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2112, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	HFA, (HFD)	Allow (Deny) Handsfree (Note 1)
	AAA, (AAD)	Allow (Deny) Automatic Answerback Must disable to add the AAK key
KEY	xx AAK	Add Automatic Answerback key (Note 2) xx = key number
Note 1: HFA is allowed for M2216 only.		
Note 2: M2216 with AAA cannot use key 5 as a feature key. Key 5 is reserved for handsfree. 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 volume 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 given 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 documents for complete information regarding the various ACD packages.

Automatic Call Distribution Features discussion(553-2671-110)

- In-Calls key
- Directory Number key
- Not Ready key
- Release key
- Make Set Busy key
- Night Mode
- Call Source Identification
- Calls Waiting Indication
- Display Agents key
- Display Waiting Calls key
- Incoming Trunk restrictions
- Recorded Announcement
- Night Treatment
- Night Call Forward (NCFW)
- Priority trunks
- Music on Hold
- ACD-CDR Connection Record
- In-Band ANI (IANI)
- Alternate Call Answer
- Automatic Overflow
- Call Interflow
- Time Overflow (TOF) queuing
- Enhanced Overflow
- Supervisor control of queue size
- Call Forcing
- Secondary DN Call Blocking (SDNB)
- Dialed Number Identification Service (DNIS)
- Routing by DNIS number
- Name Display for DNIS
- DNIS across call modifications
- DNIS on CDR
- Enhanced ACD Routing
- Customer Controlled Routing (CCR)
- Hold in queue for Interactive Voice Response
- Music On Delay
- Priority Agents
- Display Waiting Calls (DWC)
- Agent Observe
- Supervisor and agent communication

Supervisor Control of Night Service (NSVC)
Agent and Supervisor communication
Calls waiting indication
Emergency key

Automatic Call Distribution ACD management commands and reports
(553-2671-112)

CCR reporting information
Agent ID option
ACD set log in
Data Agent log in
ACD telephone log out
Data Agent log out
Walkaway/return
Agents using DN keys
Report Control
Management report terminals
ACD supervisor terminal
ACD senior supervisor terminal
Periodic management reports
Warning messages
Report data
Calls per ACD DN
Calls delayed per ACD DN
Total trunk usage per ACD DN
Report length
Short Reports
Enhanced daily totals
Ongoing Status Display
Agent ID reporting
System totals
Daily totals
Accessing the command mode
Set Controlled mode (CNTL)
Set Default ACD DN (DFDN)
Query current options (POPT)
Query current parameters (PPAR)
Select Route and Trunk Assignment (SRTA)
Select Trunk Priority Assignment (SPRI)
Select Agent Position Assignment (SAPA)

Select Agent to Supervisor Assignment (SATS)
First RAN Route Assignment (FRRT)
Second RAN Route Assignment (SRRT)
Night RAN Route Assignment (NRRT)
Automatic Overflow Target DN
Automatic Overflow thresholds (TLDA, TLDB, TLDC)
Time Overflow threshold (TLDD)
Setting the Interflow DN (IFDN)
Telephone Service Factor time (TSF)
Daily system totals
Set Agent Priority (SAGP)
List Agent Position Assignment (LAPA)
List Agent Priority (LAGP)
Enable Call Force
Print CDN Parameters and Options (PCPO)
Set the Call Ceiling (CEIL)

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 ISDN to allow ACD services over the customer's network for automatic least cost call routing in an ACD environment. In addition to the above listed documents, refer to the following:

- *Network ACD description and operation* (553-3671-120)

Operating parameters

Refer to the documents listed for your system.

Feature interaction

Refer to the documents listed for your system.

Feature packaging

Refer to the documents listed for your system.

Feature implementation

Refer to the documents listed for your system.

Feature operation

Refer to the documents listed for your system.

Automatic Line Selection

Automatic Line Selection allows manual or automatic selection of incoming and outgoing lines for a given SL-1 or Meridian digital 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 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 a 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 SL-1 and Meridian digital telephones only.

The user determines which line is in use by observing lamp state changes.

Feature interaction

- Voice Call
This feature is not selected by automatic Outgoing Line Selection. It is selected for Incoming Ringing and Non-Ringing 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.
- 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 Answerback
Automatic Answerback operates only on the Prime DN (key zero) and has no interrelation with Incoming Ringing/Non-Ringing Line Selection.
- Dial Intercom
A Dial Intercom DN is selected by Incoming Ringing Line Selection and Outgoing Line Selection.
- Private Line Service
A Private line DN is selected by Incoming Ringing/Non-Ringing Line Selection and 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.
- Call Waiting
A call on the Call Waiting key is not selected.

Feature packaging

Automatic Line Selection (LSEL), package 72, has no feature package dependencies.

Feature implementation

LD11-Assign Automatic Line Selection for each SL-1 or Meridian digital telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	IRA, (IRD)	Allow (Deny) incoming ringing line preference
	NIA, (NID)	Allow (Deny) incoming non-ringing line preference
	OLA, (OLD)	Allow (Deny) 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

Not applicable.

Issued:	92 12 31
Status:	Standard
X11 Release:	All

27-1

Automatic Number Identification

Automatic Number Identification (ANI) automatically identifies a station originating an outgoing toll call and its destination party, and transmits the information to a recording office. A multifrequency (MF) sender is used to transmit ANI information. The signaling method used to send this information to the Central Office can be E&M, DX, or loop signaling.

ANI supports three basic signaling methods: NT400, NT500, and Bell (Super Trunk Group).

Each customer is assigned an ANI Listed Directory Number (LDN). This number identifies the customer to the toll office.

Route Selection works in conjunction with the ANI feature. The ANI Route Selection (ANIR) facility is optional and may be used to route toll calls automatically over specified trunks. ANIR allows distinctive routing of the following:

- 0- calls: calls to the ANI operator for assistance
- 0+ calls: credit card or operator-assisted calls
- 1+ calls: DDD calls
- local calls: calls not preceded by a 1 or 0

ANI/CAMA enhancement, X11 release 12 Permits the transmission of the necessary signaling method for access to AT&T operator assistance when 00 is dialed. This enhancement operates on a route basis and applies only to Centralized Automatic Message Accounting (CAMA) routes using the Bell MF signaling method.

27-2 Automatic Number Identification

In-Band ANI (IANI), X11 release 15 The In-Band ANI (IANI) feature provides display capability of a 10-digit calling party number during setup (signaling) over a non-ISDN T1 trunk. The ANI digits are displayed when they auto-terminate to an ACD DN agent telephone with digit display.

Operating parameters

The ANI 0/00 enhancement operates on a route basis and only applies to CAMA routes using the MF signaling methods. All route members that use the ANI 0/00 enhancement must have an MFR Class of Service.

The ANI 0/00 enhancement is not supported over dial pulse trunks. Therefore, a mix of trunk members may not be used when assigning this feature.

The ANI 0/00 enhancement is not supported on CCSA routes.

Feature interaction

- ANI Route Selection (ANIR)
ANIR has not been modified to allow 00 or 00+ dialing. Calls made using 00, 00+, or 00- are treated as a 0+ call, and the zero plus route is selected (RS-ANI Data Block).
- DN 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.

Feature packaging

Automatic Number Identification (ANI), package 12, has no feature package dependencies.

ANI Route Selection (ANIR), package 13, requires Automatic Number Identification (ANI), package 12.

Feature implementation

LD15-Implement ANI customer data

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
ANAT	xxx...x	ANI billing number for attendants making ANI calls
ANLD	xxx...x	ANI listed DN for billing purposes (0-5 digits)

Note: The total number of digits in ANAT and ANLD cannot exceed seven digits.

LD16-Centralized Automatic Message Accounting (CAMA) route data (Part 1 of 2).

REQ	NEW, CHG	New or change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUT	xxx	CAMA route number
TKTP	CAM	SIGL = Bel, NT4, or NT5
	CAA	SIGL = Bel
SIGL	BEL	Bell method signaling
	NT4	ITT-North NT400 signaling (only if TKTP=CAMA)
	NT5	ITT-North NT500 signaling (only if TKTP=CAMA)
FORM	M1A	For BEL, NT4, or NT5 (NT4 and NT5 not applicable if TKTP=CAA)
	M2B	For BEL, NT4, or NT5 (NT4 and NT5 not applicable if TKTP=CAA)
	M3C	For NT5 (only if TKTP=CAMA)
ICOG	OGT	Outgoing

27-4 Automatic Number Identification**LD16**-Centralized Automatic Message Accounting (CAMA) route data (Part 2 of 2).

ID	0-9	Identification digit for CAMA routes For BEL
CAT	00-99	Category digits for CAMA routes (only if TKTP=CAMA) For NT4 and NT5
STRK	Yes, (No)	Enable or disable super trunk group feature (Bell method signaling only)
SPTO	Yes, (No)	3-digit, or 7- to 10-digit outpulsing for ANI calls
ANKP	Yes, (No)	Suppress/not suppress KP signal on ANI calls
CNTL	Yes, (No)	Allow/not allow changes to timers
TIMR	ATO 128-65,408	ANI timeout timer in ms (default is 4,992)
ANDT	Yes, (No)	Provide/not provide ANI dial tone

LD14-Centralized Automatic Message Accounting (CAMA) trunk data.

REQ	NEW, CHG	New or change
TYPE	CAM CAA	CAMA trunk CAMA-ANI trunk (SIGL=BEL in LD16)
TN	I s c u	Terminal Number
CUST	0-99	Customer number
CLS	MFR	Arrange trunk for multifrequency outpulsing

LD28-Route selection data for ANI calls.

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

LD16-Centralized Automatic Message Accounting (CAMA) route data.

REQ	NEW, CHG	New or change
TYPE	RDB	Route Data Block
CUST	0-99	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

Not applicable.

27-6 Automatic Number Identification

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 CO (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 is the minimum vintage multifrequency (MF) sender circuit board required to implement 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 DP 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

None.

Feature packaging

This enhancement is included in the ANI software package.

Automatic Number Identification (ANI), package 12, requires X11 release 14.43 and later.

Feature implementation

LD16-Define CO or Toll Office port types.

DTRK	Yes, (No)	Digital trunk route
DGTP	DTI	Digital trunk type
PTYP	DCO/DTO	CO or Toll Office port type (default DCO)

Feature operation

Not applicable.

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 interaction

None.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

The desired Directory Number is assigned to key zero in LD11.

Feature operation

Not applicable.

Automatic Set Relocation

Automatic Set Relocation (ASR) and Modular Telephone Relocation (MTR) move a telephone to another location without the intervention of a craftsperson. 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 enabling 500/2500 type telephones to utilize additional telephone features. Refer to the Telephones or SPRE module in this document.
- Flexible Feature Code (FFC) relocation number
FFCs are user programmable codes that enable 500/2500 type telephones to access certain telephone features. Refer to the FFC 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 overlay service change enables that card (if not already enabled). Removing the last telephone from a line card leaves that card enabled; it does not disable the card.

Note 1: 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 LD12. 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.

Note 2: 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 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 Terminal 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 (TN) and terminal identification information. 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 LD50, 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 LD50 when replacing a telephone with another one of the same type with a different serial number or terminal ID, but the same key configuration.

LD21 prints information about telephones that have been relocated out.

The 'IDU' (ID for Unit) command in LD32 determines the telephone's serial number and ID information.

Operating parameters

A single-line telephone must be relocated to a vacant position on a 500/2500 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 co-located 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 relocating-in must be plugged into a TN location that currently has no assigned telephone information.

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 Terminal Relocation is used and the overflow tone is returned during relocation out, the relocation attempt is abandoned. Try the relocation again.

When Modular Terminal 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 Terminal 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 Terminal 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 interaction

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.

Make Set Busy-If Make Set Busy is active when the telephone is relocated, Make Set Busy remains active.

Power Fail Transfer-Since Power Fail Transfer is hardwired to certain Terminal Numbers (TN), this feature is not maintained by a telephone when it is relocated.

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

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

LD15-Assign Automatic Set Relocation security code

REQ	CHG	Change
TYPE	CDB	Customer data block
CUST	0-99	Customer number
SRC	xxxx, <CR>, X	Automatic Set Relocation security code; default is 0000; X removes security code

LD10-Enable/disable line circuits for Automatic Set Relocation

REQ	CHG	Change
TYPE	CARD	500/2500 line circuit for Automatic Set Relocation
TN	l s c u	Terminal Number

LD11-Enable/disable line circuits for Automatic Set Relocation

REQ	CHG	Change
TYPE	CARD	SL-1 or digital line circuit for Automatic Set Relocation
TN	I s c u	Terminal Number

LD12-Gather data for each SL-1 line circuit to be used as a supplementary power source

REQ	CHG	Change
TYPE	PWR	SL-1 line circuit for supplementary power
TN	I s c u	Terminal Number

LD17-Allow ASR messages to be printed at a system terminal or stored in the history file

REQ	CHG	Change
TYPE	CFN	Configuration record
IOTB	Yes, (No)	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

LD17-Allow Automatic Set Relocation messages to be printed at a system terminal or stored in the history file with X11 release 18 or later

REQ	CHG	Change
TYPE	CFN	Configuration record
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 aaaa = DCHI, MSDL, MSPS, SDI, SDI2, SDI4, 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

LD32-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
-------------	--------------------------------

LD50-Remove an entry in the relocation table with X11 release 18 or later

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)

LD21-Print information in the relocation table

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 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 are specified by the customer:

- Slow Answer (set in increments of six seconds)
- Camp-On (set in increments of two seconds)
- Call Waiting (set in increments of two seconds)

If no entry is made, the default is 30 seconds in each case. One optional Recall Incoming Call Indicator (ICI) key is provided on the attendant console for operator-extended recalls.

Operating parameters

There are no feature requirements.

Feature interactions

- Call Park
A Call Park recall to an attendant appears on the Recall Incoming Call Indicator.
- 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.

Feature packaging

Automatic Timed Reminders are included in basic X11 system software.

Feature implementation

LD15-Define Recall timers and add/change a Recall Incoming Call Indicator key on attendant consoles.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
RTIM	xxxx yyyy zzzz	Recall timers xxxx = slow answer, 0-3,066, in 6-second increments (default 30 seconds) yyyy = Camp-on, 0-1,022, in 2-second increments (default 30 seconds) zzzz = Call Waiting, 0-1,022, in 2-second increments (default 30 seconds)
ICI	0-19 RLL	Add RECALL ICI to all consoles

Feature operation

Not applicable.

Automatic Trunk Maintenance

Automatic Trunk Maintenance (ATM) enables Meridian 1 to be programmed to automatically perform scheduled transmission and supervision tests on specified trunk groups terminating at the Meridian 1. ATM also reports the results to the maintenance system terminal.

Trunks that fail any of the tests are flagged 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.

In addition to the automatic scheduling and running of the ATM program, it may also be run manually, at any time.

Related documents

For complete information on Automatic Trunk Maintenance, refer to *Automatic trunk maintenance description* (553-2751-104).

Configuration is described in LD14 and LD92 in the *X11 input/output guide* (553-3001-400).

Automatic Wake Up

Automatic Wake Up (AWU) provides an efficient wake up service for hospitality and health care environments. It relieves the console 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 a music followed by a recorded wake up announcement.

If the wake up call is answered within a customer-specified number of rings (2-5 with X11 release 15 and later, 5 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 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 twenty-five 500/2500 telephones should be ringing at any one time. To ensure this, set the Number of Rings for Wake Up (NRWU) prompt in LD15 according to the recommendations listed in Table 33-1. The NRWU is two to five, with a default of five.

Table 33-1
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 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 LD10 and LD11 in the *X11 input/output guide* (553-3001-400) 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 (LD15). 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 type attendant console), the language number (0-5) is displayed after the recalling DN field.

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). For a complete description of this feature, refer to Northern Telecom Publication *Background Terminal Facility description* (553-2311-316).

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, a music route First RAN Trunk (RANF) and a primary RAN route must be configured.

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, 3 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 2 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.

Feature interaction

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.
- Do Not Disturb (DND)
When a telephone is configured for DND, a wake up call can still be presented.
- 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.
- 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.
- 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 DN's 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.

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.

Multi Language Wake Up (MLWU), package 206, requires Automatic Wake Up (AWU), package 102. Refer to the package dependencies of AWU.

Feature implementation

Step 1-Assign at least three AWR routes (RANF, RAN1, and RAN2)

LD16-Define the RANF route.

REQ	NEW, CHG	New or change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUT	0-511	Route number
TKTP	AWR	AWU RAN route
RTYP	AUD	Audichron recorder
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.		

LD16-Define the RAN1 route.

REQ	NEW, CHG	New or change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUT	0-511	Route number Must be different from RANF route number
TKTP	AWR	AWU RAN route
RTYP	AUD	Audichron recorder
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.		

LD16-Define the RAN2 route.

REQ	NEW, CHG	New or change
TYPE	RDB	Route Data Block
CUST	0-99	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
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**LD14-**Define the trunk for RANF.

REQ	NEW, CHG	New or change
TYPE	AWR	AWU RAN trunk
TN	l s c u	Terminal Number
CUST	0-99	Customer number
RTMB	xx yy	Route number and member number

LD14-Define the trunk for RAN1.

REQ	NEW, CHG	New or change
TYPE	AWR	AWU RAN trunk
TN	l s c u	Terminal Number Must be a different TN from RANF
CUST	0-99	Customer number
RTMB	xx yy	Route number and member number Must be a different RTMB from RANF

LD14-Define the trunk for RAN2.

REQ	NEW, CHG	New or change
TYPE	AWR	AWU RAN trunk
TN	l s c u	Terminal Number Must be a different TN from RANF and RAN1
CUST	0-99	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

LD15-Enable Automatic Wake Up in Customer Data Block (Part 1 of 2).

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
AWU	Yes	Activate AWU for a customer
ATRC	Yes, (No)	Allow or deny attendant recall
CONF	0-159	Conference loop number (see note below)
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

LD15-Enable Automatic Wake Up in Customer Data Block (Part 2 of 2).

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**LD10-Set language and CCOS for 500/2500 type telephones (on a per TN basis).**

REQ	CHG	Change
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

LD11-Set language and CCOS for SL-1 and Meridian digital telephones (on a per TN basis).

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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.		

LD12-Allow access to AWU from attendant consoles.

REQ	CHG	Change
TYPE	aaa	Console type 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.

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.

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 SL-1 system through a Serial Data Interface (SDI) port.

This feature is currently used in conjunction with the Integrated Messaging System package and the ACD Dialed Number Identification Service (DNIS) package.

Operating parameters

There are no feature requirements.

Feature interaction

None.

Feature packaging

Auxiliary Processor Link (APL), package 109, has no feature package dependencies.

Feature implementation

Not applicable.

Feature operation

Not applicable.

Auxiliary Signaling

In some situations, customers require special auxiliary devices such as bells, buzzers, or lights to be connected through the Meridian SL-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 TN. This limit depends on the device's impedance to the 20 Hz ringing.

Feature interaction

- Mixed DNs
If the DN associated with the signaling device appears on 500/2500, SL-1, or Meridian digital telephones, the telephone can answer or connect into an active call.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

The 500/2500 data block is programmed in LD10.

Feature operation

Not applicable.

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, refer to the *Background Terminal Facility description* (553-2311-316).

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 interaction

Privacy is lost when telephones are bridged. Any appearance of the DN can enter the call by going off hook.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

Not applicable.

Feature operation

Not applicable.

Busy Lamp Field

There are two types of Busy Lamp Field (BLF) modules.

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 LD15 (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.

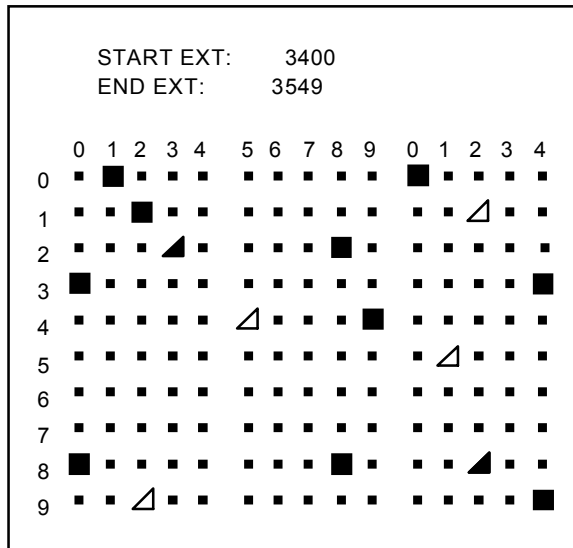
Enhanced Busy Lamp Field (EBLF) Array, introduced in X11 release 15, displays the status of all DNs for a customer. The BLF/CGM displays the status of 100 DNs at a time on up to 63 M1250/M2250 attendant consoles. Each of the Console Graphics Modules can display a different hundreds group, while up to 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 38-1 shows an example of the Enhanced Busy Lamp Field (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 38-1 shows the Standard Busy Lamp Field (SBLF) display on the CGM. The first and last DNs in the displayed group are listed as START EXT and END EXT. The START and END EXT DNs show the hundreds group displayed. The top row on the CGM designates the tens group. The left side shows the ones group. Figure 38-1 shows the busy DNs to be 3403, 3408, 3410, 3421, 3482, 3488, 3494, 3500, 3543, and 3549.

Figure 38-1
Standard Busy Lamp Field on the BLF/CGM

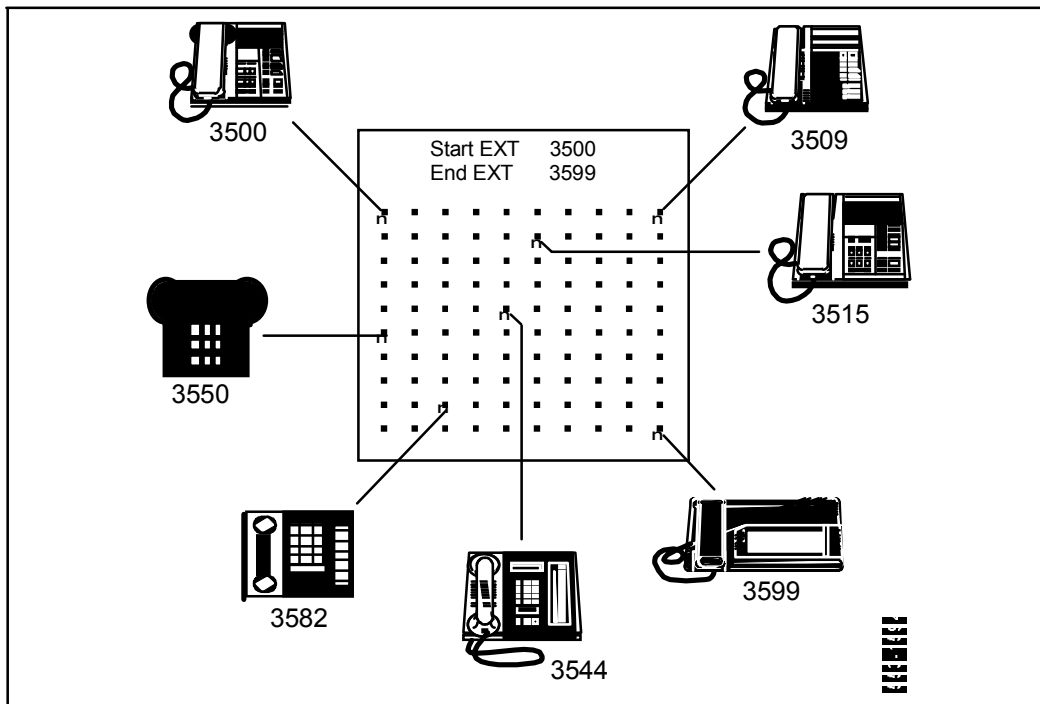


- = idle extension
- = busy extension
- △ = idle extension with supplementary information
- ▲ = busy extension with supplementary information

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Figure 38-2 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 38-2
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.)

Feature interactions

Not applicable.

Feature packaging

Busy Lamp Field Array (BLFA) is included in basic 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 activated.

LD29-Estimate the memory required for Enhanced Busy Lamp Field trees.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
TYNM	EBLF xx yy z	Enhanced Busy Lamp Field xx = number of Customers to get EBLF yy = Average number of Hundreds Groups (HGRP) per customer z = Average DN length (4, 5, 6, or 7)
Note: This overlay is required for ST and 21 systems.		

LD15-Define the Busy Lamp Field/Console Graphics Module options in the customer data block.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	ILF, (XLF) or IBL, (XBL)	Include (exclude) Standard Busy Lamp Field or Include (exclude) 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 Prompted only if OPT = ILF

LD12-Identify which attendant consoles have Enhanced Busy Lamp Field on the BLF/CGM.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	I s c u	Terminal Number
EBLF	BLFA, (BLFD)	Allow (Deny) Enhanced Busy Lamp Field Prompted only if TYPE = 1250 or 2250

When the BLF is configured before the telephones are programmed, the procedures in LD10 and LD11 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).

LD10-Activate DN hundreds groups for EBLF for each DN within each hundreds group.


REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
DN	xxx . . . x	Reenter Directory Number (no change necessary)

LD11- Activate DN hundreds groups for EBLF for each DN within each hundreds group.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
KEY	xx aaa yyy...y	Reassign Directory Number (no change necessary) xx = key number aaa = DN type 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* (P0706875).

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 three 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
- 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.

ACD/CDR Q record option X11 release 3 and later software provide an integrated Automatic Call Distribution/Call Detail Recording (ACD/CDR) call processing interface for Automatic Call Distribution (ACD) applications such as emergency 911 services and airline reservation systems.

For example, a call to an emergency 911 ACD queue is initially screened by the Meridian 1 system. The caller's name, location, and problem are entered into the call profile on the customer's computer. After this information is collected, the call is transferred or conferenced to the appropriate public service division. When the division answers the call, the Meridian 1 system informs the customer's computer of the transfer or conference. The customer's computer then displays the call profile on a CRT at the remote public service location.

The ACD/CDR call processing interface can be configured from a CDR TTY (CTY) port. Connection records (records created by this option) include

- Q records, for a connections between a trunk and an agent
- R records, for calls transferred by an agent
- F records, for conferences set up by an agent

Two-party calls generate only one record. Calls involving additional parties generate multiple records. These records always show the trunk associated with the original call, unless it is an internal call. A set of records identifies all parties involved in the call. If the call is transferred to other parties, however, only those involved at call termination are identified. The call register has been increased from 23 to 32 digits to ensure that CDR records do not wrap on the printer.

The following information is recorded for each call:

- customer number
- calling party identification
- terminating party identification
- terminal number (if applicable)
- date and time at start and end of call
- call duration
- digits dialed
- tenant number

If a Meridian 1 user has placed a call using Basic Alternate Route Selection/Network Alternate Route Selection (BARS/NARS), or Consolidated Dialing Plan (CDP), the digit field shows the letter A followed by the appropriate code and the dialed digits.

Note: If the user has accepted a route designated as expensive, the letter E is shown instead of A.

Optional CDR software packages

CDR TTY (CTY) Outputs call records on one or more RS232-C compatible devices. Provides a hard copy of the call records and can be used with the other CDR optional packages.

CDR Data Link (CLNK) Formats call records for storage on magnetic tape. Used with the single- or multi-port CDR storage system.

CDR with Charge Account (CHG) Bills calls directly to specific charge account numbers.

Internal Call Detail Recording (ICDR) X11 release 10 and later software Produces a CDR record (type L) for internal calls, including telephone and attendant console calls.

One of two classes of service-internal CDR allowed (ICDA) or internal CDR denied (ICDD)-is assigned to each telephone or attendant console requiring a CDR record. ICDA class of service generates internal call records for the telephone. ICDD class of service disallows this new record type on a per telephone basis. The class of service default is ICDD.

For an internal CDR record to be produced, the following criteria must be met:

- CDR must be activated.
- All connecting parties must be telephones, attendant consoles, or internal conferees.
- One party or both parties must have ICDA class of service.

When a telephone disconnects from a call, the speech path between the two parties is released. If an internal record is warranted, only one is produced, even if both the originating and terminating telephones have ICDA class of service. Also, when a conference loop is involved in the call, it is always considered the originator.

Attendant consoles can also be assigned an ICDR class of service and are treated like telephones.

When an attendant with ICDA class of service disconnects from a loop (for an internal call), a maximum of two internal call records is produced, one for the source and one for the destination.

An internal CDR record is produced when an internal call is released or modified, or when a multiple-party call is released. The recorded duration of the internal CDR excludes ringing time.

For details on internal CDR record and magnetic tape formats, refer to *Call Detail Recording description and formats* (553-2631-100).

Outpulsed Digit Option, X11 release 12 and later stores outpulsed instead of dialed digits to generate the CDR record. This option applies to calls using Basic Alternate Route Selection (BARS) or Network Alternate Route Selection (NARS) software only.

Coordinated Dialing Plan (CDP) and Route Selection-Automatic Number Identification (RS-ANI) are not affected by this option. With both BARS and NARS packages, the CDR record follows the BARS format. For additional information on CDR, refer to *Call Detail Recording description and formats* (553-2631-100).

CDR Expansion, X11 release 13 and later allow Directory Numbers (DNs) fields of CDR records to be expanded to accommodate up to seven digits. Other fields (such as customer, route, and record type) are also expanded. This option works in conjunction with DN Expansion (DNXP).

CDR Answer Supervision for Ground Start Trunks (X11 release 18 and later)

CDR Answer Supervision for Ground Start (and Loop Start) trunks detects answer supervision on Ground and Loop Start trunks when sent as reverse battery from the Central Office, and generates Call Detail Records based on actual answer received rather than trunk seizure. A Ground Start trunk or a North American Loop Start trunk with answer supervision begins Call Detail Recording when reverse battery from the CO is detected.

Note 1: Ground Start Answer Supervision is available with X11 release 18 and later. Loop Start Answer Supervision is available with X11 release 14 and later.

Note 2: Trunks without answer supervision capability continue to generate Call Detail Records when the trunk is seized.

The A in the TerID (Terminating ID) field indicates that an answer was received on an answer supervision trunk. Otherwise, a T appears in that field. For Ground and Loop Start trunks, the A appears when answer supervision is detected from the CO. Select this option with the AIA prompt in LD16.

Class of Service

To enable answer supervision, the Polarity Sensitive Pack (PSP) Class of Service must be set. PSP indicates that answer supervision is detected by battery reversal on the CO trunk. If Polarity Insensitive Pack (PIP) is set, battery reversal is not detected, and Call Detail Records begin at trunk seizure.

Refer to for the various classes of service and their effects on answer supervision and Call Detail Records. The table applies to both Ground and Loop Start trunk types.

Table 39-1
Call Detail Record Generation with answer supervision

OAL	OTL	OAN	PSP	CDR affected	CDR begins
NO	NO	*	YES/NO	No CDR	
YES	N/A	N/A	NO	All calls	Trunk seizure
NO	YES	N/A	NO	Toll calls	Trunk seizure
YES	N/A	NO	YES	All calls	Reverse battery for answered calls; Trunk seizure for unanswered calls
NO	YES	NO	YES	Toll calls	Reverse battery for answered calls; Trunk seizure for unanswered calls
YES	N/A	YES	YES	Answered calls	Reverse battery
NO	YES	YES	YES	Toll calls	Reverse battery
<p>Note: If OAL and OTL are NO, then OAN is always NO.</p> <p>Legend: PSP = Answer Supervision CLS for Ground Start and Loop Start trunks OAL = CDR for outgoing calls OTL = CDR for outgoing toll calls OAN = CDR for answered calls only N/A = Not applicable. The option can be YES or NO, and does not affect CDR.</p>					

Operating parameters

The capacity of the CDR system is limited by two factors:

- the maximum rate at which information can be output to the SDI devices or input to the CDR magnetic tape unit
- the storage capacity of the magnetic tape unit

Customer-provided auxiliary processors do not have to be modified to process an internal CDR record.

Internal CDR data input is not supported through Attendant Administration.

When configuring a Ground Start trunk with the PSP class of service, it should be confirmed that the Central Office provides reverse battery for ground start trunks. Otherwise, CDR records will NOT be generated.

Feature interactions

- Automatic Call Distribution

If ICDR criteria are satisfied, internal records are produced for ACD telephones on completion of an internal or inter-position call. In all cases, the ACD position ID is shown on the originator or terminator identifier field of the internal record.

When the supervisor releases Observe Agent, internal records show that the ACD agent and the internal party are connected with the conference loop.

When the supervisor activates or releases Answer Emergency, the interactions are similar to those with Observe Agent and internal records are produced.

- Call Modification

If ICDR criteria are satisfied, internal CDR records are produced in the following situations:

 - when a party joins or leaves a conference
 - when conference parties leave a conference (the last two parties remaining in the connection are treated as a normal call)
 - when a call is transferred
 - when a call is parked
 - when a party is disconnected from a group call
 - when an attendant activates Busy Verify from a console
- Directory Number Expansion

If the DNXP package is equipped without the CDRE package, CDR records are generated in the unexpanded format and the DN fields contain only the trailing four digits of a DN.
- Integrated Messaging System

When an internal call is routed to Integrated Messaging System (IMS) and ICDR criteria are satisfied, the IMS position ID is displayed on the terminator identifier field of the internal record.
- Multiple Appearance Directory Number

If the Auxiliary ID is turned on (through LD15) and originating or terminating parties or both have Multiple Appearance Directory Numbers (MADNs), the Terminal Number (TN) is printed in the Auxiliary Identifier field of the internal record.
- Override

When party A overrides party B while B is in conversation with party C, the speech path between B and C is disconnected, and a three-party connection is established. Therefore, when party A releases, multiple internal records are produced (if the ICDR criteria are satisfied). These records show the conference loop with each individual party. Also, when an attendant releases from overriding on a Do Not Disturb (DND) telephone, internal records are produced (if the ICDR criteria are satisfied).

Feature packaging

Call Detail Recording (CDR), package 4, requires at least one of the following:

- Call Detail Recording on TTY (CTY), package 5
- Call Detail Recording on Data Link (CLNK), package 6

Call Detail Recording on Teletype (CTY), package 5, requires:

- Call Detail Recording (CDR), package 4

Call Detail Recording on Data Link (CLNK), package 6, requires:

- Call Detail Recording (CDR), package 4

Charge Account for CDR (CHG), package 23, requires:

- Call Detail Recording (CDR), package 4
- Charge Account/Authorization Code (CAB), package 24

ACD CDR Queue record (CDRQ), package 83, requires:

- Call Detail Recording (CDR), package 4
- Basic ACD (BACD), package 40

Internal CDR (ICDR), package 108, requires:

- Call Detail Recording (CDR), package 4

CDR Expansion (CDRE), package 151, requires:

- Call Detail Recording (CDR), package 4
- DN Expansion (DNXP), package 150

Feature implementation

LD17-Define Call Detail Recording link and priority.

REQ	CHG	Change
TYPE	CFN	Configuration record
PARM	Yes	To allow changes to system parameters
PCDR	Yes, (No)	Priority is or is not given to the CDR recording; Yes = an idle call register is selected before call processing
IOTB	Yes	Allow changes to I/O devices
ADAN	NEW TTY 0-5	Add a CDR port
CDNO	0-15	SDI card number
DENS	SDEN, DDEN, 4DEN	SDI card ports
USER	CDL	CDR port connects to a data link
	CTY	CDR port connects to a system terminal
CLID	Yes, (No)	Calling line ID in the CDR; prompted only if CDR = Yes and ISDN package is equipped

LD17-Define Call Detail Recording link and priority for X11 release 18 and later.

REQ	CHG	Change
TYPE	CFN	Configuration record
PARM	Yes	To allow changes to system parameters
PCDR	Yes, (No)	Priority is or is not given to the CDR recording; Yes = an idle call register is selected before call processing
IOTB	Yes	Allow changes to I/O devices
ADAN	NEW TTY 0-15	Add a CDR port
CTYP	aaaa	Card type aaaa = DCHI, MSDL, MSPS, SDI, SDI2, SDI4, XSDI
DNUM	0-15	Device number printed automatically (same as ADAN number)
USER	CDL	CDR port connects to a data link
	CTY	CDR port connects to a system terminal
CLID	Yes, (No)	Calling line ID in the CDR; prompted only if CDR = Yes and ISDN package is equipped

LD15-Define Call Detail Recording for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CDR	Yes, (No)	Enable or disable CDR
AXID	Yes, (No)	Auxiliary identification (TN) for multiple appearance DNs is or is not included in CDR records; enter Yes if there are multiple appearance DNs that exist as prime DNs.
TRCR	Yes, (No)	Enable or disable carriage return after each ACD CDR connection record; when TRCR = Yes, all CDR system terminal ports in the system are affected.
CDPR	Yes, (No)	CDP in CDR; prompted only if CDP package is equipped Yes = trunk access code is inserted before the dialed digits No = distant steering code or trunk steering code is replaced by trunk access code
MCR	Yes, (No)	Mini-CDR equipped
PORT	0-15	CDR port number
	<CR>	Stop the PORT prompt

LD16-Gather data for each trunk route for which Call Detail Recording is to be applied.

REQ	CHG	Change
TYPE	RDB	Route data block
CUST	0-99	Customer number
ROUT	0-511	Route number
CDR	Yes, (No)	Enable or disable CDR for the route
INC	Yes, (No)	Enable or disable CDR for incoming calls
QREC	Yes, (No)	Enable or disable the CDR connection record for ACD records
OAL	Yes, (No)	Enable or disable CDR for outgoing calls (tie)
AIA	Yes, (No)	Identify answered calls
OTL	Yes, (No)	Enable or disable CDR for outgoing toll calls; prompted if OAL = No and ROUT = CAMA, CO, DID, FX, or WATS
OAN	(Yes), No	CDR allowed or not allowed on all answered calls; prompted if OAL or OTL = Yes
OPD	Yes, (No)	CDR with outputted digits; prompted if OAL or OTL = Yes No = put dialed digits into CDR Yes = put outputted digits into CDR

LD88-Enable/disable the recording of authorization codes in Call Detail Recording.

REQ	CHG	Change
TYPE	AUB	Authcode data block
CUST	0-99	Customer number
SPWD	xxxx	Secure data password
ACDR	Yes, (No)	Enable or disable the recording of authorization codes in CDR

LD10-Add/change Internal Call Detail Recording for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	ICDA, (ICDD)	Allow (Deny) ICDR class of service

LD11-Add/change Internal Call Detail Recording for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	ICDA, (ICDD)	Allow (Deny) ICDR class of service

LD12-Add/change Internal Call Detail Recording for attendant consoles.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	l s c u	Terminal Number
ICDR	ICDA, (ICDD)	Allow (Deny) ICDR class of service

Feature operation

Not applicable.

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 dialtones on 500/2500 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. SL-1 and digital 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 LD11. 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 using Multiple Appearance DN (MADNs), call redirection is determined based on the TN order in your DN block. To determine the TN order, print the DN block from LD20 or LD22 (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 first secondary DN appearance with Call Forward All Calls 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.

Call Forward Reminder Tone does not apply to telephones such as the SL-1 that have a visual indication of active CFW status.

Call Forward Reminder Tone requires the presence of either a Conference/TDS/MFS (XCT) card or a Tone and Digit Switch (TDS) card. Table 40-1 shows the available card types and their markets.

Table 40-1
Tone and Cadence Card Types

Card Type	Identifier	Market
XCT	NT8D17	International, including North America
TDS	QPC251B/ QPC609D	North America
TDS	QPC646A	Japan

Feature interaction

X11 release 12 and later provides an option in LD15 to allow or disallow telephones to program Call Forward All Calls to a Trunk Access Code. See Call Forward External Deny.

Paging Calls that originate on a tie trunk to a telephone that is redirected to a paging route are blocked.

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.

Feature packaging

Internal Call Forward requires the 500 Set Features (SS5) (package 73) for 500/2500 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 a 500/2500 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 Overlays 15, 10/11, and 57.

LD15-Define Class of Service for Call Forward All Calls

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	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
CFTA	(No), Yes	No = deny telephones to Call Forward All Calls to a Trunk Access Code (default is no) Yes = allow telephones to Call Forward All Calls to a Trunk Access Code
OPT	(CFRD), CFRA	Call Forward Reminder Tone denied (CFRD) for 500/2500 telephones Call Forward Reminder Tone allowed (CFRA) for 500/2500 telephones

LD10-Add/change Call Forward All Calls and Internal Call Forward for 500/2500 telephones

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
FTR	CFW xx yyyy...y	Allow Call Forward All Calls xx = maximum number of digits (4, 8, 12, 16, 20, 23) in the Call Forward destination number (default is 16 digits) yyyy = number where calls are forwarded Note: YYYY cannot be entered from the maintenance terminal. When the telephone information is printed in LD20, yyy shows the call forward number.
FTR	ICF xx	Allow Internal Call Forward xx = maximum number of digits (4, 8, 12, 16, 20, 23) in the Call Forward destination number (default is 16 digits)

LD11-Add/change Call Forward All Calls and Internal Call Forward for digital telephones

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx CFW yy zzzz...z	Define Call Forward All Calls xx = key number; M2317 must use key 22 yy = maximum number of digits (4, 8, 12, 16, 20, 23) in the Call Forward All Calls destination number (default is 16 digits) zzzz = number where calls are forwarded
KEY	xx ICF yy zzzz	Define Internal Call Forward xx = key number yy = maximum number of digits (4, 8, 12, 16, 20, 23) in the Call Forward All Calls destination number (default is 16 digits) zzzz = number where calls are forwarded

LD57-Add/change Flexible Feature Codes for Internal Call Forward

REQ	NEW, CHG, OUT	Add, change, or remove an FFC table
TYPE	FFC	Flexible Feature Code
CODE	ICFA	Access code for Internal CFW Activate
	ICFD	Access code for Internal CFW Deactivate
	ICFV	Access code for Internal CFW Verify
ICFA	xxxx	Internal CFW Activate Code (Note 1)
ICFD	xxxx	Internal CFW Deactivate Code (Note 1)
ICFV	xxxx	Internal CFW Verify Code
ICFD and ICFA may share the same code.		

LD57-Add/change Flexible Feature Codes for Internal Call Forward

REQ	NEW, CHG, OUT	Add, change, or remove an FFC table
TYPE	FFC	Flexible Feature Code
CODE	ICFA	Access code for Internal CFW Activate
	ICFD	Access code for Internal CFW Deactivate
	ICFV	Access code for Internal CFW Verify
ICFA	xxxx	Internal CFW Activate Code (Note 1)
ICFD	xxxx	Internal CFW Deactivate Code (Note 1)
ICFV	xxxx	Internal CFW Verify Code
ICFD and ICFA may share the same code.		

Feature operation

To forward all calls from an SL-1 or digital telephone:

- 1 Press **Forward**.
- 2 Dial the number where calls are to be forwarded.
- 3 Press **Forward**.

To forward internal calls only from an SL-1 or digital 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:

- 1 Press **Forward**.

To cancel Internal Call Forward:

- 1 Press **Internal Call Forward**.

To forward calls from a 500/2500 telephone:

- 1 Lift the handset and dial SPRE 74 (500 telephone)
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.

To forward internal calls from a 500/2500 telephone:

- 1 Lift the handset and dial SPRE 9914 (500 telephone)
or lift the handset and dial #((?)) (2500 telephone)
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:

- 1 Lift the handset and dial SPRE 74 (500 telephone)
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:

- 1 Lift the handset and dial SPRE 9914 (500 telephone)
or lift the handset and dial #((?))1 (2500 telephone)
or lift the handset and dial the Internal Call Forward Deny FFC.

Call Forward Busy

Call Forward Busy (CFB) automatically routes incoming 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 interaction

- Call Forward All Calls takes precedence over Call Forward Busy.
- Call Waiting for 500/2500 telephones
If a telephone has CFB and Call Waiting Allowed CLS and a Call Waiting key, calls are forwarded to the attendant when the telephone is busy and has another call waiting.
- Call Waiting for multi-line 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.
- 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.
- Multiple-Appearance Directory Numbers (MADNs)
With X11 release 18 and later, Hunting is controlled by the MADN Redirection Prime (MARF) TN. See the description for MARF in this document.

With X11 release 17 and earlier, call redirection parameters are derived from the TN data block (LD20 TNB) of the first TN in the DN block for that DN (LD22 DNB) with hunting control enabled. Hunting control is enabled by Hunting allowed (HTA) class of service for 500/2500 telephones. For SL-1 and Meridian digital telephones, the DN key must also be less than or equal to the Last Hunt Key (LHK).

When a telephone is service changed, the TN is moved to the beginning of the DN list regardless of the TN's numerical value. This telephone remains at the beginning of the list until another telephone is service changed.

Note: If all the telephones in the MADN group are SL-1 and/or Meridian digital telephones, ringing telephones are placed at the beginning of the DN list, while non-ringing telephones are placed at the end.

If a MADN appears in a group with several telephone types, the set type affects where the TN appears in the list. 500/2500 telephones are listed at the beginning, and SL-1 and Meridian digital telephones are listed in numerical TN order at the end of the list. A service change to a 500/2500 telephone moves its TN to the beginning of the list. A service change to an SL-1 or Meridian digital telephone moves it to the end of the list. Call redirection follows the TN order from beginning to end.

- 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.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD15-Add/change a Call Forward Busy Incoming Call Indicator (ICI) on attendant consoles.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	xx	Customer Number
ICI	xx CFB	Add a Call Forward Busy ICI key; xx = 0-19

LD10-Allow/deny Call Forward Busy on 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	FBA, (FBD)	Allow (Deny) Call Forward Busy

LD11-Allow/deny Call Forward Busy on SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	FBA, (FBD)	Allow (Deny) Call Forward Busy

Feature operation

Not applicable.

Call Forward by Call Type

Call Forward Call Type (CFCT) routes calls receiving 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 (LD16) 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: FDN, ATT, NO, and 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 LD15 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 DID trunk calls.

CFCT is allowed or denied for each telephone in LD10 or LD11 with Class of Service (CFTA/CFTD). If CFCT is allowed (CFTA), the forwarding destination is also defined in LD10 or LD11.

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 (HTA, FNA, 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 EFD or 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 interaction

- 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 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 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.
- 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.
- 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 Flexible Call Forward No Answer DN (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 DNB organizes MADN information in numerical TN order. The TN with the highest numerical value (000-0-06-03) is placed at the beginning of the 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 is service changed, 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 500/2500, SL-1, and Meridian digital telephones, the 500/2500 telephones are listed in numerical TN order at the top of the list. SL-1 and Meridian digital telephones are listed in numerical TN order at the bottom of the list. A service change to a 500/2500 telephone moves its TN to the beginning of the list. A service change to an SL-1 or Meridian digital telephone moves its TN to the end of the list.
 - A sysload restructures the list back to numerical TN order, with 500/2500 telephones at the top and SL-1 and Meridian digital telephones at the bottom. Call redirection parameters continue to be derived as described in the preceding paragraphs.
- 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.

Feature packaging

Call Forward by Call Type is included in basic X11 system software.

Feature implementation

LD15-Enable Call Forward by Call Type for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	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

LD16-Define a trunk route as internal or external for Call Forward by Call Type.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
ROUT	xxx	Route number
RCLS	INT, (EXT)	Route class marked as internal or external

LD10-Enable Call Forward by Call Type for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
HUNT	xxxx	Hunt DN for internal calls
CLS	CFTA, (CFTD)	Allow (Deny) Call Forward by Call Type Telephone must have Hunting (HTA), and Call Forward No Answer (FNA) allowed.
FTR	EFD xxxx	Flexible Call Forward No Answer DN for external calls
	EHT xxxx	Hunt DN for external calls
	FDN xxxx	Flexible Call Forward No Answer DN for internal calls

LD11-Enable Call Forward by Call Type for SL-1, M3000, and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
FDN	xxxx	Flexible Call Forward No Answer DN for internal calls
CLS	CFTA, (CFTD)	Allow (Deny) 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	Hunt DN for internal calls
	000	Short Hunt for internal calls
EHT	xxxx	Hunt DN for external calls
	000	Short Hunt for external calls
LHK	xx	Last hunt key number for internal and external calls

Feature operation

Not applicable.

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 a 500/2500 telephone
- DNs that terminate on an SL-1 or Meridian digital telephone
- DNs that terminate on a data terminal defined in LD10 or LD11
- Attendant DNs or Centralized Attendant Service (CAS) local attendant DNs
- Listed DNs (LDNs)
- Message Center DNs as defined in LD23

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, ESN Location Codes, non-message center 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 a 500/2500 telephone to an external DN receives overflow tone. The telephone is not call forwarded.
- a user trying to forward calls from an SL-1 or Meridian digital 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 to 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 LD10 or LD11 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 interaction

- 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.
- 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, it and the Integrated Services Digital Network Primary Rate Access (ISDN PRA) feature Network Call Forward are mutually exclusive.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD10-Allow/deny Call Forward External Deny for 500/2500 telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = 500, 2500
TN	l s c u	Terminal Number
CLS	(CFXA), CFXD	Allow (Deny) Call Forward to an external DN

LD11-Allow/deny Call Forward External Deny for SL-1 or Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	(CFXA), CFXD	Allow (Deny) Call Forward to an external DN

Feature operation

Not applicable.

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 an SL-1 or digital telephone, the Internal CFW feature (ICF) key is the only access method. On a 500/2500 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 (LD16 where RCLS = INT)
- An incoming ISDN trunk call using private numbering

Non-internal calls are not affected by the Internal CFW feature.

Operating Parameters

CFW 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 an SL-1/digital 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.
- All secondary DNs that are single appearance.

Consequently, if all the appearances of a multiple appearance DN are on non-primary SL-1/digital telephone keys, calls to these DNs will never receive Internal CFW treatment.

When a 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 soft key), 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 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 Reminder Tone

The Call Forward Reminder Tones apply to Internal CFW.

If Call Forward Reminder Tone Allowed (CFRA), then whenever a PBX telephone that is Internal CFW is activated goes off-hook to originate a call, the telephone will hear the CFW Reminder Tone.

If the customer option is set to Call Forward Reminder Tone Denied (CFRD), then whenever a PBX telephone that is internal CFW activated goes off-hook to originate a call, it will hear the normal dial tone (DIAL).

- If the customer option is set to Call Forward Reminder Tone Allowed (CFRA, package 125), then whenever a PBX telephone that is Internal CFW is activated goes off-hook to originate a call, the telephone will hear either the Call Forward Dial Tone (CFDT) or the Call Forward/Message Waiting Dial Tone (CFMW).

If the customer option is set to Call Forward Reminder Tone Denied (CFRD), then whenever a PBX telephone that is internal CFW activated goes off-hook to originate a call, it will hear either the normal dial tone (DIAL) or the Message Waiting Dial Tone (MWDT).

- **Internal CFW takes precedence** over the following:
 - Call Waiting
 - Camp-on
 - Do Not Disturb
 - Hunting
- **Remote Call Forward** Remote CFW Activate (RCFA), Remote CFW Deactivate (RCFD), and Remote CFW Verify (RCFV) FFCs can only be used to access CFW All Calls; they cannot be used to access Internal CFW.

Feature packaging

Internal CFW requires the following packages:

Package 1 (CFW package required but does not have to be enabled)

Package 73 for access to 500/2500 type telephones

Package 139 to implement FFC

Feature implementation

LD10-Add/change Internal CFW for 500/2500 type telephones.

REQ	NEW	Add a new telephone.
	CHG	Modify an existing telephone.
TYPE	500	500 or 2500 type telephone.
FTR	ICF 4-(16)-23	Allow Internal CFW for the specified telephone and the maximum forward DN length.
	XICF	Remove Internal CFW from the telephone.

LD11-Add/change CFW Internal Calls for SL-1 or Meridian digital telephones.

REQ	NEW	Add a new telephone.
	CHG	Modify an existing telephone.
TYPE	xxxx	Telephone type. xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616.
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.

LD57-Add/change Internal CFW for 500/2500 type telephones using FFC.

REQ	NEW	Add a new FFC table.
	CHG	Modify an existing FFC table.
	OUT	Remove an existing FFC code.
TYPE	FFC	Flexible Feature Code.
CODE	ICFA	Access Code for Internal CFW Activate.
	ICFD	Access Code for Internal CFW Deactivate.
	ICFV	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**SL-1/digital telephone**

To forward internal calls from an SL-1/digital 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 an SL-1/digital telephone:

- 1 Press the ICF key.

500/2500 type telephone

To forward internal calls from a 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 a 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 Deactivate (ICFD) FFC.

Related modules

When using Internal CFW, you may want to refer to the following related X11 release 19 features:

- Call Forward Reminder Tone (CFRT)
Refer to the CFW All Calls module for a description of the Call Forward Reminder Tone (CFRT) feature.
- User Selectable Call Redirection (USCR)
Refer to the User Selectable Call Redirection (USCR) module for a description of this feature.

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 (X11 release 2 and later)

Flexible Call Forward No Answer, X11 release 2 and later allow 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 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.

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 using Multiple Appearance DNs (MADNs), call redirection is determined based on the TN order in your DN block. To determine the TN order, print the DN block from LD20 or LD22 (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 **top** 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 interaction

- **Attendant Administration**
Attendant Administration can assign and change a Flexible Call Forward No Answer DN with the function key on the attendant console.
- **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 Waiting**
If a call to a telephone gets CFNA treatment to another telephone that is busy, then Call Waiting and Camp-On do not apply. The call will attempt to terminate on the original DN again.
- **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.

- Multiple-Appearance DN Redirection Prime
X11 release 18 and later support Multiple-Appearance DN Redirection Prime (MARP). This feature affects call redirection operation. refer to the MARP module in this document for details.
 - If a telephone is service changed, its TN is moved to the beginning of the DN list, irrespective of the numerical. 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 500/2500, SL-1, and Meridian digital telephones, the 500/2500 telephones are listed in numerical TN order at the top of the list. SL-1 and Meridian digital telephones are listed in numerical TN order at the bottom of the list. A service change to a 500/2500 telephone moves its TN to the beginning of the list. A service change to an SL-1 or Meridian digital telephone moves its TN to the end of the list.
 - A sysload restructures the list back to numerical TN order with 500/2500 telephones at the top and SL-1 and Meridian digital telephones at the bottom. Call redirection parameters continue to be derived as described in the preceding paragraphs.

Feature packaging

Call Forward No Answer/Flexible Call Forward No Answer is included in basic X11 system software.

Feature implementation

LD15-Define Call Forward No Answer for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
ICI	xx CFN	Attendant Incoming Call Indicator for Call Forward No Answer xx = key number (00-19)
FNAD	(HNT)	Forward No Answer DID calls to the Hunt number
	ATT	Forward No Answer DID calls to the attendant
	FDN	Forward No Answer DID calls to the Flexible Call Forward No Answer DN
	NO	No Answer DID calls are not forwarded
FNAT	(HNT)	Forward No Answer local calls to the Hunt number
	ATT	Forward No Answer local calls to the attendant
	FDN	Forward No Answer local calls to the Flexible CFNA DN
	NO	No Answer local calls are not forwarded
FNAL	(HNT)	Forward No Answer external calls to the Hunt number
	ATT	Forward No Answer external calls to the attendant
	FDN	Forward No Answer external calls to the Flexible Call Forward No DN
	NO	No-answer external calls are not forwarded
CFNA	1-15	Number of ringing cycles before No Answer calls are forwarded (default is 4)
		- In X11 release 9 and earlier, the FNAN prompt takes the place of the FNAT and FNAL prompts.

LD10-Add/change Flexible Call Forward No Answer for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	FNA, (FND)	Allow (Deny) 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)

LD11-Add/change Flexible Call Forward No Answer for SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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	FNA, (FND)	Allow (Deny) Call Forward No Answer

LD10-Implement Call Forward No Answer to the Hunt DN on 500/2500 telephones.

REQ	CHG	Change
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	FNA, (FND)	Allow (Deny) CFNA

LD11-Implement Call Forward No Answer to the Hunt DN on SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	FNA, (FND)	Allow (Deny) 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

Not applicable.

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 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 an 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.

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 (LD15)
- the forwarding DN (FDN, EFD, Hunt, or 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
- 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)
- Attendant Recall

Call Forward No Answer Second Level for Message Waiting Allowed Telephones, X11 release 15 and later allow 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.

Operating parameters

A maximum of two levels of Call Forward No Answer is allowed for an unanswered call.

Calls directed to an attendant or 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 interaction

- Call Forward All Calls
Both first and Second Level Call Forward No Answer use the final (ringing) telephone in the chain to obtain Class of Service and forwarding DN information.
- 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 LD15 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.
- Flexible Call Forward No Answer
If Second Level Call Forward No Answer is disabled, Flexible Call Forward No Answer operates as described.

- 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.
- 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.
- Multiple Appearance Directory Numbers (MADNs)
Call redirection parameters like Hunt and Call Forward No Answer are derived from the TN data block (LD20 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 (LD22 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 DNB organizes MADN information in numerical TN order. The TN with the highest numerical value (000-0-06-03) is placed at the beginning of the 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 is service changed, 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 500/2500, SL-1, and Meridian digital telephones, the 500/2500 telephones are listed in numerical TN order at the top of the list. SL-1 and Meridian digital telephones are listed in numerical TN order at the bottom of the list. A service change to a 500/2500 telephone moves its TN to the beginning of the list. A service change to an SL-1 or Meridian digital telephone moves its TN to the end of the list.
- A sysload restructures the list with 500/2500 telephones at the top and SL-1 and Meridian digital telephones at the bottom. Call redirection parameters continue to be derived as described in the preceding paragraphs.
- Message Centers
There are three types of Message Centers:
 - 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 that 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).

- 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.

Feature packaging

Call Forward No Answer Second Level is included in basic X11 system software.

Feature implementation

LD15-Assign Message Center to allow the Message Waiting indication.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	MCI, (MCX)	Include (exclude) Message Center

LD10-Add/change Second Level Call Forward No Answer for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	FNA, (FND)	Allow (Deny) Forward No answer
	MWA, (MWD)	Allow (Deny) Message Waiting
	SFA, (SFD)	Allow (Deny) second level CFNA
		<p>Note: To implement SFA in X11 release 14 and earlier, specify both FNA and MWD.</p> <p>X11 release 15 and later allow SFA to be implemented with an MWA Class of Service.</p>
FTR	FDN xxxx...x	Flexible Call Forward No Answer DN

LD11-Add/change Second Level Call Forward No Answer for SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
FDN	xxx...x	Flexible Call Forward No Answer DN
CLS	FNA, (FND)	Allow (Deny) Forward No answer
	MWA, (MWD)	Allow (Deny) Message Waiting
	SFA, (SFD)	Allow (Deny) 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

To forward calls from an SL-1 or digital telephone:

- 1 Press **Forward**.
- 2 Dial the number where calls are to be forwarded.
- 3 Press **Forward**.

To cancel Call Forward All Calls:

- 1 Press **Forward**.

To forward calls from a 500/2500 telephone:

- 1 Lift the handset and dial SPRE 74 (500 telephone).
or Lift the handset and dial #1 (2500 telephone).
or Lift the handset and dial the Call Forward Allowed Flexible Feature Code (FFC).
- 2 Dial the number where calls are to be forwarded.
- 3 Hang up.

To cancel Call Forward All Calls:

- 1** Lift the handset and dial SPRE 74 (500 telephone).
- or Lift the handset and dial #1 (2500 telephone).
- or Lift the handset and dial the Call Forward Deny FFC.

Call Hold, Deluxe

Deluxe Call Hold (DHLH) offers two options: Individual Hold and Exclusive Hold.

Individual Hold indicates only those calls placed on hold on SL-1 and Meridian digital 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 Directory Number (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 interaction

- Attendant Administration
Deluxe Hold (DHLD) cannot be administered through the Attendant Administration feature.
- 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.

Feature packaging

Deluxe Hold (DHLD), package 71, has no feature package dependencies.

Feature implementation

LD15-Enable/disable Individual Hold for the customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	IHA, IHD	Enable or disable Individual Hold (default IHD)

LD10-Enable/disable Exclusive Hold for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	XHA, XHD	Enable or disable Exclusive Hold (default XHD)

LD11-Enable/disable Exclusive Hold for SL-1, M3000, and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
CLS	XHA, XHD	Enable or disable Exclusive Hold (default XHD)

Feature operation

Not applicable.

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, SL-1, or Meridian digital 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 SL-1 or Meridian digital 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 interaction

- Privacy
A call placed on Permanent Hold has Privacy removed. Privacy is reinstated when the call is removed from Permanent Hold.
- Audible Reminder of Held Call (ARCH)
If Audible Reminder of Held Call (ARCH) is enabled in LD15, the Audible Reminder of Held Call (ARCH) timer takes precedence over the Permanent Hold timer.

Feature packaging

2500 Set Features (SS25), package 18, includes Permanent Hold and has no feature package dependencies.

Feature implementation

LD15-Set Permanent Hold reminder ring timer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
PHDT	1-(30)-63	Permanent Hold reminder ring timing in two-second increments (30 = 60 seconds)

LD10-Enable/disable Permanent Hold for 2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l 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 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 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 Directory Number (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 following equipment:

- attendant consoles
- SL-1 telephones
- M3000 telephones
- 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. However, for multi-tenant service, if the parking attendant does not belong to the same CPG specified for the tenant of the calling station and if it is busy at the time of the recall, the parked call is presented to an idle attendant in the same CPG specified for the calling station. Then if there is no attendant within that CPG available to accept the recall, the parked call is queued until one of the attendants in the CPG becomes idle.

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 SL-1 and Meridian digital 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 500/2500 telephones designated as Dial Intercom telephones.

Call Park is not permitted when Privacy Release or Conference is active.

Calls parked from SL-1, Meridian digital telephones, and 500/2500 telephones are recalled to the telephone that parked the call.

When a Multiple Appearance Single Call telephone mix (the same DN appears on SL-1, Meridian digital 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 (Centralized Attendant Service [CAS] or Direct Inward System Access [DISA], for example) 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 system load.

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 an SL-1 or Meridian digital telephone **cannot** be parked by the attendant. A call transferred to the attendant by the Transfer key on an SL-1 or Meridian digital telephone **can** be parked by the attendant.

Feature interaction

- M1250/M2250 attendant console
The Call Park access code and the Park DN are displayed for parked call recalls.
- QCW4 attendant console
When a parked call returns to the console, the console shows an attendant display (DLEN in LD12) 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.
- Access Restrictions and Class of Service (CLS)
A call can be parked on any DN, regardless of its CLS. Access to a parked call is governed by the same CLS restrictions for normal trunk-to-telephone call processing. The following table details the restrictions. These restrictions can be overridden with the Authorization Code.

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

- Automatic Call Distribution (ACD)
Calls parked by ACD agents are recalled to the ACD DN queue and presented to any available agent.
- 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 Forward
A recalled parked call to telephones with Call Forward, Call Forward Busy, or Call Forward No Answer (CFNA) is not forwarded.
- 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.
- 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.
- Make Set Busy
Recall of a parked call to a telephone in the Make Set Busy mode is intercepted by the attendant.
- Private Line Service
Private lines cannot park a call.
- Privacy Release
When a call from an SL-1 or Meridian digital 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.

- 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
 - average waiting time

Feature packaging

Call Park (CPRK), package 33, has no feature package dependencies.

Feature implementation

LD15-Enable or disable Call Park.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	CPA, (CPD)	Enable or disable Call Park

LD50-Add/change or print Call Park.

Note: This overlay must be defined for Call Park operation.

REQ	CHG	Change
TYPE	CPK	Call Park data block
CUST	0-99	Customer number
CPTM	30-(45)-240	Parked call recall time in seconds (default is 45 seconds)
SPDN	(0)-50 xxxx	Number of contiguous System Park DN and the first System Park DN Note 1: The default 0 (zero) disables System Park DN capability, but allows Telephone Park DNs. Note 2: 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

LD10-Allow or deny access to Call Park for 500/2500 telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	XFA, (XFD)	Allow (Deny) access to Call Park

LD11-Add or change a Call Park key on SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx PRK	Add a Call Park key (key number must be 17 for M2317 and 31 for M3000)

LD12-Add or change a Call Park key on attendant consoles.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx PRK	Add a Call Park key (key number can be 00-19 on M2250)

Feature operation

To park a call with the Park key, follow these steps:

- 1 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 Party Name Display

Call Party Name Display (CPND) identifies the calling or called number in addition to the DN. The identifier (the name, for example) associated with a DN on telephones with an alphanumeric display is defined in LD95.

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 new 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. For example: 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 8 bit, no-parity I/O.

Call Party Name Display assignment

A CPND name string can be assigned to internal DNs associated with any of the following:

- 500/2500 telephones
- single-call/multiple-call SL-1 telephones
- trunk access codes
- attendant DNs
- 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 LD95, 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 50-1 for examples..

Table 50-1
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 1: Do not enter leading spaces. LD95 ignores them.

Note 2: When CPND information is printed (using LD10/11 or LD20), 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* (P0728489).

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, for example, 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 MCPND 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 ISDN calls is displayed in English only.

Feature interaction

- ACD DNIS

If an incoming trunk call from a route with Dialed Number Identification 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.
- 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 Wake-up (AWU)

All display information associated with Automatic Wake-up programming is directed to line three of the display. Names are appended to DN's 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 re-established

When a call is put on hold, the holding telephone's display clears. The held telephone's display does not change. When the telephone re-establishes the call, the display returns the original DN and name.

- **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 Pickup**
For Call Pickup, the X11 release 13 enhancement to CPND applies when the call is answered.
- **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.
- 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.
- 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.
- 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
 - 18 appearances allows 8 digits/letters in the name
- Manual Signaling (Buzz)
If the Signal key is pressed to buzz another telephone, no digit or name display appears on the telephone.

- 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
- Digital Sets (DSET), package 88
- M3000 Touchphone (TSET), package 89 or
- M2317 telephone (DLT2), package 91
- Meridian modular telephones (ARIE), package 170

Multi-Language CPND requires Multi-Language I/O (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 (BGD), package 99
- Multi-Language I/O (MLIO), package 211, to support 8-bit, no-parity system terminals.

Feature implementation

Before name strings can be assigned to various telephones, the CPND data block must be created in LD95. The number and size of CPND name strings is limited by available space in the Protected Data Store, so we recommend that you initially use a small number for the maximum character length.

Procedure 50-1**Enable CPND and add names to the CPND data block****LD95**-Create the CPND data block.

REQ	NEW	Create CPND database (or open existing data base)
TYPE	CPND	CPND data block
CUST	0-99	Customer number
CNFG	<CR>	Stand-alone 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	Yes, (No)	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	Yes, (No)	Allow designator for MADNs
RESN	Yes, (No)	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

LD95-Add names to the CPND data block.

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	0-99	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; see Call Party Name Display composition on page 50-3.
_XPLN	xx	Defines maximum number of characters allowed in name string under CHO operation.
	<CR>	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; see Call Party Name Display composition on page 50-3.
_XPLN	xx	Defines maximum number of characters allowed in name string under CHO operation.
	<CR>	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; see Call Party Name Display composition on page 50-3.

LD10-Allow names to be assigned to 500/2500 telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = 500, 2500
TN	l s c u	Terminal Number
FTR	CPND	Allow CPND name assignment on this telephone

LD11-Allow names to display on M2008, M2016, M2216, M2616, M3000, and M2317.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	CNDA, (CNDD)	Allow (Deny) display of CPND entries
	DNDA, (DNDD)	Allow (Deny) display of CPND originally dialed entries

LD12- Allow names to display on attendant consoles.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = 1250, 2250, ATT
TN	l s c u	Terminal Number
CPND	CNDA, (CNDD)	Allow (Deny) CPND name assignment
DNDI	DNDA, (DNDD)	Allow (Deny) display of originally dialed CPND entries

Procedure 50-2**Change or remove names in the CPND data block**

LD95-Open the CPND data block to change or remove entries.

REQ	CHG, OUT	Change or remove an existing entry	
TYPE	NAME	Change or remove an existing CPND name string	
CUST	0-99	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; see Call Party Name Display composition on page 50-3. 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; see Call Party Name Display composition on page 50-3.	
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; see Call Party Name Display composition on page 50-3.	

Procedure 50-3**Print entries from the CPND data block**

LD95-Print information associated with entries in the CPND data block.

REQ	PRT	Print entries in the CPND data block
TYPE	NAME	CPND name strings
CUST	0-99	Customer number
LANG	ROM, KAT	Print names in Roman or Katakana
PAGE	Yes, (No)	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	
_SHRT	Yes, (No)	Print short form (long form)

Procedure 50-4
Add or change CPND name entry for a telephone

LD10/11-Add or change CPND name.

REQ	NEW, CHG	Add or change CPND name information
TYPE	aaaa	500, 2500, sl1, 2606, 2616, 2317, 3000, etc.
TN	l s c u	Terminal number
CUST	0-99	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; see Call Party Name Display composition on page 50-3.
XPLN	xx	Expected name length
DISPLAY_FMT	(FIRST [,LAST]) LAST [,FIRST]	Display format: FIRST = first, last (the default); LAST = last, first

Feature operation

Not applicable.

Call Pickup

Call Pickup allows telephones to be arranged in groups consisting of any combination of 500/2500, SL-1, and Meridian digital 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.

SL-1 and Meridian digital telephones can dial-access this feature, or be equipped with a Call Pickup key. An associated lamp is not required.

CO Trunk Priority, X11 release 13 and later releases provide 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 2
- Normal Ringing Queue CO call Priority 3
- 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 interaction

- Call Park
A 500/2500 telephone user on a call can pick up a call by parking the existing call, then activating the Call Pickup feature.
- Directed Call Pickup (DCP)
Call Pickup can be assigned to a telephone independent of Directed Call Pickup (DCP).
- Automatic Call Distribution (ACD)
Automatic Call Distribution (ACD) DNs are not supported by Call Pickup.
- Flexible Feature Code (FFC)
FFC codes are not supported on SL-1 or digital telephones when attempting to call pickup a dial intercom ringing call.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD15-Implement CO Trunk Priority in the customer data block.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	COP, (COX)	CO Trunk Priority for the Call Pickup feature COX is no Priority

LD10-Define Call Pickup group and Class of Service for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
RNPG	xxxx	Call Pickup group number (0 - 4095)
CLS	(PUA), PUD	Allow (Deny) Call Pickup

LD11-Define Call Pickup group, Class of Service, and Call Pickup key for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
RNPG	xxxx	Call Pickup group number (0 - 4095)
CLS	(PUA), PUD	Allow (Deny) Call Pickup
KEY	xx RNP	Add a Call Pickup key

Feature operation

To answer a call in your Call Pickup group from an SL-1 or Meridian digital 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 a 500/2500 telephone, follow these steps:

- 1 Lift the handset.
- 2 Dial SPRE 3 or PUDN 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)
- 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 interaction

- Automatic Call Distribution (ACD)
ACD DN's are not supported by Directed Call Pickup.

Feature packaging

Directed Call Pickup (DCP), package 115, has no feature package requirements.

Feature implementation

LD15-Define the number of digits dialed for Call Pickup groups.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
PKND	(1) - 4	Number of digits dialed for Group Pickup Prompted only if DCP is equipped
OPT	COP, (COX)	CO call priority or no priority for Call Pickup and Group Call Pickup

LD10-Add or change 500/2500 telephones to allow DCP Class of Service.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
RNPG	0 - 4095	Call Pickup Group 0 = no pickup group
CLS	GPUA, (GPUD)	Allow (Deny) Group Pickup
	DPUA, (DPUD)	Allow (Deny) DN Pickup

LD11-Add or change SL-1 and Meridian digital telephones to allow Directed Call Pickup Class of Service.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
RNPG	0 - 4095	Call Pickup Group 0 = no pickup group
CLS	DPUA, (DPUD)	Allow (Deny) DN Pickup
	GPUA, (GPUUD)	Allow (Deny) Group Pickup
KEY	xx DPU	DN Pickup key (not available on M3000)
	xx GPU	Group Pickup key (not available on M3000)

Feature operation

To answer a call in another Call Pickup group from an SL-1 or Meridian digital 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 an SL-1 or Meridian digital telephone:

- 1 Lift the handset.
- 2 Press **DN Pickup** or dial SPRE + 95 or PURN FFC.
- 3 Dial the extension number.

To answer a call in another Call Pickup group from a 500/2500 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 a 500/2500 telephone:

- 1** Lift the handset and dial SPRE + 95 or PURN FFC.
- 2** Dial the extension number.

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 SL-1 or Meridian digital telephones or by flashing the switchhook on 500/2500 telephones.

Operating parameters

A separate Call Transfer key/lamp pair must be assigned to SL-1 and Meridian digital telephones.

A transfer allowed Class of Service must be specified for 500/2500 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.

Feature interaction

- Conference
You can also transfer calls using the Conference key, but not until the third party answers the call.
- Hold
A consultation call can be placed on Hold.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD10-Allow/deny Call Transfer for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	XFA, (XFD)	Allow (Deny) Call Transfer

LD11-Add a Call Transfer key for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx TRN	Add a Call Transfer key (M2317 and M3000 must use key 26)

Feature operation

To transfer an active call on an SL-1 or digital 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 transfer an active call on a 500 or 2500 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.

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. SL-1 and Meridian digital 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 an SL-1 or Meridian digital 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, 500/2500 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 a 500/2500 telephone user of a waiting call. Note that the two calls cannot be conferenced together.

Call Waiting applies to DID, CO, FX, and 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 provide Call Waiting for internal calls. This option, defined on a per-telephone level, 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
- telephone-to-telephone call transfer of all trunk and internal calls

Operating parameters

An SL-1 or Meridian digital 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.

A 500/2500 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.

A 500/2500 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.

Feature interaction

- 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.
- 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.
- 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 the hunting route, the call becomes a Call Waiting call on the called DN.

- Message Center
Call Waiting calls are not forwarded to a Message Center.
- 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.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD10-Allow/deny Call Waiting for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	CWA, (CWD)	Allow (Deny) Call Waiting
	SWA, (SWD)	Allow (Deny) internal Call Waiting (if SWA is defined, CWA must also be defined)
	(WTA), WTD	Allow (Deny) warning tone

LD11-Allow/deny Call Waiting for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
CLS	SWA, (SWD)	Allow (Deny) internal Call Waiting
	(WTA), WTD	Allow (Deny) warning tone
KEY	xx CWT	Add a Call Waiting key (M3000 must use key 24)

Feature operation

To answer a Call Waiting call on SL-1 and Meridian digital 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 500/2500 telephones, follow these steps:

- 1 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:

- 1 Flash the switchhook.

Called Party Disconnect Control

Called Party Disconnect Control allows Meridian 1 system to control the disconnecting of calls on CO, FX, CCSA, DID, tie, 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 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 interaction

- Conference
Trunks with Called Party Disconnect Control allowed are treated as trunks without disconnect supervision when conferenced.
- 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.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD16-Define Called Party Disconnect Control for a trunk route.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CNTL	Yes, (No)	Change the controls or timers
CPDC	Yes, (No)	Allow or deny Called Party Disconnect Control for the trunk route (default is No)

Camp-On

Camp-On routes one additional external call to a busy Directory Number (DN). When the attendant extends a call to a busy Directory Number (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 LD15 from 0 to 510 seconds, in multiples of 2 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 interaction

- Warning tone
Class of service with warning tone denied allows a call to be camped on, but with no warning tone.
- Call Forward All Calls
Takes precedence over Camp-On.
- Hunting
Takes precedence over Camp-On.
- Call Waiting
Camp-On and Call Waiting are mutually exclusive.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD15-Enable/disable Camp-On tone for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	CTA, (CTD)	Enable or disable Camp-On tone for the customer
RTIM	xx yy zz	Set recall timers yy = Camp-On recall timer, response is 0-(30)-510

LD10-Allow/deny warning tone class of service for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	WTA, (WTD)	Allow (Deny) warning tone

LD11-Allow/deny warning tone class of service for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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:

- 1 Press **RLS**.

The call is camped on to the extension. If you hear a busy tone, a call is already camped on the extension.

Note: 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.

Capacity Expansion

Introduced in X11 releases 13 and 14, Capacity Expansion increases the limits associated with the features listed in Tables 57-1 and 57-2.

Table 57-1
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 57-2
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 interaction

- 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

Not applicable.

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. (See Figure 58-1.) 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.

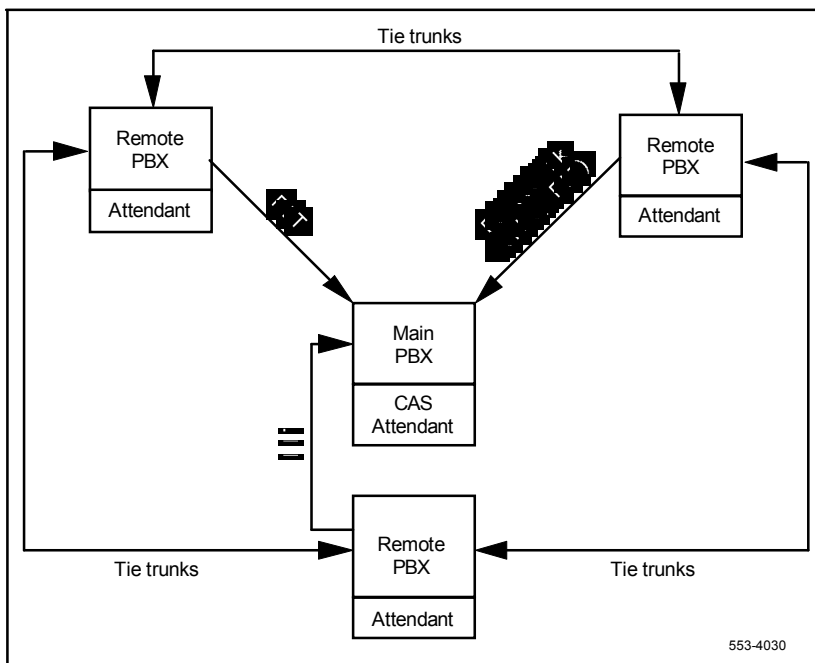
The types of calls that require attendant assistance and can be handled by a CAS attendant are

- 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
- Operator-assisted calls for restricted telephones, giving access to WATS, FX, and CO trunks

Operating parameters

For complete information regarding CAS, see *Centralized Attendant Service description and engineering* (553-2681-100).

Figure 58-1
Typical Centralized Attendant Service configuration



Centrex Switchhook Flash

Centrex Switchhook Flash (THF) accesses Centrex services such as Call Transfer or three-way calling while on an established Centrex call. It 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)
- Analog and DTI trunks

Whenever Centrex Switchhook Flash (THF) is invoked, Meridian 1 checks for the following:

- With 500/2500 telephones, that the class of service supports THF. With SL-1 or Meridian digital 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.

Operating parameters

This feature is not supported on attendant consoles.

On SL-1 and Meridian digital 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 500/2500 telephones, another switchhook flash is not allowed once THF has been invoked. A second switchhook flash is treated as an on hook disconnection.

THF allows you to make conference calls through the central office (CO). It can be invoked only if you are established on a call connected to an outside trunk. If engaged in internal conference calls, THF cannot be used.

Only trunks connected to the central office (CO) support THF. ISDN PRI trunks do not support THF.

Only voice calls are supported on THF.

Feature interaction

None.

Package dependencies

Centrex Switchhook Flash (THF), package 157, has no package dependencies.

Feature implementation

LD10-Enable/disable Centrex Switchhook Flash for single-line telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	THFA, (THFD)	Allow (Deny) Centrex Switchhook Flash

LD11-Enable/disable Centrex Switchhook Flash for multi-line telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx THF	Add a Centrex Switchhook Flash key

LD14-Enable/disable Centrex Switchhook Flash for each trunk.

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

LD16-Enable/disable Centrex Switchhook Flash for each trunk route.

CNTL	Yes	Change controls or timers
TIMR	FLH xx	Set the length of the timer for Centrex Switchhook Flash to x msec; legal range for this timer is 256 ms. to 1536 ms. (default is 512 ms.).

Feature operation

To use Centrex Switchhook Flash (THF) from a 500/2500 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).

To use Centrex Switchhook Flash (THF) from an SL-1 or Meridian digital telephone, press the key configured for THF. Dial access is not supported on these telephones.

To reestablish a connection before the overflow tone ends, flash the switchhook (500/2500 telephone). Or Press the DN key or the key establishing the original call (SL-1 or Meridian digital telephone).

Charge Account and Calling Party Number

Used in conjunction with Call Detail Recording (CDR), Charge Account direct-bills calls 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 SL-1 and Meridian digital 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.

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 single-line telephones, enter the account information immediately after the switchhook flash, before the new trunk is dialed.
- When using SL-1 and Meridian digital 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 SL-1 and Meridian digital telephones, press the Charge key and enter the number in the usual manner.
- When using Single-line 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. SL-1 and Meridian digital 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 interaction

- Telephone features
 - 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
 - Release Source

- 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.
- 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.
- 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.
- 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.

Feature packaging

CDR with Charge Account (CHG), package 23, requires

- Call Detail Recording (CDR), package 4
- Charge Account/Authorization Code (CAB), package 24

Feature implementation

LD15-Add/change Charge Account for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CHLN	(0)-23	Maximum number of digits that can be entered as a charge account number

LD10-Allow/deny access to Charge Account for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	XFA, (XFD)	Allow (Deny) call transfer

LD11-Add/change a Calling Party Number or Charge key for SL-1, M3000, or Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
KEY	xx CPN	Add a Calling Party Number key (must be key 24 for M2317 and key 32 for M3000)
	xx CHG	Add a Charge key (must be key 25 for M2317 and M3000)

LD12-Add/change a Calling Party Number or Charge key for attendant consoles.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CUST	0-99	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 multi-line telephones, 500/2500 telephones, and attendant consoles.

Multi-line 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.

500/2500 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 Forced Charge Account (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 Forced Charge Account (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 CCSA type trunks assigned a Toll-Denied (TLD), Conditionally Toll-Denied (CTD), or Conditionally Unrestricted (CUN) Class of Service.

SL-1 and Meridian digital 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 interaction

- Basic/Network Alternate Route Selection (BARS/NARS)
If BARS or NARS is equipped, an Network Class of Service (NCOS) associated with FCA must be defined in the customer data block.
- 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.
- 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.
- 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 (CAB), package 24
- CDR for Charge Account (CHG), package 23

Feature implementation

LD15-Enable/disable Forced Charge Account for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CHLN	(0)-23	Maximum number of digits that can be in an FCA code (default is 0)
FCAF	Yes, (No)	Enable or disable 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

LD10-Enable/disable Forced Charge Account for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
FCAR	Yes	FCA is restricted from use by this telephone
	(No)	FCA can be used by this telephone

LD11-Enable/disable Forced Charge Account for SL-1 and Meridian Digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
FCAR	Yes	FCA is restricted from use by this telephone
	(No)	FCA can be used by this telephone

LD14-Enable/disable Forced Charge Account for each incoming tie or CCSA trunk.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
FCAR	Yes	FCA is restricted from use by this trunk
	(No)	FCA can be used 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** on page 60-1.

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. The conferenced parties can be inside or outside 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.

SL-1 and Meridian digital telephones require a separate Conference 3 or Conference 6 key/lamp pair. M2317 and M3000 Touchphones establish conference calls by means of a softkey. 500/2500 telephones use the switchhook to establish a three-party conference.

Six-party conference for 500/2500 Telephones, X11 release 10 and later releases

The six-party Conference (C6A) Class of Service enables 500/2500 telephones to establish a six-party conference, which operates the same as a three-party conference, with the exception of Conference Control operation.

Introduced in X11 release 2, Conference Control disconnects an unwanted third party (trunk only) from a three-party conference. 500/2500 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 500/2500 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 potential impact on hearing loss levels of more than two trunks in a conference at any one time, it is strongly recommended that a maximum of two trunks be included.

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 500/2500 telephones. An error message is displayed if an attempt is made to remove Transfer Allowed (XFA) class of service for 500/2500 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 500/2500 telephones.

Dial access of Conference Control is provided only for 500/2500 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.

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* (553-3001-211).

Feature interaction

- Call Transfer
Conference can be used to transfer calls, eliminating the need for a separate Call Transfer key/lamp pair on SL-1 and Meridian digital telephones. Calls in the ringing state cannot be transferred with Conference. The third party must answer before the transfer can be completed.
- Call Transfer
When a switchhook flash transfers calls on 500/2500 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.
- Attendant Barge-In and 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.
- Ring Again
This feature cannot be activated during a conference call.
- Call Pickup
This feature cannot be activated during a conference call. SL-1 and Meridian digital 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.
- Trunk Access from any Station (TAFAS)
A switchhook flash on 500/2500 telephones results in special dial tone. Dialing SPRE + 4 (TAFAS access code) then picks up an incoming 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.
- Call Forward All Calls
On 500/2500 telephones, Call Forward All Calls can be activated or canceled during a conference call.

- 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.
- Group Call
Neither Call Transfer nor Conference can be initiated during a Group Call. If a 500/2500 telephone user flashes the switchhook during an established Group Call, the user is dropped from the call.
- Attendant
Three-party Conference (C6D) allows 500/2500 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.
- Dial Intercom Group (DIG)
If a 500/2500 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).
- Meridian Mail (VOM) 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 SL-1, press 3 to stop the recorded message and the asterisk (*) to disconnect.

Feature packaging

Conference is included in basic X11 system software.

Feature implementation

LD10-Add/change Conference 3 or Conference 6 for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	XFA (XFD)	Allow (Deny) transfer Class of Service
	C6A (C6D)	Allow (Deny) six-party conference (C6A requires an XFA Class of Service)

LD11-Add/change Conference 3 or Conference 6 for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
KEY	xx AO3/AO6	Add a Conference 3 or Conference 6 key (must be key 23 for M3000) xx = key number

Feature operation

To add a new party to an established call on an SL-1 or digital 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 a 500/2500 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.

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 interaction

- **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 (NSCV) 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.
- **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 (CPG), package 172, requires

- Multi-Tenant Services (TENS), package 86

Feature implementation

LD93-Enable CPG.

REQ	CHG	Change
TYPE	TENS	Multi-Tenant data block
CUST	0-99	Customer number
CPGS	Yes	Enable CPG Level Services

LD93-Assign attendant consoles to a presentation group.

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

LD93-Assign tenants to an attendant group number.

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

LD93-Assign a route to an attendant group number.

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

LD93-Add CPG features. (Part 1 of 2)

REQ	NEW, CHG	Enable/disable Multi-Tenant Service for a customer
TYPE	CPGP	Console Presentation Group 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

LD93-Add CPG features. (Part 2 of 2)

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	Yes, (No) Yes, (No)	Buzz Call Waiting calls over thresholds, and/or enters queue

Feature operation

Not applicable.

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 SL-1 and Meridian digital telephone users designated as CCOS controllers. While CCOS is active, central office or toll calls made from these telephones cannot be completed without first being routed through an attendant.

SL-1 and Meridian digital 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 SL-1 or Meridian digital telephones.

CCOS controlling telephones must refer to the Prime Directory Number (PDN) when activating or cancelling CCOS on other telephones.

Automatic Call Distribution (ACD) agents cannot be restricted by CCOS.

Feature interaction

- 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 control 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 an SL-1 or Meridian digital 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).

Feature packaging

Controlled Class of Service (CCOS), package 81, has no feature package requirements.

Feature implementation

LD15-Add/change CCOS for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CCRS	UNR	Unrestricted
	CUN	Conditionally unrestricted
	CTD	Conditionally toll-denied
	TLD	Toll-denied
	SRE	Semi-restricted
	FRE	Fully restricted
	FR1	Fully restricted 1
	FR2	Fully restricted 2

LD11-Allow/deny CCOS on SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	CCSA, (CCSD)	Allow (Deny) CCOS

LD10-Allow/deny CCOS on 500/2500 telephones .

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	CCSA, (CCSD)	Allow (Deny) CCOS

LD11-Add/change CCOS controlling telephone assignments on SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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**.
- 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 CCOS telephones. The feature allows two more 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 SL-1 or Meridian digital telephone.

A CCOS controlling telephone must refer to the Prime DN when activating or canceling CCOS on other telephones.

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 interaction

- Attendant Administration
This feature cannot change 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 CO or toll calls are not affected. The CCOS restriction level is applied immediately, however, and 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 PDN (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

LD15-Define the class of service restrictions for the system.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CCRS		CCOS restrictions
	(UNR)	Unrestricted service
	CTD	Conditionally Toll Denied
	CUN	Conditionally Unrestricted
	FRE	Fully Restricted
	FR1	Fully Restricted level 1
	FR2	Fully Restricted level 2
	SRE	Semi-Restricted
	TLD	Toll Denied
ECC1	x x x	Enhanced Controlled Class of Service, Level 1
ECC2	x x x	Enhanced Controlled Class of Service, Level 2
		x x x =(UNR)
		CTD
		CUN
		FRE
		FR1
		FR2
		SRE
		TLD
<p>Note: Input restrictions apply when CCSA is active. When CCSA is inactive, the telephone has the CLS assigned in LD10/11.</p>		

LD11-Assign keys for controller telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx COS	Key number for CCOS key on controller telephone (for M3000, key must be 0-5)

LD10-Configure controlled 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	CCSA, (CCSD)	Allow (Deny) CCOS

LD11-Configure the controlled SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	CCSA, (CCSD)	Allow (Deny) CCOS

LD12-Assign ECCS keys for attendant console

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 an SL-1 or digital 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**.
- 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 ECCOS 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**.

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 four 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 a specific Listed Directory Numbers (LDN), or dial-0 calls from subgroup telephones, are directed to the attendant console or consoles assigned to that Listed Directory Numbers (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 Direct Inward Dialing (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
 - a tie-line user dials the LDN

The DLDN feature associates attendant consoles with a 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 Indication (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 will be 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 (LD15).

Feature interactions

- 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.
- Position Busy
If all attendant consoles in an LDN group are in a Position Busy state, calls to that LDN will not be automatically presented to any attendant console in the customer group. Other attendants may only answer those LDN calls if the LDN has been assigned to an ICI key.
- Centralized Attendant Service (CAS)
LDN calls are not screened for Centralized Attendant Service (CAS). When a Centralized Attendant Service (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.
- 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.
- 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.
- 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.

Feature packaging

DLDN, package 76, has no other package dependencies.

Feature implementation

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

LD15-Enable the Departmental Listed Directory Number feature for a customer. (Part 1 of 2)

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
DLDN	Yes, (No)	Enable or disable DLDN
LDN0	xxx...x	Listed Directory Number Zero
LDA0	1 2...15	Associate attendant console number with LDN 0 Note: With X11 release 8 and later, the maximum number of attendant consoles allowed is 63.
	ALL	Associate all attendant consoles with LDN 0
	<CR>	Associate all attendant consoles with LDN0
LDN1	xxx...x	Listed Directory Number One
LDA1	1 2...15	Associate attendant console number with LDN 1 Note: With X11 release 8 and later, the maximum number of attendant consoles allowed is 63.
	ALL	Associate all attendant consoles with LDN 1
	<CR>	Associate all attendant consoles with LDN1

LD15-Enable the Departmental Listed Directory Number feature for a customer. (Part 2 of 2)

LDN2	xxx...x	Listed Directory Number Two
LDA2	1 2...15	Associate attendant console number with LDN 2 Note: With X11 release 8 and later, the maximum number of attendant consoles allowed is 63.
	ALL	Associate all attendant consoles with LDN 2
	<CR>	Associate all attendant consoles with LDN2
LDN3	xxx...x	Listed Directory Number Three
LDA3	1 2...15	Associate attendant console number with LDN 3 Note: With X11 release 8 and later, the maximum number of attendant consoles allowed is 63.
	ALL	Associate all attendant consoles with LDN 3
	<CR>	Associate all attendant consoles with LDN3
ICI	xx LD0 xx LD1 xx LD2 xx LD3	Incoming Call Indication for Listed Directory Numbers Zero to Three (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.		

LD10-Add or change Departmental Listed Directory Number for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
LDN	0-3, (No)	Telephone associated with LDN (0-3 or none)
Choose No to remove this telephone from the group.		

LD11-Add or change Departmental Listed Directory Number for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type (aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
LDN	0-3, (N)	Telephone associated with LDN (0-3 or none) Choose No to remove this telephone from the group.

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.

SL-1 and Meridian digital 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 SL-1 and Meridian digital telephones. If voice is specified, an idle stations rings once for 2 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. In X11 release 19, you have the option of an announcement or a two-way speech path.

The ring option must be used if a 500 type 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 assignable on a per customer basis. The cadence is 0.5 on and 0.5 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.

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

Operating parameters

A maximum of 254 DIGs can be established per customer. 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 500/2500 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 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 70 through 79, but a two-digit SPRE code, such as 77, allows 99 DIG member numbers. 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.

Note: BRI, M3000, and SL-1 telephones do not support the Handsfree feature.

Feature interactions

- 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 SL-1 and Meridian digital 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.
- Auto Answer Back (AAB)
This feature is not affected by the Handsfree Voice Call feature.

- Station features
DI can be used in combination with the following features:

Feature	SL-1 and Meridian digital telephones	500/2500 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

LD15-Enable Dial Intercom for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
DGRP	(0) - 253	maximum number of DIGs that can be defined for the customer Note: With X11 release 13 and later, the maximum number of DIGs allowed is 2046.

LD10-Add or change Dial Intercom for 500/2500 telephones.

REQ	NEW, CHG	New or change (see Note)
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 Note: With X11 release 13 and later, the maximum number of DIGs allowed is 2046.
Note: 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.		

LD11-Add or change Dial Intercom for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type (aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000)
TN	l s c u	Terminal Number
KEY	xx DIG aaa bb c	add a Dial Intercom key xx = key number aaa = group number (0-253) bb = member number (0-99) c = r (ring) or v (voice) Note: With X11 release 13 and later, the maximum number of DIGs allowed has increased to 2046.

LD15-Add or change Handsfree Voice Call for the Meridian 1 system.

REQ	CHG	Change
TYPE	CDB	Customer data block
CUST	xx	Customer number
OPT	HVA, (HVD)	Handsfree Voice Call Allowed (Denied)

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 2 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 500/2500 telephones, Dial Pulse (DP) tie lines, SL-1 and digital 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 pushbutton 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 feature interactions.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

Not applicable.

Feature operation

Not applicable.

Dialed Number Identification Service

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

Note: X11 release 17 and later supports DNIS on non-ACD telephones. X11 release 16 and earlier provides DNIS on ACD telephones only.

Routing by DNIS number

Routing by DNIS number enhances call distribution within an ACD system. This X11 release 12 enhancement allows calls to be routed to a specific ACD DN, based on the DNIS number, instead of auto-terminating as described in the DNIS description in *Automatic Call Distribution advanced features description* (553-2671-101).

X11 release 17 provides for Routing by DNIS on Tie trunks.

Name Display for DNIS

This X11 release 17 enhancement lets you assign a name to each DNIS number, and displays both the DNIS number and name for IDC DNIS calls terminating on both ACD and non-ACD telephones. The maximum number of characters allowed is 27, including spaces.

DNIS ON CDR

For CDR records, the DNIS information is included in the call record after the Feature Group D digits if the customer has the DNIS and CDR packages, the route is a DNIS route, and DNIS was turned on in the Route Data Block.

DNIS across Call Modifications

This enhancement preserves the DNIS information across certain call modifications and enhances DNIS operation and functionality. This feature enhances DNIS operation and functionality for DNIS name and number display across the following call modifications.

- Conference and No Hold Conference
- Transfer
- Privacy Release
- Mixed DNs
- End to End Signaling
- Parked Call/Recalled Parked Call

Related documents

For a complete discussion on DNIS, Routing by DNIS, Name Display for DNIS, DNIS on CDR, and DNIS across Call Modifications, refer to *Automatic Call Distribution advanced features description* (553-2671-101).

For information about Call Detail Reporting (CDR), refer to *Call Detail Recording description and formats* (553-2631-100).

Digit Display

There are two types of Digit Displays: Attendant console Digit Display and SL-1 telephone Digit Displays.

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 Directory Number (DN) and the dialed Directory Number (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.

SL-1 telephone Digit Display

This feature allows the automatic display of information relevant to normal call processing and feature activation on any SL-1 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 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).

Three 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.

Automatic displays will show the following:

- number dialed
- number of calling party
- Call Pickup
- Call Waiting party
- 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
- Call Forward party

Operating parameters

Digit Display must be enabled for all console types in LD15, 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

There are no feature interactions.

Feature packaging

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

Feature implementation

LD15-Add or change Digit Display for attendant consoles for each customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	IDP, (XDP)	include or exclude Digit Display capability for attendant consoles of this customer

LD11-Enable or disable Digit Display for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	(NDD)	Telephone is not equipped with a Digit Display
	DDS	Calling Party information is displayed after call is answered (delayed display source)
	ADD	Calling Party information is displayed during call processing (Automatic Digit Display)
KEY	xx DSP	Add a Digit Display key (must be key/lamp pair) xx = key number
	xx TAD	Add a Time and Date key (must be key/lamp pair) xx = key number

LD12-Enable or disable Digit Display for each attendant console.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	l s c u	Terminal Number
DLEN	(8), 16	Digit Display entry length (default is 8) This prompt applies to QCW-type consoles only.
KEY	xx DCW	Add display Call Waiting key
	xx DDT	Add display Date key
	xx DPD	Add display Destination key
	xx DPS	Add display Source key
	xx DTM	Add display Time key
	xx MDT	Add display/change Date key
	xx MTM	Add display/change Time key

Feature operation

There are no special procedures for operating 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 (DTI) operates similarly to a channel bank on the carrier side and an analog trunk on the Meridian 1 side. Digital Trunk Interface (DTI) 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
- a digital central office (CO)

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)
- *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

Not applicable.

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 (DISA):

- calls to any station within the customer group
- trunk calls (such as calls to a central office (CO), a tie trunk, or paging and dictation trunks)
- Basic/Network Authorization Code (BAUT/NAUT)
- Call Detail Recording (CDR) and Call Detail Recording (CDR) Charge Account
- 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 (DN). 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 (CO, FX, or 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 (Speed Call for example), 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.

The minimum signaling level for the currently available Digitone receiver is 22 dBm at the trunk interface.

Feature interactions

DISA does not support unsupervised CO, FX, or WATS trunks.

- 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 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).
- 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.
- Busy Verify (BVR)
Busy Verify (BVR) applies only to DNs within the system. If an attendant tries to use the feature to enter an DISA DN, overflow tone is returned.
- Call Detail Recording (CDR)
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 Call Detail Recording (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.
- Flexible Line Lockout
The defined Flexible Line Lockout treatment is provided to DISA calls.

Feature packaging

DISA, package 22, has no other feature package dependencies.

Feature implementation

LD24-Create or change the Direct Inward System Access feature for a customer.

REQ	NEW, CHG	New 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 LD15)
DN	xxx...x	DN for DISA access
SCOD	X, xx...xx	DISA security code (1-8 digits) X = remove security code
AUTR	Yes, (No)	Authorization code is or is not required
TGAR	xx	Trunk Group Access Restriction to be applied to calls made using DISA (0-15) Note: 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		Class of Service to be applied to DISA calls
	UNR	unrestricted
	CUN	conditionally unrestricted
	SRE	semi-restricted
	TLD	toll restricted
	CTD	conditionally toll restricted
	FRE	fully restricted
	FR1	fully restricted 1
	FR2	fully restricted 2

LD16-Define an auto-terminate trunk route for Direct Inward System Access.

REQ	NEW, CHG	New or change
TYPE	RDB	Route data block
CUST	0-99	Customer number
ROUT	xxx	trunk route number
TKTP	aaa	Trunk type
AUTO	Yes, (No)	route is or is not arranged to auto-terminate incoming calls on the DISA DN
ICOG	IAO, ICT, OGT	Incoming and outgoing trunk
ACOD	xxxx	Trunk route access code

LD14-Define Direct Inward System Access DNs for trunks in an auto-terminate trunk route.

REQ	NEW, CHG	New 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 xxx = 0-511 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 dial tone.
- 2 Dial the security code, if required.
- 3 Dial the authorization code, if required.

Directory Number

Flexible Attendant Directory Number

The Flexible Attendant Directory Number (FADN) specifies the Directory Number (DN) that provides access to the attendant, replacing the usual 0. The Directory Number (DN) may be any Directory Number (DN) in the numbering plan, but it must be used only for the attendant and in all situations in which 0 is normally used.

Operating parameters

The attendant DN may be used only for the attendant. One attendant DN is allowed per customer and all attendants must have the same DN.

Feature interactions

Flexible Attendant Directory Number (FADN) interacts with other features as follows:

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

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD15-Define or change the attendant Directory Number.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
ATDN	xxx...x	number dialed to reach the attendant (default is 0)

Feature operation

Not applicable.

Listed Directory Numbers

Each customer within the system may have up to four Listed Directory Numbers (LDNs) in the public directory on Direct Inward Dialing (DID) trunks. Each Listed Directory Numbers (LDN) is assigned to an Incoming Call Indication (ICI) key, enabling the attendant to answer an incoming call appropriately. For systems without DID facilities, Listed Directory Numbers (LDNs) may be provided on incoming central office (CO) trunks assigned to a trunk group and an Incoming Call Indication (ICI) key on the console. Local telephones and tie lines can call the attendant using any of the four DNs.

Operating parameters

Only four LDNs can be assigned per customer.

Feature interactions

LDNs interact with other features as follows:

- Directory Number Expansion (DNXP)
LDNs can have up to seven digits if the DNXP package is equipped.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD15-Assign Listed Directory Numbers for each customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer Number
LDN0	xxx...x	LDN0
LDN1	xxx...x	LDN1
LDN2	xxx...x	LDN2
LDN3	xxx...x	LDN3

Feature operation

Not applicable.

Multiple Appearance Directory Number

DNs can appear on more than one multiline telephone, and can be shared between those telephones and single-line telephones. Up to 16 appearances of the same DN are allowed on X11 release 12 and earlier software. X11 release 13 and later software allows 30 appearances of the same DN on NT, RT, XT, 51, 61, 71, and 81 systems only. Four multiple-appearance options are provided, as follows:

- Multiple Call Arrangement with Ringing (MCR)
- Multiple Call Arrangement without Ringing (MCN)
- Single Call Arrangement with Ringing (SCR)
- Single Call Arrangement without Ringing (SCN)

The customer can specify which of the four options applies to each appearance of the DN. X11 release 13 allows 30 Multiple Appearance Directory Numbers (MADNs) on NT, RT, XT, 51, 61, 71, and 81 systems only.

Multiple Appearance Directory Numbers (MADNs) are not restricted to telephones connected to the same loop. Telephones with MADNs can be assigned to different loops if the Loop Removal enhancement is allowed in LD17 under the prompt MLDN.

A Multiple Appearance, Multiple Call Arrangement is available between SL-1 and Meridian digital telephones only. It allows as many calls to be in progress as there are appearances of the DN (that is, a maximum of six independent calls). Selection of the ring option allows the DN to be rung whenever an incoming call is directed to the idle DN.

Selection of the no ring option causes the DN appearance not to ring when an incoming call is directed to the DN. Indication of an incoming call is limited to a flashing lamp associated with the DN. Privacy is inherent in all active calls.

Multiple Appearance, Single Call Arrangement DNs allow a single call to be active on the DN, irrespective of its number of appearances. Multiple Appearance, Single Call Arrangement is available to all telephones.

Selection of the ring option allows ringing to accompany lamp flashing when a call is directed to a DN. The no ring option limits Incoming Call Indication (ICI) to lamp flashing. Privacy is inherent in active calls, except in a mixed arrangement (500/2500 and SL-1 and Meridian digital telephones with an appearance of the same DN).

Call redirection parameters such as Hunt and Call Forward No Answer are derived from the TN data block (LD20 TNB) of the prime appearance of the called DN. If there is more than one prime appearance, the parameters are selected from the last TN in the DN block for the DN (LD22 DNB).

If more than one prime appearance of an MADN exists, the information noted in the following list must be considered prior to configuring call redirection parameters for MADNs.

- The DNB organizes MADN information in numerical TN order. The TN with the highest numerical value (000-0-06-03) is placed at the beginning of the DN list. The list then continues in descending order with the lowest numerical TN (000-0-03-01) at the end of the list.
- If a telephone is service changed, the TN of the telephone is moved to the beginning of the DN list regardless of the numerical value of the TN. This telephone remains at the beginning of the list until another telephone is service changed or a sysload is performed. A sysload restores the DN list to numerical TN order.

- If a DN is assigned as a prime DN on one telephone, and as a secondary DN on one or more telephones, the DN list is still organized as described in the preceding text. However, if only one prime appearance of a DN exists, call redirection parameters are derived from the TN of the prime appearance telephone, even though it may not be at the end of the list. A prime appearance is always the first TN used when the system looks for call redirection instructions.
- If a DN appears on 500/2500, SL-1, and Meridian 1 digital telephones simultaneously, the 500/2500 telephones are listed in numerical TN order at the top of the DN list, and SL-1 and Meridian digital telephones are listed in numerical TN order at the bottom of the list. A service change to a 500/2500 telephone moves the TN of that telephone to the beginning of the list. A service change to an SL-1 or Meridian digital telephone moves the TN of the telephone to the end of the list. A sysload restores the list to numerical TN order, with 500/2500 telephones at the top of the list and SL-1 and Meridian digital telephones at the bottom of the list. Call redirection parameters continue to be derived as described in the preceding text.

Note: It is not necessary to change any data to register service change activity. To put a telephone at the end of the list, simply call up the service change data and default through the data.

Operating parameters

Multiple Appearance, Multiple Call Arrangement is limited to SL-1 or Meridian digital telephones. If telephones are mixed, only Multiple Appearance, Single Call Arrangement is allowed.

For Multiple Appearance, Single Call Arrangement, the no ring option is limited to SL-1 or Meridian digital telephones.

If more than 20 MADNs appear on an ST or a 21, at least one appearance must be defined on key 0. Additionally, the key 0 appearance must be the last key defined in the database. If more are added later, remove the key 0 appearance, and reenter it last.

Feature interactions

MADN interacts with other features as follows:

- CPND (Call Party Name Display)
On ST and 21 machines using X11 release 17 and earlier software, the number of DN appearances restricts the number of letters or digits allowed for CPND. These engineering guidelines must be followed:
 - Eleven or fewer appearances allows 26 letters or digits in the name.
 - Twelve appearances allows 23 letters or digits in the name.
 - Thirteen appearances allows 20 letters or digits in the name.
 - Fourteen appearances allows 16 letters or digits in the name.
 - Fifteen appearances allows 14 letters or digits in the name.
 - Sixteen appearances allows 11 letters or digits in the name.
 - Seventeen appearances allows 9 letters or digits in the name.
 - Eighteen appearances allows 8 letters or digits in the name.
- DNXP (DN Expansion)
The DN can have up to seven digits if the DNXP package is equipped.

If Loop Restriction Removal is allowed, telephones with MADNs can be moved across loops using Automatic Set Relocation (LD25), the Digital telephones data block (LD11), the 500/2500 telephone data block (LD10), or Attendant Administration.
- Loop Restriction
If Loop Restriction removal is not allowed, telephones with MADNs can be moved by using the Automatic Set Relocation feature (LD25), or the Attendant Administration feature.

- Privacy
If a Multiple Appearance, Single Call Arrangement (SCR) or Single Call Arrangement without Ringing (SCN) DN is shared by SL-1 and Meridian digital telephones only, Privacy is in effect. No one can enter a call unless the call is first placed on Hold, or unless Privacy Release is activated to allow another appearance to enter the call. If this configuration is shared between these telephones and single-line telephones, Privacy is not in effect for any appearance of the DN. Anyone sharing the DN can enter the call at any time.
- Privacy Release
Privacy Release has no effect on Multiple Appearance, Multiple Call Arrangement with Ringing (MCR), or Multiple Call Arrangement without Ringing (MCN) calls.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD11-Assign a Multiple-appearance Directory Number key.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016,2018, 2112, 2216,2317,2616, 3000
TN	l s c u	Terminal Number
KEY	xx MCN yyy...y	Add a multiple-call non-ringing DN key xx = key number yyy...y = DN
	xx MCR yyy...y	Add a multiple-call ringing DN key xx = key number yyy...y = DN

Feature operation

Not applicable.

Single Appearance Directory Number

A Single Appearance Directory Number (SDDN) may be assigned to any type of telephone.

Operating parameters

A Single Appearance Directory Number (SADN) can appear only once within any customer group.

Feature interactions

Single Appearance Directory Number (SADN) interacts with other features as follows:

- DNX (DN Expansion)
The DN can have up to seven digits if the DNX package is equipped.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD11-Assign Single Appearance Directory Number keys.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016,2018, 2112, 2216,2317,2616, 3000
TN	I s c u	Terminal Number
KEY	xx SCN yyy...y	Add a single-call non-ringing DN key xx = key number yyy...y = DN
	xx SCR yyy...y	Add a single-call ringing DN key xx = key number yyy...y = DN

Feature operation

Not applicable.

Prime Directory Number

The bottom key on an SL-1 or a Meridian digital telephone is the Prime DN. It is preselected for call origination. If a user wishes to place or receive a call on any other DN, the key must be manually selected.

Operating parameters

Prime DN applies only to SL-1 or Meridian digital telephones. Only one Prime DN is allowed per telephone.

Feature interactions

There are no feature interactions.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

Assign key 0 as the Prime DN in LD10.

Feature operation

Not applicable.

Directory Number Expansion

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

- single-line telephone DNs
- multi-line telephone DNs
- Trunk Group Access codes
- attendant DN (including local attendant in Centralized Attendant Service [CAS])
- Listed Directory Numbers (LDNs)
- Coordinated Dialing Plan (CDP) steering codes
- ACD DNs
- ACD position IDs
- Direct Inward System Access (DISA) DNs
- CAS hold DNs
- Release Link Trunk (RLT) DNs in Centralized Attendant Service (CAS)
- System Park DNs
- test line DNs
- 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
- Automatic Modem Pooling (AMP) all-digital-connection prefix

Along with Directory Number Expansion (DNXP), a new CDR Expansion (CDRE) package (package 151) is available to allow CDR records to accommodate the increased digit field lengths. Basic 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 PBX telephone
- Prime DN of the SL-1 telephone
- Automatic Number Identification (ANI) attendant number, specified on a per customer basis
- 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 Automatic Number Identification Listed Directory Number (ANI LDN) is defined and internal DNs are longer than four digits, then 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.

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

- 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.

- 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.
- Direct Inward Dialing (DID)
Depending on the number of Direct Inward Dialing (DID) digits outpulsed by the 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.
- 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.
- Integrated Services Digital Network (ISDN)
Refer to *ISDN Primary Rate Interface description and administration* (553-2901-100).
- 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.
- 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).
- Digit and Name Display
If longer DNs are defined, leftmost digits may be scrolled out on a digit display, depending on the size of the display window.

- 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
- standard SDI without application interface to the Meridian 1

Feature packaging

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.

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 SL-1 and Meridian 1 digital 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% 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.
- 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
- Call Forward Busy
Calls modified by Call Forward Busy are not given Distinctive Ringing as they terminate on the attendant console.
- 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 LD11) 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, then Distinctive Ringing is overridden.

Feature packaging

Distinctive/New Distinctive Ringing (DRNG), 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

LD15-Enable or disable Distinctive Ringing for Dial Intercom calls and specify Call Forward No Answer timing for trunks with Distinctive Ringing.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
IRNG	Yes, (No)	Enable/disable 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 (default is 4)

LD17-Specify Distinctive or New Distinctive Ringing.

REQ	CHG	Change
TYPE	CFN	Configuration Data Block
PARM	Yes, (No)	Change system parameters
NDRG	Yes, (No)	Enable (disable) New Distinctive Ringing (DRNG) Prompted only if DRNG is equipped.

LD16-Enable or disable Distinctive Ringing for each incoming or incoming/outgoing trunk route.

REQ	CHG	Change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUT	0-511	Route number
DRNG	Yes, (No)	Enable (disable) Distinctive Ringing for incoming calls

LD 11-Specify Distinctive/New Distinctive Ringing class of service for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	DRGX	Distinctive ring type (DRG1), DRG2, DRG3, DRG4 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

There are no special procedures for operating 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.

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

Calls will receive the customer-specified intercept treatment; for example, busy tone, RAN, or attendant. An enhancement to DND provides the ability to route calls to the Hunt DN instead of to the intercept treatment. Table 76-1 lists possible intercept treatments based on responses to the prompts DNDT and DNDH in LD15.

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.

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.

Table 76-1
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							
500/2500	Allow	H	H	R	H	H	H
	Deny	A	A	R	R	A	A
SL-1/digital	Allow	A	H	R	H	A	H
	Deny	A	A	R	R	A	A
Attendant							
500/2500	Allow	H	H	B	H	H	H
	Deny	B	B	B	B	B	B
SL-1/digital	Allow	B	H	B	H	B	H
	Deny	B	B	B	B	B	B
Internal							
500/2500	Allow	H	H	R	H	H	H
	Deny	B	B	R	R	A	A
SL-1/digital	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							

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 LD26).

Feature interactions

DND interacts with other features as follows:

- Directory Number Expansion (DNXP)
If the Directory Number Expansion (DNXP) package is equipped, DNs can have up to seven digits.
- Night Station
A Night Station DN can be placed in DND mode.
- Private Lines
DND cannot be used on Private Lines.
- 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.

Feature packaging

DNDI, package 9, has no feature package dependencies.

DNDG, package 16, requires DNDI, package 9.

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

Feature implementation

LD15-Specify the treatment received by calls to a number in Do Not Disturb mode.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
DNDL	Yes, (No)	Do Not Disturb lamp for 500/2500 telephones
DNDT	BST (default)	Busy tone treatment for Do Not Disturb (DND) numbers
	ATT	Attendant treatment for DND numbers
	RAN	Recorded announcement for DND numbers
DNDH	Yes, (No)	Allow (Disallow) Do Not Disturb Hunt
RRT	xxx	Route number for the recorded announcement for calls to a DND number (prompted if DNDT=RAN)

LD26-Add or change a Group Do Not Disturb.

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.

LD26-Merge one or more defined Do Not Disturb groups into another DND group, retaining their status as groups.

REQ	MRG	Merge DND groups
	CHG	Add a DND group from a list of merged DND groups
	REM	Remove DND group from a merged group
	OUT	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

LD26-Print Do Not Disturb group data.

REQ	PRT	Print
TYPE	DND	Do Not Disturb Group data block
CUST	0-99	Customer number
GPNO	0-99	DND group to be printed
	<CR>	Print all DND group data

LD12-Add or change Individual or Group Do Not Disturb keys on an attendant console.

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 xx = 0 - 19 for M2250 consoles xx = 0 - 9 for M1250 consoles
KEY	xx GND 0-99	Add a DND group key xx = 0 - 19 for M2250 consoles xx = 0 - 9 for M1250 consoles

LD10- Enable or disable lamp for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	LPA, (LPD)	Enable (disable) lamp
	CCSA, (CCSD)	Controlled Class of Service allowed (denied)

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 DNDI key, or with the DNDG 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

- 1 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**.

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* (309-3001-100).

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) code. The Basic Authorization Code (BAUT) code is used for general applications and is described in *Basic and Network Authorization Code description* (553-2751-103).

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* (553-2751-100).

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 Queue description* (553-2751-101).

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, the user at the Conventional Main dials his 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 Queue description* (553-2751-101) 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 call back (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 Queue description* (553-2751-101) 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 WATS trunks using a Distant Steering Code (DSC). The feature is controlled by the Customer Data Block (LD15). This enhancement applies to CO, WATS, Data Terminal Interface (DTI) and Integrated Services Digital Network (ISDN) type trunks.

CDP is described in detail in *Coordinated Dialing Plan description* (553-2751-102).

Flexible ESN 0 Routing

Flexible ESN 0 Routing (an 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 leftmost 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 that are supported by ESN. For information on the appropriate prompts and responses in Service Change (LD90), refer to *X11 input/output guide* (553-3001-400).

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* (309-3001-100) and *Basic and Network Alternate Route Selection description* (553-2751-100).

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 Code (LOC) that 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* (309-3001-100) and *Basic and Network Alternate Route Selection description* (553-2751-100).

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 Dialed (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 stand-alone 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* (309-3001-100) and *Basic and Network Alternate Route Selection description* (553-2751-100).

BARS/NARS 11-Digit Translation

This feature expands the ESN BARS/NARS translation capabilities from a maximum of 4 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 77-1 compares the number of digits that can be translated prior to X11 release 8 with the present capability.

Table 77-1
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* (309-3001-100) and *Basic and Network Alternate Route Selection description* (553-2751-100).

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* (553-2751-103).

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* (553-2751-100). 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 of identical to that of Call Transfer (XFER)

Operating parameters

NXFER operates within the following parameters:

- SL-1 and Meridian digital 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* (309-3001-100) and *Basic and Network Alternate Route Selection description* (553-2751-100).

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 Dial 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* (553-2001-450).

Network Speed Call

Network Speed Call (NSC) enables a user who is normally restricted from making network calls to make such a call through BARS/NARS, provided that the destination is a number defined in a System Speed Call (SSC) list. When such a call is placed, the CLS and TGAR restrictions are lifted and a Network Class of Service (NCOS), associated with the SSC list, is assigned for the duration of the call. NSC is described in detail in *Electronic Switched Network description* (309-3001-100) and *Basic and Network Alternate Route Selection description* (553-2751-100).

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 Queue description* (553-2751-101).

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
- 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
- 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
- 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
- Network Alternate Route Selection (NARS), package 58

Feature implementation

Refer to the appropriate Northern Telecom publication for each ESN feature.

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 LD56.

Customers requiring DTMF tones 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. However, customers who do not need DTMF tones 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 signals using the EES key on the attendant console. Prior to X11 release 19, only one party may be connected to the active loop key (source or destination) and receive DTMF signals. The console must have one and only one party connected; however, if that one party is part of a conference, all connected parties receive DTMF signals. With X11 release 19 and later, when EEST equals YES in LD15, EES no longer requires a conference loop. The TDS or enhanced TDS conference card is used to produce the tone.

Incoming calls to the attendant console will stay in the attendant queue while the console is in Attendant End-to-End Signaling (AEES) mode.

Operating parameters

X11 release 5 and later software enables a telephone to send and receive DTMF codes, thereby extending the EES capability to internal PBX calls and incoming trunk calls.

EES was only applicable on established outgoing calls on X11 release 4 and earlier software.

EES and the X11 release 5 enhancement to the EES feature is only allowed on CO, FX, WATS, TIE, CCSA, DID, and CAMA trunk types.

EES is not available on 500/2500-type telephones.

Prior to X11 release 19, there must be a conference loop and TDS slot available to perform Attendant End-to-End Signaling (AEES). With X11 release 19 and later, there is the option to use a conference loop or the TDS.

Prior to X11 release 16, any feature that allows or requires an active party on the loop key will terminate AEES operation when activated. If such a feature is already active, pressing the EES key will be ignored.

The AEES key cannot be configured on key 0 or key 1.

A call must be established before using the EES feature. An outgoing call is considered established 14 seconds (DP trunk) or 4 seconds (2500-type telephone or Digitone trunk) after the last digit has been outpulsed. The length of this delay may be changed through service change. If the octothorpe (#) is dialed, end-to-end signaling may be initiated as soon as ringback is heard, or answer supervision is received.

Feature interactions

EES cannot be combined with Autodial, Speed Call or Network Speed Call. However, it can be initiated after a call has been set up by these features.

- Attendant Administration
While in the Attendant Administration mode, pressing the EES key is ignored.
- Attendant features
Activating Automatic Wake-up, Call Park, Charge Account, Calling Party Number, Hold, Release, or another loop key will terminate AEES operation.

- Barge In/Busy Verify
While in the Barge In/Busy Verify mode, the console cannot enter EES mode.
- Call Detail Recording
EES stores EES digits for external calls in the CDR record. Because these digits may include sensitive information, such as account numbers and passwords, storing these digits may be a security exposure. Therefore, in X11 release 19, improved EES gives the customer the option of whether to include EES digits in the CDR record.
- Conference
If the receiving party is part of a conference, all other connected parties receive DTMF signals. While in AEES mode, the receiving party may not 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. However, during an Interposition Call Transfer, the console which is actively connected to a telephone can perform AEES, providing 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 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 improved End-to-End Signaling (EES) are both part of package 10 and have no feature package dependencies.

Feature implementation

Table 78-1

LD15 - Enable End-to-End Signaling tone feedback.

Prompt	Response	Comment
REQ	CHG	Change
TYPE	CDB	Customer data block
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	<YES>, NO	YES = Use the current EES for DTMF feedback tone. NO = Use the improved EES for single feedback tone
ECDR	<NO>, YES	NO = Do not capture EES digits in the CDR record. YES = Capture EES digits in the CDR record.

Table 78-2

LD12 - Add End-to-End Signaling key to attendant console.

Prompt	Response	Comment
REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	I s c u	Terminal Number
KEY	xx EES	Add EES key (xx = key number) (Cannot be key 0 or 1)

Table 78-3
LD56 - Specify the cadence for the EES feedback tone

Prompt	Response	Comment
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

There is a 5.4 DS 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 a user feedback is to be given.

Equal Access Compliance

FCC Part 68 regulations have been amended and now require that any equipment or software manufactured or imported on or after April 17, 1992, and installed by any aggregator, must provide all users the capability to access the long distance carrier of their choice through the use of Equal Access codes (that is, 10XXX dialing).

While call aggregators must allow access to operator-assisted Equal Access calls (10XXX0 and 10XXX01), they may, at their option, allow or deny access to direct-dialed Equal Access toll call sequences (10XXX+1 and 10XXX+011) to prevent direct billing to the calling number.

As defined in FCC docket 90-313, an *aggregator* is a person who, 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 can include hotels or motels, hospitals, universities, airports, gas stations, or pay telephone owners.

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.

Note: X11 releases 15 and 16 do not support Equal Access.

Equal Access dialing plans

X11 software supports Equal Access dialing plans as follows:

- Allow operator-assisted North American and international dialing.
 - 10XXX + 0
 - 10XXX + 0 + (NPA) + NXX + XXXX
 - 10XXX + 0 + SAC + NXX + XXXX
 - 10XXX + 01 + CC + NN
- Allow or deny direct North American and international dialing.
 - 10XXX + 1 + (NPA) + NXX + XXXX
 - 10XXX + 011 + CC + NN

Legend:

10XXX = Carrier Access Code (CAC)

XXX = Carrier Identification Code (CIC)

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

SAC = Service Access Code such as 700, 800, or 900

CC = Country Code

NN = National Number

Restriction methods

To avoid possible toll fraud problems associated with the FCC Equal Access ruling, two methods are provided to restrict direct-dialed Equal Access toll calls: General Carrier Restriction (GCR) and Selective Carrier Restriction (SCR). These methods act independently and can be implemented individually or simultaneously.

General Carrier Restriction (GCR) provides the flexibility to allow or deny all North American or international toll calls. The calls are screened by comparing digits to a general restriction pattern. General Carrier Restriction (GCR) considers the call type, but not the dialed Carrier Access Code (CAC).

Selective Carrier Restriction (SCR) provides the flexibility to allow or deny a toll call based on its Carrier Access Code (CAC). This method, a modification of New Flexible Code Restriction (NFCR), allows the restriction of Equal Access international toll calls but not direct-dialed Equal Access operator calls. An NFCR tree analyzes each dialing sequence individually. SCR considers the call type and the dialed CAC.

Since Selective Carrier Restriction (SCR) requires more database entries and memory than GCR, GCR is the preferred method for users who do not need selective restriction capabilities. If required, GCR can allow direct-dialed Equal Access toll calls to a user's presubscribed carrier only and not to other carriers, using a special Special Number (SPN) translation table.

The SPN translation table is built to identify calls that begin with the CAC (10XXX) of the presubscribed carrier. Digit manipulation is used to modify the call so that it is no longer viewed as an Equal Access call (that is, the Equal Access portion of the call is stripped off; 10XXX + 1 + ... becomes 1 + ...). The modified call is no longer subject to Equal Access call restrictions and is automatically handled by the presubscribed carrier.

Route types

Equal Access Compliance supports COT, FEX, WAT, Direct Inward Dialing (DID), and tie routes. A tie route is supported only if standard signaling is specified in LD16 (SIGO = STD).

Operating parameters

Not applicable.

Feature Interactions

Not applicable.

Feature packaging

Equal Access compliance is included in basic X11 software. To utilize the SCR portion, the following packages are required. (GCR does not require any packaging.)

- Network Class of Service (NCOS, package 32)
- New Flexible Code Restriction (NFCR, package 49) for SCR

Feature implementation

General Carrier Restriction

LD16-Configure Equal Access with General Carrier Restriction.

EQAR	YES, (NO)	Apply Equal Access restrictions to this route
GCR	YES, (NO)	Use General Carrier Restriction to restrict Equal Access toll calls over this route
NTOL	ALLOW, (DENY)	Allow (deny) Equal Access North American toll calls Prompted only if GCR = YES
ITOL	ALLOW, (DENY)	Allow (deny) Equal Access international toll calls Prompted only if GCR = YES

Example 1

You are configuring Equal Access for Customer 0. The Equal Access calls will be sent over Route 10. Each telephone with Equal Access will be assigned a Network Class of Service (NCOS) of 4. All Equal Access toll calls will be denied over Route 10 using GCR.

This configuration will deny all Equal Access direct-dialed toll calls (both North American and international toll calls), which are made over Route 10, from sets with a Network Class of Service (NCOS) of 4, but will allow all other calls.

To implement Equal Access using the above example, follow these steps:

Note: The configuration described here causes the Meridian 1 to restrict all direct-dialed Equal Access toll calls (10xxx + 1 + ... and 10xxx + 011 + ...) originating from a telephone with a NCOS of 4, and routed over Route 10. No other calls will be restricted by GCR.

1 In LD87, configure an NCOS for Equal Access.

REQ	CHG	Change existing Network Control (NCTL) data
CUST	0	Customer number
FEAT	NCTL	Change NCTL data block
NCOS	4	NCOS group number
EQA	YES	Enable Equal Access call restriction capabilities for this NCOS group

2 In LD10 or LD11, assign an NCOS to a telephone.

REQ	CHG	Change existing set data
TYPE	aaa	Telephone type
TN	l s c u	Terminal number
NCOS	4	NCOS group number

3 In LD16, enable Equal Access for a route and configure GCR.

REQ	CHG	Change existing route data
TYPE	RDB	Route Data Block
CUST	0	Customer number
EQAR	YES	Enable Equal Access for this route
GCR	<CR>	Enable GCR for this route (default is YES)
NTOL	<CR>	Specify that Equal Access North American toll calls are to be denied (default is DENY)
ITOL	<CR>	Specify that Equal Access international toll calls are to be denied (default is DENY)

Example 2

In this example, all calls to carrier with Carrier Identification Code (CIC) 567 are allowed; all other direct-dialed Equal Access toll calls are denied. The calls will originate from Customer 0 and route over Route 10, using route list index 100, digit manipulation table 101, and access code 1 (AC1).

Note: The route list index, digit manipulation table, and access code are chosen randomly for this example.

To implement Equal Access using this example, follow these steps:

1 In LD87, configure an NCOS for Equal Access.

REQ	CHG	Change existing Network Control (NCTL) data
CUST	0	Customer number
FEAT	NCTL	Change NCTL data block
NCOS	4	NCOS group number
EQA	YES	Enable Equal Access call restriction for this NCOS group

2 In LD10 or LD11, assign an NCOS to a telephone.

REQ	CHG	Change existing set data
TYPE	aaa	Telephone type
TN	l s c u	Terminal number
NCOS	4	NCOS group number

3 In LD16, enable Equal Access for a route and configure GCR.

REQ	CHG	Change existing route data
TYPE	RDB	Route Data Block
CUST	0	Customer number
ROUT	10	Route number
EQAR	YES	Enable Equal Access for this route
GCR	<CR>	Enable GCR for this route (default is YES)
NTOL	<CR>	Specify that Equal Access North American toll calls are to be denied (default is DENY)
ITOL	<CR>	Specify that Equal Access international toll calls are to be denied (default is DENY)

4 In LD86, configure digit manipulation index 101.

REQ	NEW, CHG	Create or change digit manipulation table 101
CUST	0	Customer number
FEAT	DGT	Digit manipulation index
DMI	101	Digit manipulation table
DEL	5	Delete five leading digits (10567 in this case)

5 In LD86, set the route list index to Route 10.

REQ	NEW, CHG	Create or change route list entry
CUST	0	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
ROUT	10	Send Equal Access calls over Route 10
DMI	0	Digit manipulation table
Note: Do not enter 101 here, as it would cause all Equal Access calls to receive digit manipulation.		

6 Create a Special Number (SPN) translation table that can differentiate calls with CAC 10567 from calls with a different CAC. All SPNs will use the same route list index, but SPN 10567 will also specify that digit manipulation should be performed for those calls. A total of 28 SPN entries is required for this translation table (see Table 79-1).

7 In LD90, construct a Special Number (SPN) translation table entry.

REQ	NEW	New ESN translation table entry
CUST	0	Customer number
FEAT	NET	Network translation table entry
TRAN	AC1	Access code 1 is used to originate the Equal Access calls
TYPE	SPN	Special number translation entry
SPN	100	Enter the first SPN number from Table 79-1 (see Note)
RLI	100	Use route list index 100 to route Equal Access calls
Note: Repeat this process to construct translation table entries for all consecutive SPNs listed in Table 79-1, except SPN 10567.		

Table 79-1
Translation table for digit manipulation on SPN 10567

SPN 100			
SPN 101			
SPN 102			
SPN 103			
SPN 104			
----->	SPN 1050		
SPN 106	SPN 1051		
SPN 107	SPN 1052		
SPN 108	SPN 1053		
SPN 109	SPN 1054		
	SPN 1055		
	----->	SPN10560	
	SPN 1057	SPN10561	
	SPN 1058	SPN10562	
	SPN 1059	SPN10563	
		SPN10564	
		SPN10565	
		SPN10566	
		SPN10567	<----- enter DMI 101 for this entry
		SPN10568	
		SPN10569	
Note: All SPN entries will have RLI = 100, but only SPN 10567 will have DMI = 101.			

8 In LD90, construct a translation table entry for SPN 10567.

REQ	NEW	New ESN translation table entry
CUST	0	Customer number
FEAT	NET	Network translation table entry
TRAN	AC1	Access code 1 is used to originate the Equal Access calls
TYPE	SPN	Special number translation entry
SPN	10567	SPN number
RLI	100	Use route list index 100 to route Equal Access calls
DMI	101	Specify the digit manipulation table index for this call type

In this example, direct dialed Equal Access toll calls placed through BARS/NARS by Customer 0 from stations or trunks that have an NCOS of 4, and that are routed over Route 10, are restricted. Calls beginning with CAC 10567 are not restricted.

Note: CAC 10567 has been removed, and therefore will not be outpulsed to the central office (CO).

Selective Carrier Restriction

Configure New Flexible Code Restriction (NFCR) if it is not already configured.

Note: After NFCR is established, code restriction trees can be constructed or existing trees can be modified to comply with the Equal Access ruling.

Configure New Flexible Code Restriction

- 1 In LD15, enable New Flexible Code Restriction (NFCR) and specify the maximum number of NFCR trees.

REQ	CHG	Change existing customer data
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
NFCR	YES	Enable NFCR for this customer
MAXT	1-255	Maximum number of code restriction trees

- 2 In LD16, specify the Facility Restriction Level (FRL) and NFCR tree number for a route.

FRL	x yyy	x = FRL number (0-7) yyy = code restriction tree number
-----	-------	--

- 3 In LD10, LD11, or LD14, assign an NCOS and a Class of Service (CLS) to a station or trunk.

NCOS	0-99	NCOS
CLS	TLD/CTD/CUN	For NFCR, the station or trunk must have a Toll-Denied (TLD), Conditionally Toll-Denied (CTD), or Conditionally Unrestricted (CUN) Class of Service

Stations or trunks that originate a call must conform to the definition of a toll-denied user in order for NFCR to examine the call.

A station or trunk is considered to be a toll-denied user if it meets one of the following conditions:

- Station or trunk has a toll-denied (TLD) class of service.
- Station or trunk has a Conditionally Toll-Denied (CTD) class of service and the call is not being placed through Basic Automatic Route Selection (BARS), Network Alternate Route Selection (NARS), or Coordinated Dialing Plan (CDP).
- Station or trunk has a Conditionally Unrestricted (CUN) class of service and the call is not being placed through Automatic Number Identification (ANI), BARS, NARS, or CDP.

Note: Under normal operation, telephones with a Toll-Denied class of service will not be able to place operator-assisted Equal Access calls (10xxx + 0 and 10xxx + 01)-a violation of the FCC ruling. However, this is not true when Toll-Denied class of service is used with NFCR. For this reason, Toll-Denied class of service should be used only in conjunction with NFCR.

4 In LD87, associate an NCOS with an FRL.

NCOS	0-99	NCOS
FRL	0-7	Facility Restriction Level (FRL)
Note: Match these numbers with the NCOS and FRL numbers specified in the overlays above.		

5 In LD49, configure an NFCR tree.

REQ	NEW	Create a new tree
TYPE	FCR	Flexible Code Restriction (FCR) tree
CUST	0-99	Customer number (specified in LD15)
CRNO	yyy	Tree number (specified in LD16)
INIT	ALLOW	Allow all calls over this route
DENY	10xxx1	Deny Equal Access North American toll calls for carrier xxx
UPDT	<CR>	Return to update the tree (default = YES)
DENY	10xxx011	Deny Equal Access international toll calls for carrier xxx
UPDT	<CR>	Return to update the tree (default = YES)

Note: NFCR trees that are used for Equal Access call restriction must have INIT = ALLOW.

6 In LD49, modify existing NFCR tree for Equal Access.

REQ	CHG	Modify an existing tree
TYPE	FCR	Flexible Code Restriction (FCR) tree
CUST	0-99	Customer number (specified in LD15)
CRNO	yyy	Tree number (specified in LD16)
DENY	10xxx1	Deny Equal Access North American toll calls for carrier xxx
UPDT	<CR>	Return to update the tree (default = YES)
DENY	10xxx011	Deny Equal Access international toll calls for carrier xxx
UPDT	<CR>	Return to update the tree (default = YES)

Example 1

This example describes the procedures required to create the new code restriction trees necessary for Equal Access code restriction. This example is based on the following assumptions:

- Equal Access is configured for Customer 0.
- Equal Access calls are routed over Route 10, which has Facility Restriction Level (FRL) 2.
- Calls with the data are restricted in code restriction tree 3 (not yet created).
- Originating stations or sets have an NCOS value of 4.
- Calls are placed through Basic Alternate Route Selection (BARS). (This requires CLS = TLD.)
- All toll calls for the carrier whose Carrier Identification Code (CIC) is 123 are denied.

In this example, all Equal Access North American and international toll calls for Customer 0, using carrier 123, will be restricted if they are made over Route 10 from stations or trunks with an NCOS of 4 and a Toll-Denied class of service. Assuming that the call is placed over a properly configured NFCR route, the code restriction tree will provide the following dialing plan:

- DENY 10123 + 1 + ...
- DENY 10123 + 011 + ...
- ALLOW All other calls

Note: Make a code restriction tree entry for each CIC whose toll calls you wish to deny. Also make entries for other dialing sequences (non-Equal Access) that should be denied over this route.

To configure Equal Access using this scenario, follow these steps:

- 1 In LD15, enable NFCR and specify the maximum number of NFCR trees.

REQ	CHG	Change existing customer data
TYPE	CDB	Customer Data Block
CUST	0	Customer number
NFCR	YES	Enable NFCR for this customer
MAXT	10	Maximum number of code restriction trees (depends on need; arbitrary in this case)

- 2 In LD16, specify the FRL and NFCR tree number for a route.

REQ	CHG	Change existing route data
TYPE	RDB	Route Data Block
CUST	0	Customer number
ROUT	10	Affected route number
EQAR	YES	Enable Equal Access for this route
GCR	NO	Do not enable GCR for this route
SCR	YES	Enable SCR for this route
FRL	2 3	Facility Restriction Level (FRL) 2 and NFCR tree 3

- 3 In LD10, LD11, or LD14, assign an NCOS and a CLS to a station or trunk.

REQ	CHG	Change existing terminal data
TYPE	aaa	Terminal type
TN	l s c u	Terminal number
NCOS	4	NCOS
CLS	TLD	Toll-Denied class of service for this station or trunk

4 In LD87, associate an NCOS with an FRL.

REQ	CHG	Change existing Network Control (NCTL) data
CUST	0	Customer number
TYPE	NCTL	NCTL data block
NCOS	4	NCOS
EQA	YES	Enable Equal Access call restriction capabilities for this NCOS group
FRL	2	FRL

5 In LD49, create a new Equal Access NFCR tree.

REQ	NEW	Create a new tree
TYPE	FCR	Flexible Code Restriction (FCR) tree
CUST	0	Customer number (specified in LD15)
CRNO	3	Tree number (specified in LD16)
INIT	ALLOW	Allow all calls over this route
DENY	101231	Deny North American toll calls for carrier 123
UPDT	<CR>	Return to update the tree (default = YES)
DENY	10123011	Deny international toll calls for carrier 123
UPDT	<CR>	Return to update the tree (default = YES)

Example 2

This example describes the procedure required to modify an existing tree for Equal Access code restriction needs. The example is based on the following assumptions:

- Equal Access is configured for Customer 0.
- Code restriction tree 3 needs to be modified.
- Equal Access toll calls are denied for AT&T (288), MCI (222), and US Sprint (333).
- ALLOW is specified in response to the INIT prompt.

LD49-Modify an existing tree.

This code restriction tree created in LD49 provides the following dialing plan:

ALLOW/DENY Allow/deny whatever is specified previously, as long as it does not conflict with the added dialing sequences.

DENY 10222 + 1 + ...

DENY 10222 + 011 + ...

DENY 10288 + 1 + ...

DENY 10288 + 011 + ...

DENY 10333 + 1 + ...

DENY 10333 + 011 + ...

ALLOW All other calls

REQ	CHG	Modify an existing tree
TYPE	FCR	FCR tree
CUST	0	Customer number (specified in LD15)
CRNO	3	Tree number (specified in LD16)
DENY	102221	Deny North American toll calls for carrier MCI
UPDT	<CR>	Return to update the tree (default = YES)
DENY	10222011	Deny international toll calls for carrier MCI
UPDT	<CR>	Return to update the tree (default = YES)
DENY	102881	Deny North American toll calls for carrier AT&T
UPDT	<CR>	Return to update the tree (default = YES)
DENY	10288011	Deny international toll calls for carrier AT&T
UPDT	<CR>	Return to update the tree (default = YES)
DENY	103331	Deny North American toll calls for carrier US Sprint
UPDT	<CR>	Return to update the tree (default = YES)
DENY	10333011	Deny international toll calls for carrier US Sprint
UPDT	<CR>	Return to update the tree (default = YES)

Configuring BARS/NARS for Equal Access routing

The GCR and SCR methods handle restrictions in the same way, regardless of the type of call (BARS/NARS or Trunk Access Code [TRC]), except for the NFCR dependency on the Class of Service (CLS) value in the case of SCR. Therefore, the restriction configurations in Examples 1 and 2 apply to all allowable types of Equal Access calls.

The following information describes the BARS/NARS routing configuration only, and has no bearing on Equal Access call restriction. To configure BARS/NARS to route Equal Access calls, simply use 10 (the Equal Access code) as an SPN to identify the calls as Equal Access calls and to route them accordingly.

Example 3

Use the information in Examples 1 and 2 to configure BARS/NARS for Equal Access call routing. The calls will 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.

Using the configuration in this example, all Equal Access calls placed through BARS/NARS using access code 1 (AC1) are routed over Route 10. Note that routing has no effect on Equal Access call restriction. Calls will receive the same restriction treatment whether they originate from a trunk access code or from BARS/NARS.

Follow these steps:

- 1 In LD86, set the route list index to Route 10.

REQ	NEW, CHG	Create or change database
CUST	0	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

- 2 In LD90, establish an SPN for the Equal Access code.

REQ	NEW	New ESN translation table entry
CUST	0	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

Note: The route list index and access code are chosen randomly for this example.

Feature operation

There is no specific procedure for operating 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 5:1 either with 100ms dual tone multifrequency (DTMF) bursts, or with 50ms 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

Not applicable.

Feature packaging

Fast Tone and Digit Switch (FTDS), package 87, has no feature package dependencies.

Feature implementation

LD17 - Change duration of digitone burst.

REQ	CHG	Change
TYPE	CFN	Configuration Record
PARM	Yes, (No)	Change system parameters
DTRB	50, 60, 70, (100)	Digitone burst time in milliseconds

Feature operation

Not applicable.

FCC Compliance for DID Answer Supervision

This feature is designed to meet the requirements in the United States, Section 68.314(h) of Part 68, and the DOC requirements in Canada, Section 3.22 of CSO3 Part 1, for answer supervision of redirected telephone calls to help ensure proper billing.

This feature is designed specifically for telephone calls coming in through Direct Inward Dialing (DID) trunks. Answer supervision for all other types of telephone calls is not affected. This feature works in conjunction with the following types of calls:

- Direct Inward Dialing (DID) calls terminating at the Meridian 1 and forwarded to a Recorded Announcement (RAN)
- Direct Inward Dialing (DID) calls forwarded by the system through the public switched network (PSN) to another number in the central office (CO), or to another Meridian 1

On North American COT, FEX, and WATS trunks, central offices do not always return answer supervision. When no answer supervision is returned, the Meridian 1 software uses the end-of-dial timer for non-Digitone trunks (EOD timer), or the end-of-dial timer for Digitone trunks (ODT timer) to verify call connection. For FCC compliance, the EOD and ODT timers will still be used for incoming DID calls, except that EOD is capped at 20 seconds even if configured for more.

This feature handles incoming DID calls over Data Terminal Interface (DTI), Integrated Services Digital Network (ISDN), and analog trunks. Outgoing calls Central Office (CO) and tie are also handled. System components involved include trunks, the Meridian 1, and the CO. The following explains how the system components handle answer supervision.

- Analog, DTI, and ISDN incoming trunks: These are covered as long as they are DID incoming trunks. For incoming analog and DTI trunks, answer supervision or pseudo-answer supervision is returned by the Meridian 1 to the CO, if necessary. For incoming ISDN trunks, the connect message is returned instead.
- Analog, DTI, and ISDN outgoing trunks: For incoming DID calls, the answer and disconnect supervisor (SUPN) of the outgoing trunk is forced to NO. The EOD or ODT timer simulates the return of answer supervision.
- Meridian 1: For DID calls terminating at the Meridian 1, the system returns answer supervision based on the terminating condition. For DID calls forwarded to public switched networks (PSN) or private networks, returns answer supervision based on the condition of the outgoing trunk (answered or timed out).
- CO: The Meridian 1 provides the pseudo-answer for DID calls because the Meridian 1 cannot return answer supervision.

DID calls terminating at the Meridian 1

The requirements for a DID call terminating at the Meridian 1 to return answer supervision to the incoming DID trunk are shown in Table 81-1. The ASUP prompt in LD16 is kept for other types of calls, but the Meridian 1 software enforces the correct settings to return answer supervision if a Recorded Announcement (RAN) is used for DID calls, regardless of the value originally specified in the service change.

Table 81-1

Returning Answer Supervision for DID calls terminating at the Meridian 1

DID call terminating status	Answer supervision returned with FCC Compliance
Answered by the called DID station	Yes
Answered by an attendant	Yes
Routed to dialing prompt	Yes
Routed to Meridian Mail	Yes
Routed to recorded announcement (except for invalid number, not in service, and not assigned announcements)	Yes
Routed to recorded announcement by Automatic Call Distribution (ACD) including invalid number, not in service, or not assigned announcement	Yes
Not answered	No
Busy signal	No
Recorder signal	No
Routed to announcement for invalid number, not in service, or not assigned	No

Calls forwarded to public switched network

Because it is uncertain whether or not the far end will return answer supervision, the Meridian 1 uses the EOD and ODT timers. If the Meridian 1 has not detected the return of answer supervision upon timeout of the outgoing CO trunk, the Meridian 1 sends pseudo-answer supervision to the incoming DID trunk. This timer is set in LD16 on a per route basis. When a CO trunk is configured, Meridian 1 software forces the value of SUPN to NO. Consequently, Meridian 1 software does not expect the return of answer supervision, and returns answer supervision in the following cases:

- The Meridian 1 receives answer supervision from the outgoing CO trunk before the EOD or ODT timer of the outgoing route expires.
- The Meridian 1 does not receive answer supervision from the outgoing trunk and the EOD or ODT timer of the outgoing route expires; pseudo-answer is generated.

Note: There are still some cases in which the SUPN value for CO trunks is assigned to YES if the CO supports a reverse battery mechanism.

With FCC Compliance, a more stringent mechanism is introduced to apply SUPN = No in LD14 to all CO trunks, even those configured as polarity sensitive. Service-changeable EOD or ODT timers are always used for incoming DID calls to enforce the return of answer supervision. In this case,

EOD = 128-19, 968 ms (default time is 13,952 ms)

ODT = 256-16, 128 ms (default time is 4,096 ms)

Note: The EOD timer expires at 20 (20,000 ms) for FCC Compliance. For outgoing DID calls, the EOD upper limit is 32,640 ms.

DID calls forwarded to private networks

Answer supervision is not always returned on tie trunks because some tie trunks leased from public carriers are connected to COs that do not support answer supervision.

Currently, the Meridian 1 provides the SUPN prompt (LD14) to specify the availability of answer supervision on certain types of trunks, including tie, CAM, CCSA (common control switching arrangement), and CAA (CCSA Automatic Number Identification (ANI)). If SUPN is YES, and it is an outgoing trunk, Meridian 1 does not return answer supervision to the incoming DID trunk unless answer supervision is received from that outgoing trunk. If the user specifies NO, the Meridian 1 returns pseudo-answer supervision upon EOD or ODT timeout. Such implementation causes short billing and overcharge problems.

To solve this problem, a treatment similar to the one implemented on CO trunks is used on the trunks in this category. The Meridian 1 enforces SUPN = NO without changing the SUPN value.

Feature interactions

For incoming DID calls routed to private networks, SUPN is enforced to NO to ensure the return of answer supervision on the outgoing tie, CO, FEX, WATS, CAM, CAA, Common Control Switching Arrangement (CSA), and Automatic Voice Network (AUTOVON) trunks. If answer supervision is not returned when the end of dial timeout occurs, the Meridian 1 disregards the original value of SUPN set by the user and forces the return of answer supervision.

When the call comes from a DID trunk, the following outgoing trunks are affected: tie, CO, FEX, WATS, CAM, CAA, and CCSA.

Feature Group D trunks and Japan (JPN) DID trunks are not affected by this feature.

ISDN trunks

Both incoming and outgoing Integrated Services Digital Network (ISDN) trunks are affected by this feature.

- For ISDN incoming DID trunks, the connect message is returned when answer supervision is returned or when the end of dial timer expires.
- For ISDN outgoing trunks, the end of dial timer is added to the protocol to simulate the EOD timer when a connect message is not returned from the far end; the Meridian 1 generates a pseudo-answer to send to the incoming trunk.

Intercept and RAN

With this feature, incoming DID calls that are intercepted to a Recorded Announcement (RAN) are provided with answer supervision.

Operating parameters

FCC compliance is supported on X11 release 14, and on X11 release 17 and later software.

Note: X11 releases 15 and 16 do not support FCC Compliance.

Allowing Meridian 1 equipment to be operated in such a manner as to not provide proper answer supervision signaling is in violation of Part 68 rules.

- This equipment, if provisioned with X11 release 17 or later software, returns answer supervision signals to the public switched telephone network (PSTN) when
 - answered by the called station
 - answered by the attendant
 - routed to a recorded announcement that can be administered by the Customer Premises Equipment (CPE) user
 - routed to a dial prompt

- This equipment returns answer supervision on all DID calls forwarded back to the PSTN. Permissible exceptions are when
 - a call is unanswered
 - a busy tone is received
 - a reorder tone is received

Feature packaging

FCC Compliance for DID Answer Supervision requires FCC compliance (FC68), package 223.

Feature implementation

Although no implementation changes are necessary, FCC Compliance does affect system parameters.

LD14

When FCC Compliance is equipped, the Meridian 1 forces SUPN to NO. This indicates that the system does not expect the CO to return answer supervision, and provides the pseudo-answer supervision required.

LD16

When RAN is provided for DID calls, the Meridian 1 forces answer supervision regardless of the setting established in LD16 with the ASUP prompt.

Feature operation

There is no specific procedure required to operate this feature.

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 LD15 in order for FFCs to operate for those features that also use SPRE codes.

The FFC package allows 500/2500 telephones to activate these features:

- Automatic Wakeup (AWU)
- Electronic Lock (ELK) (see Feature operation on page 82-9)
- Override
- Remote Call Forward (RCFW) (see Feature operation on page 82-9)

Customers define one or more codes at their discretion in LD57 (FFC). For Service Change updates, refer to the *X11 input/output guide* (553-3001-400).

Any telephone that can currently operate the SPRE dialing feature can operate the FFC feature. 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 LD57, the Meridian 1 returns a confirmation tone to the user after completing some feature operations. Refer to Feature interactions, later in this document)

The confirmation tone is the same as the special dial tone.

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.

LD57 can allow no more than 100 FFCs to be modified in a single pass through Service Change.

Customers using the octothorpe (#) as part of their dialing plan can use a predefined string of digits for end-of-dialing indicators.

Changes to the Station Control Passwords (SCPWs) do not take affect until after a datadump and sysload. Configuring the system or enabling the feature changes SCPL = 0 in LD15 to any length. This change takes effect immediately. Any other change to SCPL in LD15 requires a datadump and sysload before taking effect. When the Station Control Password Length (SCPL) is changed, all associated passwords change accordingly at the next datadump and sysload. Changing SCPL from 3 to 5 automatically inserts leading zeros before all existing three-character passwords. Conversely, changing SCPL from 5 to 3 automatically truncates the leading characters of all existing five-character passwords.

Feature interactions

FFC interacts with other features as follows:

- It allows 500/2500 telephones to Override established calls, based on the telephone's programmed Class of Service (CLS). 500/2500 telephones can also activate and deactivate Call Forward by dialing a single FFC.
- Telephones with the proper Class of Service (CLS) can activate Automatic Wakeup (AWU) for their own telephone.
- Confirmation Tone for FFC lets 500/2500 and digital telephones receive a special tone when certain functions are complete. Confirmation Tone is returned following these events:
 - Automatic Wakeup (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)
 - 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)
 - Flexible Feature Code (any verification)
- Confirmation Tone is provided for Speed Call store after the End-Of-Dial string (such as #) is entered.
- FFC codes are not supported on SL-1 and digital telephones when attempting to call pickup a Dial Intercom ringing call.

- Automatic Wake-Up
Telephones can activate Automatic Wakeup (AWU) features for their own station with Common Controlled Switching Arrangement (CCSA) Class of Service (CLS).
- Users are still able to use SPRE dialing (if the feature is enabled), with or without FFC defined.
- Because Electronic Lock (ELK) sets the Controlled Class of Service (CCOS) to CCRS (as defined in LD15), a telephone with a key used to modify CCOS can be used to activate or deactivate the Electronic Lock without having to dial the FFC or the password.

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 Set Features (SS25), package 18, and 500 Set Features (SS5), package 73, are required to support the following features:

- Call Forward
- Speed Call Controller
- Speed Call User
- Permanent Hold
- Call Park
- System Speed Call

Feature implementation

LD15 - Set parameters for Flexible Feature Code.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
CCRS	aaa	Controlled Class of Service (CCOS) (assigned when Electronic Lock (ELK) is activated) aaa = <div> UNR Unrestricted TLD Toll Denied CTD Conditionally Toll Denied CUN Conditionally Unrestricted SRE Semirestricted FRE Fully Restricted FR1 Fully Restrict Level 1 FR2 Fully Restrict Level 2 </div>
SCPL	x	Station Control Password Length (SCPL), 0-8. Entering 0 disables ELK and RCFW features at next datadump and sysload.
FFCS	YES, NO	Change or don't 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)

LD10 - Set Station Control Password Length for 500/2500 telephones.

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 LD15; enter X to delete password)
CLS	CCSA	Enable CCOS for Electronic Lock (ELK) and Remote Call Forward

LD11 - Set Station Control Password Length for SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
SCPW	xx...xx X	Station Control Password Must be the same length as SCPL in LD15 Enter X to delete the password Delete the password only if SCPL = 0; else receive an error code for no password to fit the SCPL
CLS	CCSA	Enable CCOS for ELK and Remote Call Forward

LD57 - Define numbers for Flexible Feature Code (Part 1 of 3).

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
CEPT	YES, NO	Conférence Européen des Postes Tel defaults are allowed, or 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	YES, NO	Remove or don't remove all FFCs (prompted only if REQ = OUT)
CODE	nnnn ALL <CR>	FFC type All prompts No prompts
ASRC	nnnnnnn	Automatic Set Relocation code
AUTH	nnnnnnn	Authorization code
AWUA	nnnnnnn	Automatic Wakeup Activate code
AWUD	nnnnnnn	Automatic Wakeup Deactivate code
AWUV	nnnnnnn	Automatic Wakeup Verify code
CDRC	nnnnnnn	Call Detail Recording charge account code
CFWA	nnnn	Call Forward All Calls Activate code
CFWD	nnnn	Call Forward All Calls Deactivate code
CFWV	nnnn	Call Forward All Calls Verify code
COND	nnnn	Conference Diagnostics code
CPAC	nnnn	Access Parked Call code
CPRK	nnnn	Park Call code
CSHF	nnnn	Centrex Switchhook Flash

LD57 - Define numbers for Flexible Feature Code (Part 2 of 3).

C6DS	nnnn	Six-Party Conference call code
DEAF	nnnn	Deactivate Ring Again and FWD codes
DPVS	nnnn	Data port Verification code
ELKA	nnnn	Electronic Lock Activate code
ELKD	nnnn	Electronic Lock Deactivate code
HOLD	nnnn	Permanent Hold code
IMS	nnnn	Integrated Message System Access code
MNTC	nnnn	Maintenance Access code
MTRC	nnnn	Malicious Call Trace code
OVRD	nnnn	Override code
PUDN	nnnn	Pick Up Directory Number code
PUGR	nnnn	Pick Up Group code
PURN	nnnn	Pick Up Ringing Number code
RCFA	nnnn	Remote Call Forward Activate code
RCFD	nnnn	Remote Call Forward Deactivate code
RCFV	nnnn	Remote Call Forward verify code
RDLN	nnnn	Redial Last Number code
RDNE	nnnn	Erase Stored Number code
RDSN	nnnn	Redial Saved Number code
RDST	nnnn	Store Last Number code
RGAA	nnnn	Ring Again Activate code
RGAD	nnnn	Ring Again Deactivate code
RGAV	nnnn	Ring Again Verify code
RMST	nnnn	Room Status code

LD57 - Define numbers for Flexible Feature Code (Part 3 of 3).

SCPC	nnnn	Station Control Password Change code
SPCC	nnnn	Speed Call Controller code
SPCU	nnnn	Speed Call User code
SSPU	nnnn	System Speed Call User code
TFAS	nnnn	Trunk Answer from Any Station code
TRMD	nnnn	Terminal Diagnostics code
TRVS	nnnn	Trunk Verification code
USTA	nnnn	User Status code
LILO	nnnn	Log-in, Log-out code for 500/2500 ACD telephones
NRDY	nnnn	Not Ready Activate or Deactivate code for 500/2500 ACD telephones

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).

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 RCFW feature. Entering a password length of 0 in LD15 (SCPL) disables password control for both ELK and Remote Call Forward (RCFW). Operating ELK requires enabling of CCOS, package 81.

To change the Class of Service (CLS) from a telephone

- 1 Dial the Electronic Lock Activate (ELKA) code.
- 2 Dial the SCPW. The telephone's CLS is changed to the CCRS value defined in LD15.

To return the telephone to the originally defined CLS

- 1 Dial the Electronic Lock Deactivate (ELKD) code.
- 2 Dial the SCPW. The telephone's CLS is changed to the values defined in LD10 and LD11.

Because the CLS defined for CCRS in LD15 is usually lower than the CLS defined in LD10 or LD11, the CLS 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 LD57.

ELK operation has the following requirements:

- CCOS allowed, with CCSA CLS in LD10 and LD11, and CCRS defined in LD15
- Set the password length in LD15, at the SCPL prompt
- Add passwords in LD10 and LD11, at the SCPW prompt
- 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.

Remote Call Forward

Remote Call Forward (RCFW) allows a telephone user to program their Call Forward Directory Number (DN) from a remote telephone. Each telephone must have Call Forward All Calls enabled, and must have the SCPW defined for FFC in LD10 or LD11.

As with all FFC applications, 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). User's can change the RCFW Directory Number (DN) from their own telephone, or from a telephone remote from the switch.

From any telephone within the Meridian 1 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 and wait for dial tone.

You may hear a Confirmation Tone after entering the main extension number, telling you that the password and extension match. You may 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.

- 1 Dial RCFW FFC (for example, *23).
- 2 Dial the SCPW.
- 3 Dial the DN of station to be forwarded.
- 4 Dial the number you are forwarding to.
- 5 If required, dial end-of-dialing digits (default is the octothorpe (#)).
- 6 Hang up.

If there are two telephones with the same Prime DN, it is recommended that only one of them have an SCPW. With RCFW, it is possible that the two telephones could have the same password assigned. With the same password, they could control each other's telephone security. For the same reason, the Secondary DN for an ACD station should not appear as a Prime DN on another station.

Group Call

Group Call allows a user of an SL-1 or Meridian digital telephone to place a call to up to ten Directory Numbers (DNs) simultaneously by activating a Group Call key. The called DN 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.

Groups are defined through Service Change in LD18. 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 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 ten 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 may disconnect from the call at any time, but once disconnected, they cannot be reconnected.

Operating parameters

A Group Call can be originated only from an SL-1 or Meridian 1 digital telephone with a Group Call key.

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 COS.

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

- Telephone features
The following features cannot be applied on a Group Call:
 - Call Forward No Answer
 - Call Forward Busy
 - Call Park
 - Call Transfer
 - Conference
 - Hunting
 - Privacy Release
 - Ring Again
- 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.
- 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 Busy or Individual Do Not Disturb mode cannot be completed. The telephone will not be rung and is not counted as part of the Group Call; that is, if all other members in the group have answered, the lamp next to the Group Call key on the originator's telephone lights steadily.

Feature packaging

Group Call (GRP), package 48, has no feature package dependencies.

Feature implementation

LD18-Add or change a Group Call list.

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)
	<CR>	End input of stored Group Call entries

LD11-Add or change Group Call for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx GRC yy	Add a Group Call key xx = key number yy = Group Call member number

LD20-Print Group Call data.

REQ	PRT	Print
TYPE	GRP	Group Call data
CUST	0-99	Customer number
GRNO	0-63	Number of the Group Call group
	<CR>	Print data for all Group Call groups

Feature operation

To make a Group Call,

- 1 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.

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 craftsperson. 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 application* (553-3001-301).

Hot Line

Flexible Hot Line

Flexible Hot Line (HOT) allows designated 500/2500 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 500/2500 telephones on a Class of Service (CLS) basis. A telephone is assigned the Hot Line feature through Service Change and a Manual Line (MNL) CLS. 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 in 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.

Note: Flash the switchhook at any time during call setup or during the call will be ignored.

If the caller is a Hot Line, the prime Directory Number of the calling telephone is displayed on the terminating telephone, if equipped with a display.

Operating parameters

Flexible Hot Line applies to 500/2500 telephones only.

Feature interactions

- Enhanced Hotline
Flexible Hotline and Enhanced Hotline are mutually exclusive (a telephone cannot have both Manual Line (MNL) and Enhanced Hot Line Allowed (EHTA) Class of Service (CLS)).
- Hunting
Calls will hunt before being routed to the attendant.

Feature packaging

Flexible Hot Line (HOT), package 70, has no feature package dependencies.

Feature implementation

LD10-Add or change Flexible Hot Line for 500/2500 telephone

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
CLS	MNL	Manual signaling (requires XFD Class of Service, transfer denied)
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, 500/2500 telephones and SL-1 and Meridian digital 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 LD11, or by list entry such as by System Speed Call (SSC) using LD18. 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 500/2500 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 may be defined with a Directory Number (DN) of its own, allowing other calls to terminate on that HOT key. For SL-1 and digital telephones, the HOT key must be assigned to a DN during Service Change to create a two-way Hot Line. 500/2500 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 percustomer basis.

Telephones without a keypad or rotary dial cannot be assigned the Enhanced Hot Line Allowed (EHTA) Class of Service (CLS).

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 an SL-1 or digital telephone can have access to only one entry in the Hot Line List, but more than one telephone may have access to the same entry.

500/2500 telephones with Manual Line (MNL) CLS 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), then all appearances of that DN must also be EHOT keys.

Feature interactions

- ACD
A Hot Line DN key can be assigned to an ACD telephone.
- Prime DN
If the Hot Line key is assigned to key 0 on an SL-1 or Meridian digital 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.
- 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.

- **Attendant Administration**
Use of an attendant console to change the data base for EHOT is not supported.
- **Automatic Answerback**
The Automatic Answerback feature is fully compatible with a two-way Hot Line key assigned as the Prime DN.
- **Call Forward Busy/No Answer and Hunting**
Any Hot Line telephone may be assigned Call Forward Busy/No Answer and Hunting (excluding Short Hunt) CLS, but it applies only to the two-way Hot Line capability.
- **Call Park**
The 500/2500 Hot Line telephones with EHTA and XFA CLS are allowed to park calls using the established Call Park procedures. Once a call is parked on a 500/2500 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 SL-1 Hot Line stations that are equipped with a Park key/lamp pair are allowed to park calls in the normal fashion. As with 500/2500 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 500/2500 Hot Line telephones, may be assigned to pickup groups. Incoming Hot Line calls may be picked up by group members. To prevent any one from picking up a Hot Line call, do one of the following:
 - Do not put a Hot Line user into a Call Pickup group
 - Assign the Hot Line restricted option (OPT HTR) in LD15
- **Dial Intercom**
The 500/2500 Hot Line telephones cannot be members of Dial Intercom Groups (DIGs).
- **Controlled Class of Service (CCOS)**
When a Hot Line DN is on a telephone that has CCOS activated, Hot Line calls ignore the imposed CLS, 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.

- 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.
- HOT
EHOT and HOT are mutually exclusive (a telephone cannot have both MNL and EHTA CLS).
- Group Call
Hot Lines may be members of a Group Call. They cannot, however, have a Group Call key.
- Make Set Busy
Make Set Busy is overridden by the Hot Line feature. If an SL-1 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
500/2500 telephones with EHTA cannot have Permanent Hold.
- 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.
- Internal CDR
Hot Line stations may be assigned the appropriate CLS that allows CDR records to be printed for calls originating on that telephone.
- 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.

Note: 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 (EHOT), package 70, requires:

- Network Class of Service (NCOS), package 32
- System Speed Call (SSC), package 34

Feature implementation

LD17-Assign the number of Speed Call lists, including Hot Line lists.

REQ	CHG	Change
TYPE	CFN	Configuration record
MSCL	0-8191	Maximum number of Speed Call lists

LD15-Add or change Enhanced Hot Line for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	HTU, HTR	Hot Line unrestricted or restricted

Note: 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 DN's, but HTU does not.

LD18-Compute Hot Line Speed Call list memory size and disk records (X11 release 17).

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

Note: 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.

LD18-Add or change a Hot Line Speed Call list.

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
WRT	YES, NO	Data is (or is not) correct and list may (or may not be) be updated
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 (or is not) correct and list may (or may not be) be updated

Note: 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 to 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)

LD10-Add Enhanced Hot Line for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	DTN, DIP	Digitone or dial pulse service (manual service is not allowed)
	EHTA	Enhanced Hot Line allowed
	LNA, LDN)	Last Number Redial allowed or denied (optional)
	XFA, XFD	Call Transfer allowed or denied (optional)
	CWA, CWD	Call Waiting allowed or denied (optional)
	XRA, XRD	Ring Again allowed or denied (optional)
FTR	HOT D nn x...x	Direct Hot Line DN nn = number of digits (1-31) for target DN x...x
	HOT L 0-999	Hot Line List entry number defined in LD18

LD11-Allow or deny Enhanced Hot Line for SL-1 and digital telephones.

REQ TYPE	CHG aaaa	Change Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN KEY	l s c u 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	Terminal Number 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)
Legend: nn = key number cc = number of digits for target DN (1-31) x...x = target DN (≤ 31 digits) aaa = Hot Line List entry defined in LD18 xxx...x = DN for Hot Line key		

Feature operation

To make an EHOT call on a 500/2500 telephone,

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

To transfer or conference an EHOT call on 500/2500 type telephones,

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

To make an EHOT call on a SL-1 or digital telephone,

- Press **Hotline**.

To answer an incoming Hot Line call on a SL-1 or digital 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

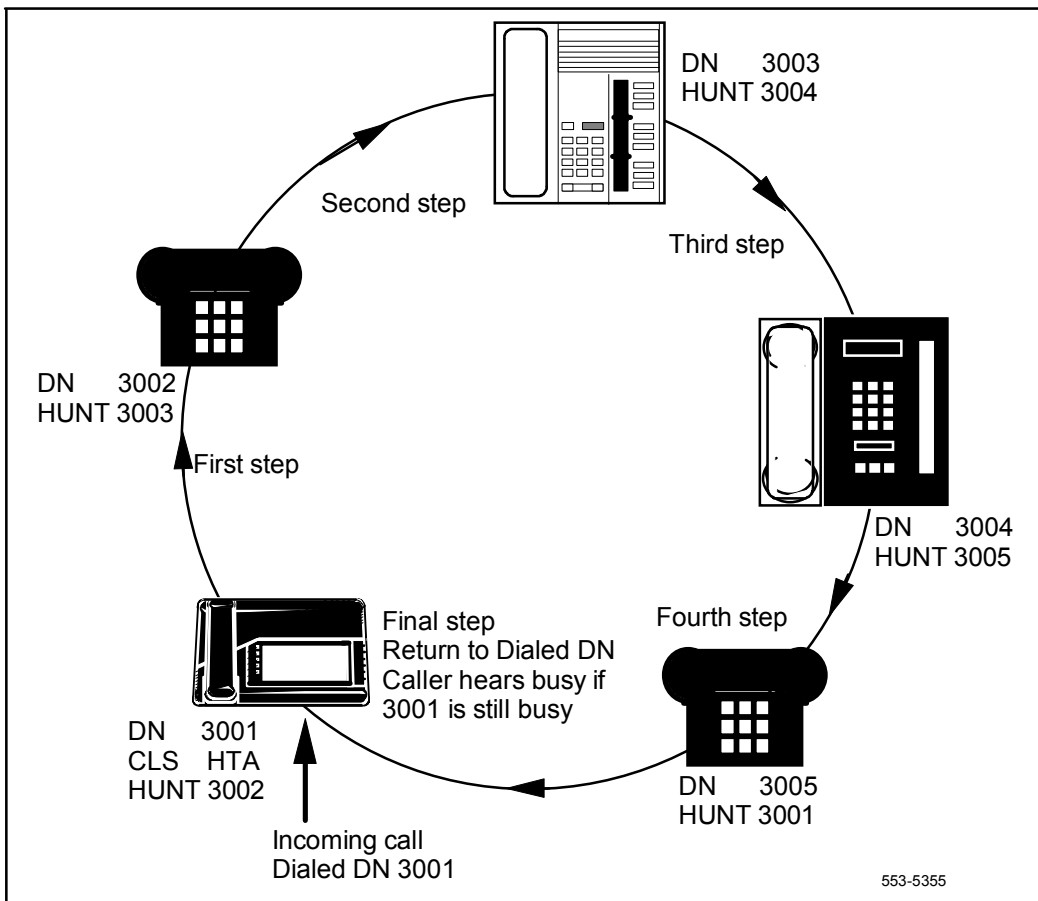
The following pages describe and illustrate each of these ways to hunt.

In addition, Data Port Hunting is described on page 86-10, and Trunk Hunting is described on page 86-15.

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 86-1 shows an example of circular hunting.

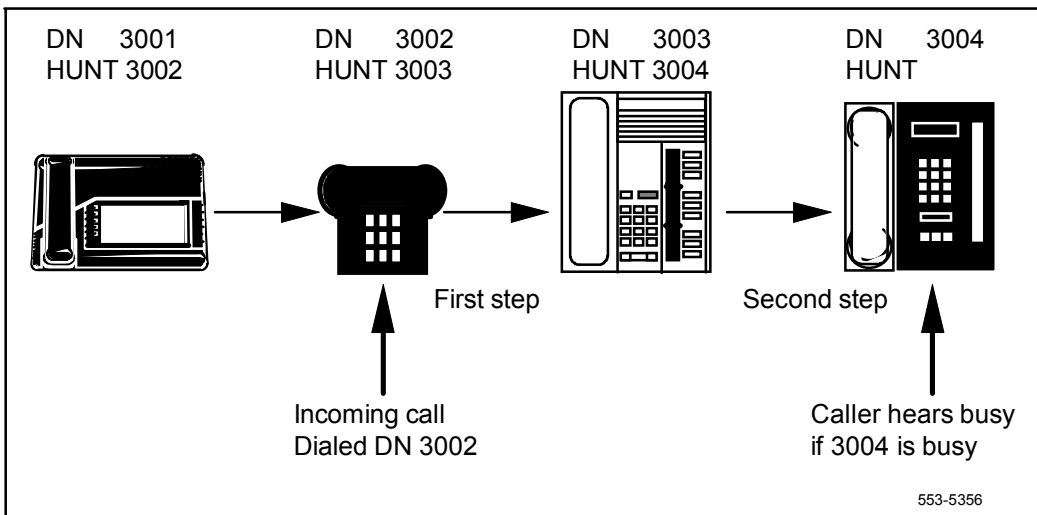
Figure 86-1
Circular Hunting example



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 86-2 shows an example of Linear Hunting.

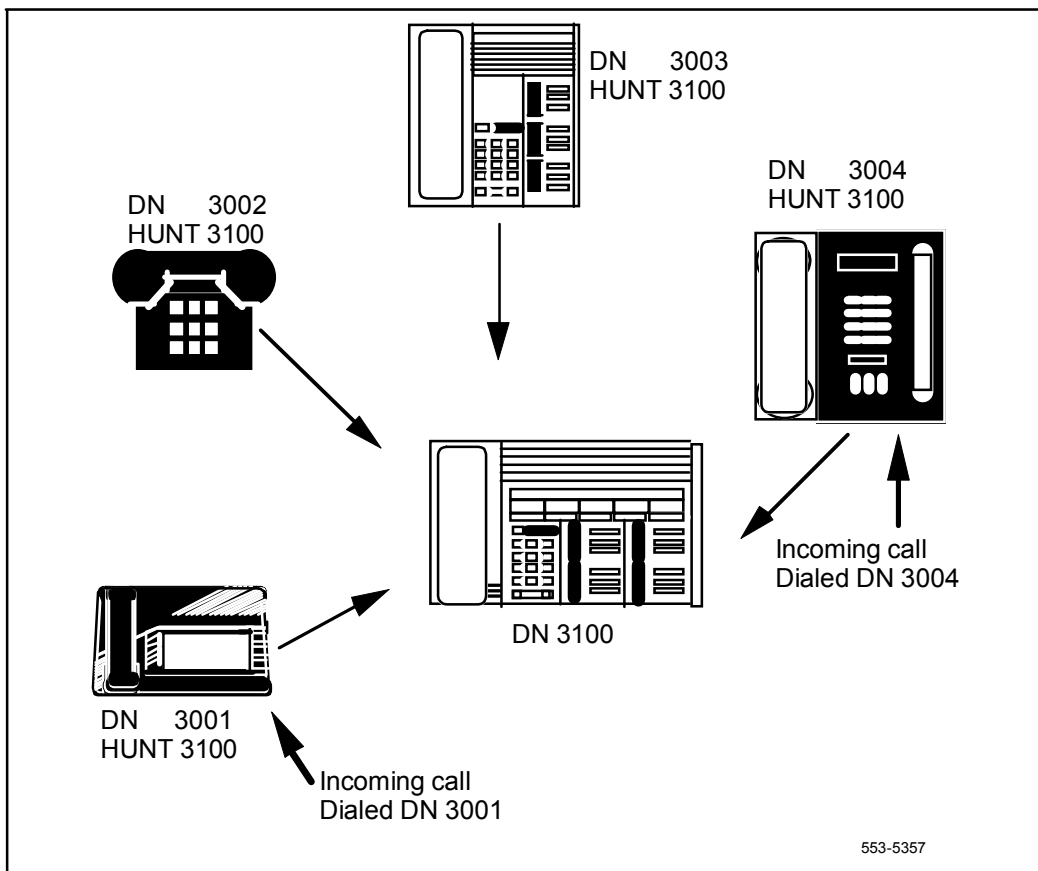
Figure 86-2
Linear Hunting example



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 86-3 shows an example of Secretarial Hunting.

Figure 86-3
Secretarial Hunting example



Short Hunting

Short Hunting takes place along the key strip of any SL-1 or Meridian digital 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. When a call hunts to a Multiple Appearance DN, all appearances with ringing allowed.

For a TN with Hunting control enabled, Short Hunt takes precedence over normal Hunting (Circular, Linar, 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, Hunt DN E.

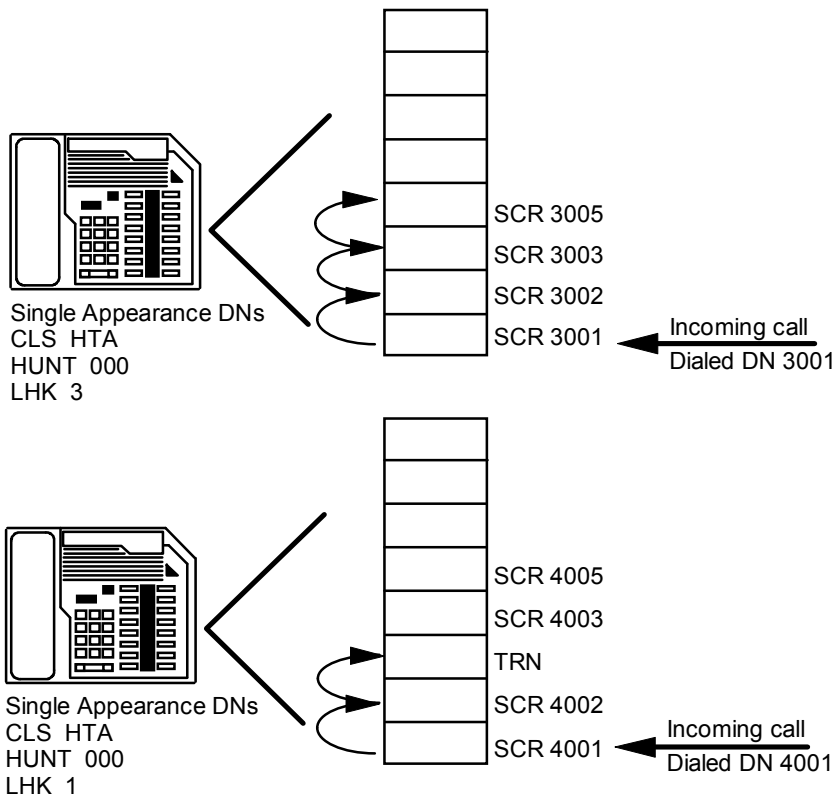
Figure 86-4 shows an example of Short Hunting.

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.

Figure 86-4
Short Hunting example



553-5358

Feature interactions

- 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 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.
- 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 500/2500 telephones. For SL-1 and Meridian digital 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 500/2500 telephones, a printout of the TN blocks indicates if the CLS 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. 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 (that is, 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.

When a telephone is service changed, the Terminal Number (TN) is moved to the beginning of the DN list regardless of the TN's numerical value. This telephone remains at the beginning of the list until another telephone is service changed.

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.

Note: If all the telephones in the Multiple-Appearance Directory Number (MADN) group are SL-1 and/or Meridian digital telephones, ringing telephones are placed at the beginning of the DN list, and nonringing telephones are placed at the end.

If a Multiple-Appearance Directory Number (MADN) appears in a group with several telephone types, the telephone type affects the position of the TN in the list. The 500/2500 telephones are listed at the beginning, and SL-1 and Meridian digital telephones are listed in numerical TN order at the end of the list. A service change to a 500/2500 telephone moves its TN to the beginning of the list. A service change to an SL-1 or Meridian digital telephone moves it to the end of the list. Call redirection follows the TN order from beginning to end.

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.

Feature packaging

Hunting is included in basic X11 system software.

Feature implementation

LD10-Add or change Hunting for 500/2500 telephones.

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	HTA, HTD	Allow or deny hunting (default is HTD)

LD11-Add or change Hunting for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
HUNT	xxx...x	Hunt DN 000 allows short hunt only Xxxx...x removes the DN from the hunting chain
	000	Allow Short Hunting
LHK	xx	Last Hunt Key (LHK) number (default is 0) LHK 0 deactivates Short Hunt
CLS	HTA, HTD	Allow or deny hunting (default is HTD)

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 may 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:

- Stand alone 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
- stand alone ADM in auto-answer mode, connected to a modem
- Data Access Card (DAC)
- 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 which 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).

- MCA: Meridian Communications Adapter (MCA) data ports which 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.

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 8 seconds.

Dataport Verification (DVS)

Any applicable set with Dataport Verification Allowed (ADV) Class of Service may 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

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.

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 collocated 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 8 seconds. If the calling party does not respond to the Ring Again notification after 8 seconds, the reservation is dropped.

Feature packaging

Data Port Hunting is included in basic X11 system software.

Feature implementation

LD16-Add or change a data port trunk route. (Part 1 of 2)

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	TLNK, DMDM	T-Link or DM-DM protocol (See Note 2)
OPE	YES, NO	Change or don't change data port operating parameters (See Note 2)
PSDS	YES, NO	Allow or don't allow PSDS protocol (See Note 2)
TRAN	SYN, ASYN	Port transmission type; if PSDS = YES, then TRAN must be SYN (See Note 2)
PAR	SPAC, EVEN, ODD, MARK	Parity type SPAC = space parity EVEN = even parity ODD = odd parity MARK = mark parity
DTR	ON, OFF	Forced DTR (If ON) or dynamic DTR (if OFF) (See Notes 1 and 2)

LD16-Add or change a data port trunk route. (Part 2 of 2)

DUP ²	HALF, (FULL)	Half duplex/full duplex
DCD ^{1,2}	OFF, (ON)	OFF = forced CD (ON) = dynamic CD
MOD ²	YES, (NO)	Modem, (Network): when TRAN = SYN
INT ²	ON, (OFF)	SL-1/100 Interworking
CLK ²	ON, (OFF)	ON = Internal, (OFF) = External Clock: when TRAN = SYN
V25 ²	YES, (NO)	V.25 bis offered only when TRAN = SYN
HDLC ²	YES, (NO)	High Level Data Link Control offered only when V25 = YES
DEM ¹	DTE, (DCE)	Data Equipment Mode DCE or DTE mode
PBDO ¹	ON, (OFF)	Port Busy upon DTR Off presented when DCE, Dynamic DTR ON = enabled (OFF) = disabled
Note 1: Prompt offered to R232		
Note 2: Prompt offered to MCU (TKTP = MMPM)		

LD14-Add or change a data port trunk.

REQ	NEW, CHG	New or change
TYPE	ADM, MDM, R232, R422, MMPM	Trunk type
TN	I s c u	Loop Shelf Card Unit

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 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 central office (CO) governs incoming trunk hunting. The Meridian 1 has no control over the order of incoming trunks.

Feature interactions

There are no feature interactions.

Feature packaging

Trunk Hunting is included in basic X11 system software.

Feature implementation

LD16-Implement Linear or Round Robin Trunk Hunting for a trunk route.

REQ	NEW, CHG	New or change
TYPE	RDB	Route data block
CUST	0-99	Customer number
ROUT	0-511	Trunk route number
SRCH	RRB, LIN	Round Robin or Linear Hunting

Feature operation

There is no specific procedure for operating this feature.

In-Band ANI

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 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 In-Band ANI (IANI) trunk group. If it is, the ten Automatic Member Identification (ANI) digits are collected, and the call auto-terminates at the Automatic Call Distribution (ACD) Directory Number (DN) specified for that trunk, provided that the ACD telephone has digit display and Standard Delayed Display (DDS) Class 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 Automatic Number Identification (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* (553-2901-110).

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.

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 LD14. Any ACD Agent specified to answer IANI calls also receives standard ACD calls. When a standard ACD call is received on an 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.

CDR records

Because IANI and Integrated Services Digital Network (ISDN) cannot be configured on the same trunk group, the IANI report is able to appear in place of the Calling Line Identification (CLID) records. The ANI number is shown on the second line of the CDR report in the following format:

```
N 002 00 T00004 01 03/24 10:15 00:00:38 4155551212*****
```

Where:

N	= record type
002	= record sequence number
00	= customer number
T00004	= trunk route and member number
01	= ACD Agent Position ID
03/24	= date (month/day)
10:15	= time (hour:minute)
00:00:38	= duration (hours:minutes:seconds)
4155551212*****	= ANI number (ten digits followed by *****)

For a complete description of CDR output, see *Call Detail Recording description and formats* (553-2631-100).

Feature interactions

The IANI feature interacts heavily with ACD. For a complete description of the ACD features involved, see *Automatic Call Distribution basic features description* (553-2671-100).

IANI feature interactions

- 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.
- 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.
- time and date
If the agent presses the Time and Date (TAD) key while on an IANI call, the time and date remains 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.

Hardware requirements

A Dual Tone Multifrequency (DTMF) receiver is required to interpret the DTMF tones with an IANI number.

Feature packaging

In-Band ANI (IANI) is not a separately-packaged feature. To implement IANI requires the following packages:

- Basic ACD (BACD), package 40
- ISDN Signaling (ISDN), package 145
- Primary Rate Access (PRA), package 146
- Inter-Exchange Carrier (IEC), package 149
- 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

LD16 - Identify the route as an In-Band Automatic Number Identification route.

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	YES, NO	Specify or don't specify as an auto-terminating route
IANI	YES, NO	Enable or disable the IANI route

LD23 - Send the IANI messages across the Auxiliary Processor Link (APL).

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 (see note)
Note: The ISAP prompt replaces the DNIS prompt in X11 release 15 and later software.		

Feature operation

There is no specific procedure for operating 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.

Note: 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 different length (for instance, 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.

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 (LD16) the SL-1 or digital telephone display looks like this:

AAAA:MMM

Where:

AAAA = route access code

MMM = Route Member Number

The display may show the name of the route if
Call Party Name Display (CPND) is allowed.

When DEXT = YES (LD16) the SL-1 or digital telephone display looks like this:

AAAA:MMM Pxxxx

Where:

AAAA = route access code

MMM = Route Member Number

P = Special character (identifying the received digits)

xxxx = Originally dialed digits (preconverted)

When DEXT = NO (LD16) 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)

xxxx = route name if Call Party Name Display (CPND) is allowed

When DEXT = YES (LD16) 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

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

There are no feature interactions.

Feature packaging

Incoming DID Digit Conversion (IDC), package 113, requires New Flexible Code Restriction (NFCR), package 49.

Feature implementation

LD15-Specify maximum number of Incoming Digit Conversion trees allowed.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
NFCR	YES, NO	New Flexible Code Restriction (NFCR) enable or disable
MAXT	1-255	Maximum number of NFCR trees
IDCA	YES, NO	Enable or disable IDC
DCMX	1-255	Maximum number of IDC tables
Note: The sum of the values for MAXT and DCMX cannot exceed 255 per customer.		

LD49-Create tables to convert incoming Direct Inward Dialing digits.

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 PromptResponse IDGT3440 3440510 To convert external DNs in the range 3440-3465, enter PromptResponse IDGT3440 3465 3440444 3441445 -- -- -- 3465469

LD16-Enable digit conversion for required Direct Inward Dialing trunk routes.

REQ	CHG	Change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUT	0-511	Route number
IDC	YES, NO	Use or don't use digit conversion for this route
DCNO	0-254	IDC tree number
NDNO	0-254	IDC conversion table for Night mode
DEXT	YES, NO	Allow or don't allow Digit Display

Feature operation

There is no specific procedure for operating this feature.

Incremental Software Management

Incremental Software Management (ISM) introduces a new approach to system management, offering more flexibility and control over system configuration and implementation. With ISM, software ordering and pricing is based on the total count of Terminal Numbers (TNs), ACD positions (agents and supervisors), ACD Directory Numbers (ACD DN and Control DNs), and AST DNs. The customer requested configuration parameters are communicated to Northern Telecom when a new system or upgrade order is placed, and are then defined during software disk preparation.

The number of configurable Terminal Numbers (TNs) is provided in increments of 100. ACD positions are incremented by 5, while ACD DNs and AST DNs are provided in increments of 1. If an order is received without these parameters defined, the order will not be processed. The system parameters used, available, and totaled are listed in a header at the beginning of each software program. For specific system requirements and limits, refer to the Pricing Manual.

Note 1: 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 Northern Telecom representative for information regarding your system limits.

Note 2: With X11 release 17, the system TNs are incremented along with the ACD DNs.

Operating parameters

Incremental Software Management (ISM) operates within the following parameters:

To calculate the Terminal Numbers (TNs) configured in the system, all TNs associated with 500/2500, SL-1, and digital telephones, ACD DNs, AST DNs, attendant consoles (two TNs per console), Digitone receivers, tone detectors, and trunks are included in the total.

The total TNs refers to Terminal Numbers (TNs) configured in LD10, LD11, LD12, LD13, and LD14. There is no differentiating between signaling, data, or voice channels.

To calculate the number of ACD Agents configured in the system, any telephone configured as key 0 ACD is counted for the total. This includes ACD Agents and ACD Supervisors.

AST DNs are not counted in the total of ACD Agents.

With X11 release 17 and later software, AST DNs must be defined individually in LD10 or LD11. In X11 release 16 and earlier software, AST DNs are defined in LD23 on a per queue basis.

AST DN designation is not maintained following a software conversion. 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 attendant console increments the TN count twice. The first TN is designated for 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 (AML), D-channels (DCHs), Logical Terminal Identifiers (LTIDs), and Digital Subscriber Loops (DSLs).

Note: DSLs and LTIDs apply to Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) only. Refer to *ISDN Basic Rate Interface description* (553-3901-100) for more information regarding BRI.

System monitoring

To assist in monitoring system growth, a header appears in each affected overlay (LD), 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), or Application Module Links (AMLs) 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. For a complete list of the Service Change and error message information, see *X11 input/output guide* (553-3001-400).

In addition to the headers, a new response is added to Print Routine 3 (LD22) to query the system limits.

With X11 release 17.67 and later software, when the allowed limits are exceeded, any additional entry is blocked, and a SYSxxxx message is shown every time an entry is attempted. Refer to the message list in this section for the SYS message for each parameter.

Note: The ACD parameters are allowed only if the basic ACD package is equipped (option 40).

System administration

When the predefined 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.

When doing a system enhancement requiring new software, if insufficient TN, ACD DN, or ACD Agent quantities are ordered, excess TN, ACD DN, ACD Agent, and AST DN information could be lost. For example, if a system has 150 TNs configured, but the Incremental Software Management (ISM) order is for 100 TNs, the system will eliminate the additional 50 TNs. A SYS message is given if this occurs.

CAUTION

System information will be lost.

With ISM in X11 release 15.55 and later software, if SYS message 4327, 4328, 4329, or 4330 appears at sysload, sysload previous system disks. Order ISM disks with sufficient system parameters configured. Call your technical support department for assistance.

Feature packaging

This implementation is required for all new system installations and system upgrades as of X11 release 15.

The ACD DNs and ACD Agent and Supervisor parameters are included only if the basic ACD, package 40, is equipped.

To configure AST DNs, Command Status Link (CSL), package 77, and Application Module Link (AML), package 209, must be equipped.

Feature implementation

The following programs contain new headers to indicate the total system limits allowed, and the current system usage. New error messages are also added to warn when the limits are reached.

- LD10: 500/2500 telephones
- LD11: digital telephones
- LD12: attendant consoles
- LD13: Digitone receivers and tone detectors
- LD14: trunks
- LD17: D-channels (DCH) and Application Module Links (AMLs)
- LD23: ACD DNs
- LD27: Digital Subscriber Loops (DSLs) and Logical Terminal Identifiers (LTIDs)

Note 1: The ACD parameters are allowed only if ACD is equipped.

Note 2: Prior to X11 release 17, ACD groups are defined as ASTs at the group level in LD23. As of X11 release 17, each agent can be defined individually using LD10 and LD11. As a consequence, customers must reconfigure ACD ASTs manually through LD10 and LD11 when upgrading to X11 release 17.

Note 3: DSLs and LTIDs apply to Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) only. Refer to *ISDN Basic Rate Interface description* (553-3901-100) for more information.

The following implementation procedures show the header increments when TNs, ACD positions, ACD DNs, or AST DNs are added or deleted. Other than the headers, the programs have not changed. LD22 contains a new response to query system limits.

LD10- Add a 500-type telephone.

MEM AVAIL: (U/P): 189162	USED: 154594	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 10	USED: 390	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SETS AVAIL: 10	USED: 3	TOT: 13

REQ	NEW	Add a new telephone
TYPE	500	Telephone type
TN	1 0 1 0	Terminal Number

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 9	USED: 391	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

LD11-Add a SL-1 or Meridian digital telephone.

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 9	USED: 391	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SETS AVAIL: 10	USED: 3	TOT: 13

REQ	NEW	Add a new telephone
TYPE	SL-1	Telephone type
TN	1 0 1 0	Terminal Number

MEM AVAIL: (U/P): 189042	USED: 154714	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 8	USED: 392	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SETS AVAIL: 10	USED: 3	TOT: 13

LD12- Add an attendant console.

MEM AVAIL: (U/P): 189042	USED: 154714	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 8	USED: 392	TOT: 400

REQ	NEW	Add a new console
TYPE	1250	Console type
TN	4 0 5 0	Assign this as the primary TN
CDEN	D D	Double Density card
SETN	4 0 5 1	Assign this as the secondary TN

MEM AVAIL: (U/P): 188867	USED: 154889	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 6	USED: 394	TOT: 400

LD13- Add a Digitone receiver.

MEM AVAIL: (U/P): 188867	USED: 154889	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 6	USED: 394	TOT: 400

REQ	NEW	Add a new DTR
TYPE	DTR	Add a new DTR
TN	158 0 10 0	Assign the DTR to this TN

MEM AVAIL: (U/P): 189857	USED: 154899	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 5	USED: 395	TOT: 400

LD14- Add a trunk.

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 5	USED: 395	TOT: 400

REQ	NEW	Add a new trunk
TYPE	TIE	Add a new tie trunk
TN	8 0 5 2	Assign the trunk to this TN

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISC RECS AVAIL: 94		
TNS AVAIL: 4	USED: 396	TOT: 400

LD17- Add a D-channel (DCH).

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISC RECS AVAIL: 94		
DCHS AVAIL: 7	USED: 8	TOT: 15
AMLS AVAIL: 5	USED: 4	TOT: 9

REQ	CHG	Add a DCH
TYPE	CFN	Configuration Record
ADAN	NEW DCH 6	Add a primary DCH on port 6

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISC RECS AVAIL: 94		
DCHS AVAIL: 6	USED: 9	TOT: 15
AMLS AVAIL: 5	USED: 4	TOT: 9

LD17- Add an Application Module Link.

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISC RECS AVAIL: 94		
DCHS AVAIL: 7	USED: 8	TOT: 15
AMLS AVAIL: 5	USED: 4	TOT: 9

REQ	CHG	Add a DCH
TYPE	CFN	Configuration record
ADAN	NEW AML 4	Add an AML on port 4

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISC RECS AVAIL: 94		
DCHS AVAIL: 6	USED: 9	TOT: 15
AMLS AVAIL: 4	USED: 5	TOT: 9

LD23- Add an ACD DN.

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISC RECS AVAIL: 94		
ACD DNS AVAIL: 5	USED: 10	TOT: 15

REQ	NEW	Add a new ACD DN
TYPE	ACD	Add a new ACD queue
CUST	1	Customer number
ACDN	7700	Assign this ACD DN

MEM AVAIL: (U/P): 188513	USED: 155243	TOT: 343756
DISC RECS AVAIL: 94		
ACD DNS AVAIL: 4	USED: 11	TOT: 15

LD27- Add a Digital Subscriber Loop (DSL).

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISC RECS AVAIL: 94		
DSLS AVAIL: 4	USED: 6	TOT: 10
LTIDS AVAIL: 4	USED: 8	TOT: 12

REQ	NEW	Add a DSL
TYPE	DSL	Add a DSL
DSL	I s c dsl	DSL address

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISC RECS AVAIL: 94		
DSLS AVAIL: 4	USED: 6	TOT: 10
LTIDS AVAIL: 4	USED: 8	TOT: 12

LD22-Print the system limits.

REQ	SLT	Prints the limits established for the system, the used parameters, and the quantities remaining.
-----	-----	--

Additionally, to print complete information regarding system parameters, use the following print routine:

Parameter	LD	Prompt	Response
TNs	LD20	REQ	LTN
	LD21	REQ	PRT
		TYPE	CDB
ACD DNs	LD23	REQ	PRT
ACD positions	LD81	REQ	LST
		FEAT	ACD

New error messages

CAUTION

System information will be lost.

With ISM in X11 release 15.55 and later software, if SYS message 4327, 4328, 4329, or 4330 appears at sysload, sysload previous system disks. Order ISM disks with sufficient system parameters configured. Call your technical support department for assistance.

The following error messages relate to ISM administration. For a complete list and description of all error messages, see *X11 input/output guide* (553-3001-400).

Note: In LD10, the Service Change (SCH) messages appear only after the FTR prompt has been answered. In LD11, the messages appear only after the KEY prompt has been answered.

Message	Event	Action
SCH5069	The number of TNs exceeds the limit.	New disks required
SCH5070	The number of ACD Agents (including agents and supervisors) exceeds the limit.	New disks required
SCH5071	The number of ACD DN and CDNs exceeds the limit.	New disks required
SCH5072	The number of AST sets exceeds the limit.	New disks required
BUG5119	The number of TNs configured for the system is Ø.	New disks required
BUG5120	The number of ACD Agents (including agents and supervisors) configured for the system is Ø.	New disks required
BUG5121	The number of ACD DN configured for the system is Ø.	New disks required
SYS4327 DO NOT DATADUMP. SYSTEM INFORMATION WILL BE LOST.		
	The TN limits are exceeded and cannot be sysloaded. See note.	New disks required
SYS4328 DO NOT DATADUMP. SYSTEM INFORMATION WILL BE LOST.		
	The ACD Agent (including agents and supervisors) limits are exceeded and cannot be sysloaded. See note.	New disks required
SYS4329 DO NOT DATADUMP. SYSTEM INFORMATION WILL BE LOST.		
	The ACD DN limits are exceeded and cannot be sysloaded. See note.	New disks required
SYS4330 DO NOT DATADUMP. SYSTEM INFORMATION WILL BE LOST.		
	The AST set limits are exceeded and cannot be sysloaded. See note.	New disks required
Note: Do not datadump when this message appears, or system information will be lost.		

Feature operation

There is no specific procedure for operating this feature.

Integrated Messaging System Link

The primary objectives of Integrated Messaging System Link (IMS) 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 records, 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 SL-1 and Meridian digital telephone signaling can connect to the attendant or to some other pre-defined DN (one DN for the entire Meridian SL-1) by pressing Ø. Callers with 500/2500 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 SL-1 system must have either Dual Tone Multifrequency (DTMF), SL-1, or Meridian digital telephone signaling capabilities. Users outside the Meridian SL-1 must have DTMF signaling.

Feature interactions

There are no feature interactions.

Feature packaging

Integrated Messaging System (IMS), package 35, requires the following features:

- Basic ACD (BACD), package 40
- ACD Package A (ACDA), package 45
- Message Center (MWC), package 46

Systems with X11, release 10, and later software also require the Auxiliary Processor Link (APL), package 109.

Feature implementation

LD17-Add or change the link to a messaging system (X11 release 17 and later software).

REQ	CHG	Change
TYPE	CFN	Configuration Record
IOTB	YES, NO	Allow changes to input/output devices
ADAN	NEW, CHG TTY 0-15	Add or change a messaging system link to the SL-1
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 (see note 2)
AXQO	20-255	Number of call registers to be used for output of messages to the messaging system (see note 2)
<p>Note 1: Before adding, changing, or removing a link, the device must be disabled. Refer to the <i>X11 input/output guide</i> (553-3001-400) for overlay programs and commands to disable or enable devices.</p> <p>Note 2: If the number of call registers defined for the Meridian SL-1 system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25% of the system call registers.</p>		

LD17-Add or change the link to a messaging system for X11 release 18 or later.

REQ	CHG	Change
TYPE	CFN	Configuration Record
IOTB	YES, NO	Allow changes to input/output devices
ADAN	NEW, CHG TTY 0-15	Add or change a messaging system link to the SL-1
CTYP	aaaa	Card type aaaa = DCHI, MSDL, MSPS, SDI, SDI2, SDI4, 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
<p>Note 1: Before adding, changing or removing a link, the device must be disabled. Refer to the <i>X11 input/output guide</i> (553-3001-400) for overlay programs and commands to disable or enable devices.</p> <p>Note 2: If the number of call registers defined for the Meridian SL-1 system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25% of the system call registers.</p>		

LD15-Add or change the IMS feature for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	MCI, MCX	Include or exclude IMS
IMS	YES, NO	Allow or don't allow changes to the IMS feature
IMA	YES, NO	IMS feature is or is not enabled
APL	0-15	Port number of the link to the messaging system
UST	YES, NO	User Status Update (UST) feature is or is not enabled
APL	0-15	Port number of the link from UST to the messaging system
UMG	YES, NO	User-to-User Messaging (UMG) feature is or is not enabled
APL	0-15	Port number of the link from UMG to the messaging system

LD23-Add or change ACD data for Integrated Messaging System Link feature.

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	YES, NO	ACD is or is not an IMS
IMS	YES, NO	Allow or doesn't allow changes to the IMS feature
IMA	YES, NO	ACD DN is or is not used as an IMS DN
APL	0-15	Port number of the link to the messaging system
UST	YES, NO	User Status Update (UST) feature is or is not enabled
APL	0-15	Port number of the link from UST to the messaging system
UMG	YES, NO	User-to-User Messaging (UMG) feature is or is not 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	0-15	Time, in seconds, of silent interval after alert tone on RAN (default is 6 seconds)

LD11-Add or change IMS attendant capability for each telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	IMA, IMD	This telephone is or is not 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 xxxx = IMS Directory Number (DN) yyyy = Agent ID Note: IMS DN and Agent ID can have up to 7 digits if DN Expansion package is equipped
	xx MIK xx MCK xx NRD xx MSB	Add a Message Indication (MI) key Add a Message Cancellation (MC) key Add a Not Ready (NR) key Add a Make Set Busy (MSB) key

Feature operation

There is no specific procedure required to operate this feature.

Integrated Services Digital Network

Integrated Services Digital Network (ISDN) is the new standard in digital communications. Phase 1 of ISDN, which is implemented in X11 release 12 and later software, provides Primary Rate Access (PRA) to host computers, other PBXs, and central office (CO) switches. Refer to *ISDN Primary Rate Interface description and administration* (553-2901-100) for additional information.

Operating parameters

Refer to *ISDN Primary Rate Interface description and administration* (553-2901-100) for a complete description of the following ISDN features:

- Backup D-channel
- Basic Call Service
- Calling Line Identification
- Data Packet Network access
- Digital Trunk Interface replacement
- Electronic Switched Network interworking
- Integrated Services Access
- ISDN Signaling Link
- Integrated Trunk Access
- Network Call Party Name Display/Network Call Redirection
- Network Message Services
- Network Ring Again
- Remote Virtual Queueing
- Software Defined Network access
- Software Release ID
- T309 Timer
- Trunk Optimization (before answer)

Feature interactions

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

Feature packaging

Integrated Services Digital Network (ISDN), package 145, has no feature package dependencies.

Feature implementation

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

Feature operation

There is no specific procedure required to operate this feature.

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 SL-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 programs (LD10 and LD11) are used to enter the hardware into the office data.

Refer to the Northern Telecom Publication *Meridian Data Services* series (553-2731-100 through 553-2731-300) for further details.

Operating parameters

Hunting is not allowed with the Modem Pool Line Card (MPLC) pack.

No 500/2500 telephone may be assigned to the MPLC pack.

Co-located 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 (553-2731-*ZZZ*).

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD11-Add or change SL-1 telephone (of an SL-1 telephone/Add-on Data Module (ADM) pair) associated with a Data Line Card (DLC) data port pair.

REQ	CHG	Change
TYPE	SL1	Telephone type
TN	l s c u	Terminal Number (TN): SL-1 telephones are restricted to unit 0 or 2 when co-located 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	Key 0, Voice Frequency Directory Number (DN) (VFDN)
	2 TRN	Key 2, Call Transfer key
	9 RLS	Key 9, Release key
		Note: Other feature keys may be associated as required, subject to the limitations imposed by the companion ADM.

LD11-Add or change ADM (of an SL-1 telephone/ADM pair) associated with a Data Line Card (DLC) data port pair.

REQ	CHG	Change
TYPE	SL1	Telephone type
TN	l s c u	Terminal Number (TN): 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, then the unit for ADM must be 3)
CDEN	SD, DD	Single or double density card
CLS	WTD	Warning Tone Denied (WTD)
KEY	0 DN xxxx	Key 0, data Directory Number (DN); can have up to 7 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 may 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; that is, 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.

LD11-Add or change DLC data port associated with a stand-alone ADM.

REQ	CHG	Change
TYPE	SL1	Telephone type
TN	I s c u	Terminal Number (TN)
CDEN	SD	Single density card
CLS	WTD	Warning Tone Denied (WTD)
KEY	0 DN xxx...x	Key 0, data Directory Number (DN)
	9 RLS	Key 9, Release key
Note: Other features/functions must not be assigned to keys 1-8.		

LD11-Add or change IDLC port associated with an AIM.

REQ	CHG	Change
TYPE	SL1	Telephone type
TN	I s c u	Terminal Number (TN): for AIM, unit 1 or 3 should be used
CDEN	SD	Single density card

LD11-Add or change IDLC port associated with an AIM.

CLS	WTD	Warning Tone Denied (WTD)
KEY	0 DN xxx...x	Key 0, data Directory Number (DN)
	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: Before X11 release 13, the number of Speed Call Lists is limited to 253.
	9 RLS	Release key, must be key 9

LD16-Define trunk route for each data port group (modem pool).

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	Yes, (No)	SL-1 is or is not the only controlling party on incoming calls

LD14-Define a DLC as a trunk for each data port within the data port group.

REQ	NEW, CHG	Create a new trunk or modify an existing one
TYPE	ADM	ADM trunk
TN	I s c u	Terminal Number

LD10-Define a Modem Pool Line Card (MPLC) for each modem in the data port group.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CDEN	SD, DD, 4D	Single, double, or quad density card
DN	xxx...x	Voice Frequency Directory Number (DN) (VFDN); must be the same as that telephone by switches in the ADM

Note: The trunk route defined for the data port group in LD16 cannot be used.

LD16-Define a route data block for each Central Office (CO), FEX, tie, or WATS trunk route to a remote system.

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

LD14-Define each trunk within the route.

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

Not applicable.

Intercept Treatment

Calls that cannot be completed because of call restrictions or dialing irregularities can be routed to a Recorded Announcement (RDN), 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
- Controlled Class of Service Allowed (CCSA) or Direct Inward Dialing (DID) trunk

Operating parameters

When Intercept to RAN is desired, you must have a recording device. 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 (LD15) for the situations as listed in Table 93-1.

Table 93-1
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
<p>O = overflow tone A = intercept to the attendant C = choice of overflow tone, attendant, or Recorded Announcement (RAN) NA = not applicable DISC = call disconnected</p> <p>Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with C , a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.</p>				

Feature interactions (FFCs)

- 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.
- Basic/Network Alternate Route Selection (BARS/NARS)
Table 93-2 specifies the type of Intercept Treatments (INTR) available for BARS/NARS calls, and lists the intercept situations that are possible.

Table 93-2
Intercept Treatment for BARS/NARS calls

Intercept situation	Station or DISA	Originating Party		CCSA/DID trunk
		Attendant extended calls	Tie trunk (including attendant)	
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)
<p>O = overflow tone</p> <p>A = intercept to the attendant</p> <p>C = choice of overflow tone, attendant, or Recorded Announcement (RAN)</p> <p>NA = not applicable</p> <p>DISC = call disconnected</p> <p>Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with C , a choice can be made between overflow, attendant busy or a RAN. Four entries are required for each intercept situation.</p>				

Feature packaging

Intercept Treatment (INTR), package 11, has no feature package dependencies.

Feature implementation

LD15-Change customer’s Intercept Treatment for various call types.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
INTR	Yes, (No)	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	xxx	RAN route number for intercepted calls

Feature operation

Not applicable.

ISDN Basic Rate Interface

Meridian 1 ISDN BRI supports network functions defined by CCITT, ANSI, ETSI, and NET64 standards (and other standards such as BellCore) for ISDN BRA. These standards create a universal digital network to facilitate voice and data communications that use different transmission protocols, existing networks, and diverse communication equipment.

ISDN BRI is a digital port that integrates three digital channels on one digital subscriber loop (DSL). The three digital channels consist of two 64 kbps B-channels and one 16 kbps D-channel. B-channels can be automatically assigned and reassigned to different voice and data terminals in circuit-switched applications or they can be dedicated to specific terminals for packet data applications. A D-channel is permanently dedicated to a DSL and is used for signaling and low speed packet data transmission. The ability to dynamically connect different terminals on one DSL provides more flexibility, connectivity, and service diversity than the conventional hard wired connections where each channel is dedicated to one terminal.

Operating parameters

Refer to the following publications:

- *ISDN Basic Rate Interface description* (553-3901-100)
- *ISDN Basic Rate Interface installation* (553-3901-200)
- *ISDN Basic Rate Interface maintenance* (553-3901-500)

Feature interactions

Refer to the documents listed for your system.

Feature packaging

ISDN Basic Rate Interface (BRI), package 216, requires the following:

- Integrated Services Digital Network (ISDN), package 145
- Multi-purpose Serial Data Link (MSDL), package 222

Feature implementation

Refer to *ISDN Basic Rate Interface description* (553-3901-100).

Feature operation

There is no specific procedure required to operate 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 SL-1 and Meridian digital telephones, or by dialing SPRE + 89 on 500/2500 telephones. The M3000 and the M2317 telephones have LNR as a local telephone (firmware) feature instead of as a system feature.

The number is stored whether the call rings, is busy or answered, or if a valid access code is dialed with the number. Only one number, composed of up to 32 digits (including access codes), may 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 may be dialed before the stored number, except Authorization, Charge Account, or Forced Charge Account codes. However, additional digits may follow the outputted LNR number.

Feature Interactions

- Autodial
A number dialed using Autodial will become the LNR number on all telephones except the M2317 and M3000.

- Call Modification

When a Call Modification takes place at the called Directory Number (DN), 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
 - 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 SL-1 and Meridian digital telephones (using key)
 - Call Park
 - Dial Intercom
 - Group Call
 - Special Services Access Codes
- 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.
 - 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 may be used to complete the dialing.
 - 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

LD15-Enable or disable LNR for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	LRA, (LRD)	LNR allowed or denied

LD10-Add or change LNR for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number (TN)
CLS	LNA, (LND)	LNR allowed or denied
LNRS	4-(16)-32	LNR size

LD11-Add or change LNR for SL-1 or Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2616
TN	l s c u	Terminal Number (TN)
CLS	LNA, (LND)	LNR allowed or denied
LNRS	4-(16)-32	LNR size
KEY	xx LNK	LNR key 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 (500/2500 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 you to define up to 100 login passwords in the configuration record (LD17), each with its own set of access restrictions. For each Limited Access Password (LAPW), you 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 LD20 may or may not include access to the Speed Call lists.
- Access to the Configuration Record (CFN) LD17 can be restricted to:
 - no access at all to LD17
 - 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:
 - 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: LD20-22 and LD81-83.
 - System commands in Traffic LD02 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 LD17, prompts PWD2, NPW1, NPW2 and LD15, prompts ATAC and SPWD in *X11 input/output guide* (553-3001-400).

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 (upper-case letters only)
- four to sixteen characters in length with no spaces
- leftwise unique
- different than existing passwords.

For example, acceptable passwords may include:

- JSMITH
- 0001
- 2GUEST
- CRAFTSPERSON

System administrators using PWD1 and PWD2 in LD17 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 (LD17). Any other requests generate the following system message:

SCH8836 PASSWORD HAS PRINT ONLY CLASS OF SERVICE.

After calling up a LD, certain commands may 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.

Log on attempts are monitored for security. Failed attempts with invalid passwords are counted and the tally is compared with a pre-defined threshold. If the threshold is met or passed, the entry point (TTY or terminal) is locked out for a pre-determined 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 96-1
Example of Audit Trail printout (LD22)

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 LD22.

Administrators can change the size of the Audit Trail buffer, from 50 to 1000 words (divisible by 50). When the buffer is full, new records overwrite the oldest information in the buffer (OVL401 message is sent to the active TTY and all maintenance TTYs). Printing the Audit Trail in LD22 clears the buffer.

Operating parameters

The LAPW feature should only be enabled on a system with a completed Configuration record in LD17-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 can not have more than one password defined for any one access configuration.

Feature interactions

This feature has no interactions with other feature packages.

Feature packaging

Limited Access to Overlays (LAPW), package 164, must be enabled for this feature to operate.

Feature implementation

Implementing the LAPW feature requires you change the Configuration record (CFN), LD17. You must respond to the following prompts in LD17.

LD17-Define LAPW options and passwords. (Part 1 of 2)

REQ	CHG, END	Change data or terminate overlay
TYPE	CFN	Configuration data block
PWD2	xxxx	Current Level 2 master password
_NPW1	xxxx	New level 1 Log-in password
_NPW2	xxxx	New level 2 master password
LAPW	0 - 99	LAPW password number
_PWnn	dd...d	New password for nn above
	<cr>	No more changes to LAPW
_OVLA	xx xx xx . . .xx, ALL, (XALL)	Add these overlays to the list accesses 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.

LD17-Define LAPW options and passwords. (Part 2 of 2)

HOST	Yes, (No)	Host mode
_OPT	aaaa	Password Options allowed
	CFPD, (CFPA)	Changes to all LD17 prompts denied (allowed)
	LLCA, (LLCD)	Line Load Control commands in allowed (denied)
	PROA, (PROD)	Print Only Class of Service allowed (denied)
	PSCD, (PSCA)	Printing Speed Call lists (allowed) denied
LAPW	<cr>	Stop defining passwords.
_FLTH	0-(3)-7	Failed log-on attempt threshold
_LOCK	0-(60)-270	Lock-out time in minutes
_AUDT	Yes, (No)	Audit Trail allowed (denied)
_SIZE	(50)-1000	Word size stored in the Audit Trail buffer
	(0)-65534	For release 18 and later
_INIT	Yes, (No)	Reset ports locked out during manual INIT.

LD17-Change user's LAPW password (user must log in using current LAPW).

REQ	CHG	Change password options
PWD2	<CR>	Level 2 master password
_LPWD	aaaa	Log on Password for LAPW user
_NLPW	xx . . . x	New log on password for LAPW user

LD22-Check options available for LAPW passwords (administrator).

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 log-on 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	xxxxLevel 1 master password
PWD2	xxxx	Level 2 master password
	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

LD22-Print options for LAPW password (user).

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

LD22-Print contents of Audit Trail buffer (allowed if using PWD1 or PWD2).

REQ	PRT	Print
TYPE	AUDT	Audit Trail

Feature operation

For information on setting and changing LAPW passwords, see [Feature implementation](#) on page 96-4.

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 (CLS) of the station or trunk. There are four CLS options for LLC:

- LLC N No LLC
- LLC 1 First LLC CLS
- LLC 2 Second LLC CLS
- LLC 3 Third LLC CLS

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 level operating restricts another class of stations and the classes below it.

Figure 97-1 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 (CLS) are limited by the feature, while LLC 3 calls function normally. When F T is enabled, only those stations with LLC N CLS are allowed to originate calls without restrictions.

Probability levels set by 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 (CLS). A Probability setting of 100 means all calls are restricted when that CLS is enabled. Numbers between 0 and 100 are treated as a percentile of calls blocked.

During call processing, LLC screens calls to find the CLS 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 97-1
LLC, system control levels (hierarchy and overlap of operative levels)

Station Class of Service				
	LLCN	LLC1	LLC2	LLC3
T	Stations immune to LLC	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)
- Hot line services

Feature interactions

- Established calls are not affected by LLC upgrades, only new calls attempted.
- The system counts the calls denied for each CLS, and prints the traffic data periodically as part of the Processor Load Format TFS004.

Feature packaging

Line Load Control (LLC), package 105, must be enabled for this feature to operate.

Feature implementation

LD10-Add or change Line Load Control for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number (TN)
CLS	LLCN	LLC not enabled (default)
	LLC1	LLC class 1
	LLC2	LLC class 2
	LLC3	LLC class 3

LD11-Add or change Line Load Control for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number (TN)
CLS	LLCN	LLC not enabled (default)
	LLC1	LLC class 1
	LLC2	LLC class 2
	LLC3	LLC class 3

LD2-Set Line Load Control levels.

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

Not applicable.

Line Lockout

When a user remains offhook 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. SL-1, Meridian digital 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. SL-1 and Meridian digital telephones are idled, and 500/2500 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
- 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 (CPND) 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 LD15, 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 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 (for example, if the wrong access code is dialed, or if the telephone is not allowed to dial the Trunk Access (TRC) code) is intercepted to the attendant on overflow timeout.

Feature packaging

This feature is included in basic X11 system software.

Feature implementation

LD15-Implement Flexible Line Lockout for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
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)	Overflow tone, then lockout
	OFA	Overflow tone, then attendant intercept
	ATN	Attendant intercept
DLT		Line lockout treatment for Direct Inward System Access (DISA) calls
	(OVF)	Overflow tone, then lockout
	OFA	Overflow tone, then attendant intercept
	ATN	Attendant intercept
DIND	2-(30)-60	Dial tone and interdigit timeout for SL-1, Meridian 1 digital 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

Not applicable.

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) (8 ports per card)
 - QPC60 (sd) (4 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) (8 ports per card)
 - QPC267 (sd) (4 ports per card)

- SL-1 Telephone Line Card
 - QPC451 (dd) (8 ports per card)
 - QPC61 (sd) (4 ports per card)
- Attendant Console Line Card
 - QPC451 (dd) (8 ports per card; 4 ports per console)
 - QPC61 (sd) (4 ports per card; 4 ports per console; card must be vintage C or later)
- Integrated Services Digital Line Card (ISDLC)
 - QPC578 (4d) (16 logical ports per card; 8 physical ports; 8 for voice/8 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 8: CO, DID, FX, RAN, Paging (low resistance), WATS, TIE, Music)
- NT8D15AA E&M (Any combination of 4: 2-wire E&M, 4-wire E&M, 4-wire duplex, Paging (high resistance), Emergency Recorder)

Digitone Receivers (DTR)

Digitone Receivers convert DTMF (Dual Tone Multi-Frequency) signals to a digital format acceptable by the 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 (8 Digitone Receivers)

Controller Cards

Controller cards provide the interface and control between the Network cards and telephone, consoles, and trunks. These cards are always installed in a dedicated slot in the IPE module. One Controller card is required per IPE module.

- NT8D01AD Controller-2 (Connects up to 2 superloops to one IPE module)
- NT8D01AC Controller-4 (Connects up to 4 superloops to one IPE module)

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 1- to 4-digit Maid ID.

The MI keyword is used with the Background Terminal SEt SStatus 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 SStatus command
- Room Key (RMK) Operation
- Dial Access method
- Off-hook Detection
- Controlled Class of Service (CCOS) key operation

Note: For Off-hook Detection and CCOS key operation, the Maid ID always defaults to zero.

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 LD15. Any other lockout definition prohibits Maid ID use with Off-hook Detection, see the *X11 input/output guide* (553-3001-400).

Feature packaging

Maid Identification (MAID), package 210, requires

- Maid Identification (MAID), package 210
- Background Terminal (BGD), package 99
- Room Status (RMS), package 100
- Controlled Class of Service (CCOS), package 81

Optional packages include

- Property Management System (PMS), package 103
- Flexible Feature Codes (FFC), package 139
- 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
 - 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 4, and step 8. Steps 5, 6, and 7 have been added with Maid ID. If these new steps are skipped, the system sets the Maid ID to zero.

- 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 dial 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. Hang up or press **RLS**.

- 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 an SL-1 or Meridian digital telephone to appear busy to all incoming calls. Outgoing calls can still be made from the telephone. To activate this feature, a separate MSB key/lamp pair must be assigned. Incoming calls to Multiple Appearance Directory Numbers (MADNs) in the MSB mode are still signified by the indicator next to the Directory Number (DN) key, and can be answered even while MSB is active. Calls to any Single Appearance Directory Number on the telephone receive a busy indication. MSB does not affect incoming Private Line calls.

Operating parameters

MSB does not apply to 500/2500 telephones.

Feature interactions

- Call Forward All Calls
Call Forward All Calls and then Hunting take precedence over MSB.
- Voice Call
Voice Call is blocked by MSB.
- Automatic Call Distribution
See *Automatic Call Distribution basic features description* (553-2671-100) for information on MSB operations.

Feature packaging

MSB, package 17, has no feature package dependencies.

Feature implementation

LD11-Add or change MSB for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number (TN)
KEY	xx MSB	Add a 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.

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, SL-1 and Meridian digital telephones, 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
- 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 printing of the MCT record is preceded by a bell sound on the maintenance TTY. In the printout, only the console's primary Terminal Number (TN) is reflected in the TN field.

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.

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 MCT feature is not available on Automatic Call Distribution (ACD) telephones.

The TRC key cannot be assigned as a softkey on Meridian digital telephones.

Feature interactions

- 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 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.
- History File
The MCT records are stored in the History File if it has been defined as a maintenance (MTC) user in LD17.
- Traffic Measurement
The MCT feature is added to the feature key list for traffic measurements (Peg Count TFC005).

Feature packaging

Malicious Call Trace (MCT), package 107, has no feature package dependencies.

Feature implementation

LD10-Add or change Malicious Call Trace for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	MCTA, (MCTD)	MCT allowed or denied
	XFA, (XFD)	Call Transfer allowed or denied
Note: When MCTA is assigned, the telephone must also have XFA defined.		

LD11-Add or change Malicious Call Trace for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	MCTA, (MCTD)	MCT allowed or denied
KEY	xx TRC	MCT key (LED not required) xx = key number
Note: When MCTD is assigned, the MCT key is removed.		

LD12-Add or change Malicious Call Trace for attendant consoles.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	l s c u	Terminal Number
KEY	xx TRC	MCT key xx = 0-9 (QCW and M1250) xx = 0-19 (M2250)

Feature operation

To trace a malicious call from a 500/2500 telephone:

- 1 Flash the switchhook or press **Link**. A special dial tone signifies that the call is on hold.
- 2 Enter SPRE+83. You are connected to the call.

To trace a malicious call from an SL-1 or Meridian digital 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 connected to the call.

To trace a malicious call from an SL-1 or Meridian digital telephone using the Trace (TRC) key:

- 1 Press **Call Trace**. You remain connected to the call.

Manual Line Service

Manual Line Service allows all calls made from 500/2500 telephones defined as manual telephones to be handled automatically by an attendant. When the caller goes offhook, the attendant is contacted immediately. Calls can be placed to telephones with Manual Line Service.

Operating parameters

Manual Line Service applies only to 500/2500 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 (CLS) are routed to the telephone designated as the night number for the customer group.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD10-Define class of service (CLS) for Manual Line telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number (TN)
DN	xxx...x	Directory Number (DN) assigned to the telephone
CLS	MNL	Arrange telephone for manual service

Feature operation

To use Manual Line Service from a 500/2500 telephone, lift the handset. You are automatically connected to the attendant.

Manual Signaling (Buzz)

Manual Signaling (Buzz) permits an SL-1 or Meridian digital telephone user to sound a buzztone 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 500/2500 telephones. Only Single Appearance Directory Numbers can be buzzed.

Feature interactions

Not applicable.

Feature packaging

Manual Signaling (Buzz) is included in basic X11 system software.

Feature implementation

LD11-Add or change Manual Signaling (Buzz) for SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number (TN)
KEY	xx SIG yyy...y	Add a Manual Signaling (Buzz) key xx = key number 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 (CLS), 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

Not applicable.

Feature packaging

This capability is included in basic X11 system software.

Feature implementation

LD16-Add or change an incoming manual trunk route.

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

LD14-Add or change an incoming manual trunk.

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 (TN)
CUST	xx	Customer number
RTMB	rrr mmm	Route and member number
MNDN	xxx...x	Directory Number (DN) for automatically terminate
SIGL	aaa	Trunk signaling aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, OAD
STRI	IMM	Incoming start arrangement
SUPN	Yes, (No)	Answer and disconnect supervision required or not required
CLS	MIA, (MID)	Manual incoming service allowed or denied

LD16-Add or change an outgoing manual trunk route.

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 aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, ISL, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, WAT
ICOG	OGT	Outgoing route
ACOD	xxxx . . x	Trunk route access code
MANO	Yes	Enable manual outgoing trunk route

LD14-Add or change an outgoing manual trunk.

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 (TN)
CUST	xx	Customer number
RTMB	rrr mmm	Route and member number
MNDN	xxx...x	Directory Number (DN) for automatically terminate
SIGL	aaa	Trunk signaling aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, OAD

Feature operation

Not applicable.

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 (PMSI).

Meridian Hospitality Voice Services (MHVS) 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. Meridian HVS allows Meridian Mail to intercept messages over the Property Management System Interface (PMSI) and passes to the Meridian 1 only those messages required. Should Meridian Mail ever fail, a bypass switch allows the Meridian 1 to link directly with the Property Management System (PMS).

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 Meridian HVS commands on M2317 and M3000 telephones when Controlled Class of Service (CCOS) has been activated. Dial access must be used to operate Meridian HVS 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), then 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 these conditions:

- The system is in Night Service Mode
- 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 Meridian HVS.

Feature interactions

- **Attendant End to End Signaling (EES)**
Attendant EES (which uses Dual Tone Multifrequency (DTMF) 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 may 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 Case 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 may assist callers in Meridian Mail activities. The attendant may 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 (DN) into DND mode. A DN in this mode is free to originate calls, but appears busy to incoming calls. With Meridian HVS 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 LD15 must both be set to YES.
- **M2317, M3000, and Meridian Modular softkey menus**
M2317 or M3000 softkey menus are not supported by Meridian HVS. 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.
- 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.
- Pretranslation
Prior to Meridian HVS, the setup of calls using the Applications Module Link (AML) was not supported from telephones using the Pretranslation feature. With HVS equipped, call setup using the AML is supported.
- 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

Meridian HVS requires

- Meridian Hospitality Voice Services (HVS), 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 (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
 - 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)

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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 500/2500.

CAUTION

Because there is a potential impact on the Meridian 1 CPND database when using the VMBA application, users should read with care the sections entitled Name processing considerations on page 108-4 and Site with a preconfigured Meridian Mail database on page 108-15.

Operating parameters

The appropriate VMB class of service¹ must be defined on Meridian Mail before the Meridian 1 can add VMBs. Otherwise, Meridian Mail transaction errors will occur.

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.

1. A Meridian Mail class of service specifies a particular set of Meridian Mail options.

The VMB status printed in LD20 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 set is being relocated.

A telephone that is relocated out but not relocated back in can still have an active VMB. A relocated set must be deleted manually on the Meridian 1 before its associated VMB is removed.
- 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 108-4 and Name processing considerations on page 108-4 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 108-1 shows the data that is stored and synchronized between Meridian 1 and Meridian Mail.

Table 108-1
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.

Note: 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 contents of 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
- 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
- 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 108-2.

Table 108-2
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 108-2.

Table 108-3
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 LD17 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 108-4
LD17-Configuring the VMBA application

Prompt	Response	Description
REQ	NEW	
TYPE	CFN, VAS	Configuration Data Block 1
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 LD17. 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 application are enabled. See Tables 108-5 and 108-6.

Table 108-5
LD10-Add a VMB on a 500/2500 telephone

Prompt	Response	Description
REQ	NEW, CHG	DN related data
TYPE	500, 2500	
TN	l s c u	
CUST	0-99	Customer number
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	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

Table 108-6
LD11-Add a VMB on a digital telephone

Prompt	Response	Description
REQ	NEW	
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 LD17 on the VAS associated with Meridian Mail. See Table 108-4 page 108-11. 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 108-5 and 108-6.

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 LD48 to enable it. See *Enabling the VMBA application* on page 108-17.
- 4 When the VMBA application is enabled, the system will begin downloading the preconfigured database to Meridian Mail. Use the PRT VMB option in LD20 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 LD48 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 108-26.

To determine the status of the audit, use the STAT VMBA <vsid> AUDT command in LD48. 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. LD48 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 108-4 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 LD17 on the VAS associated with Meridian Mail. See Table 108-4, on page 11. 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 LD17. 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 LD48:

ENL VMBA <vsid> UPLD ALL

To check the status of the upload, enter the following command in LD48:

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 LD48:

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 LD17 to configure the VMBA application. See Table 108-4, on page 11. 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 LD48.
- 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 LD48 or until the application is equipped on MM9.

If the VMBA application is not automatically enabled, use the following command in LD48 to enable it:

ENL VMBA <vsid>

where <vsid> is the VAS identifier, in the range of 0-15.

Disabling the VMBA application

LD48 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

LD48 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 108-7.

Table 108-7
VMBA Application States

State	Explanation
INACTIVE	<p>The application has been configured in LD17 but is inactive for one of the following reasons:</p> <ul style="list-style-type: none"> - An application session request was sent to Meridian Mail but confirmation has not yet been received. - Meridian Mail is not configured to support the VMBA application (it does not have the application equipped, or it is running on MM8 or earlier). - A FAILED TO ENABLE APPLICATION message on the TTY indicates a reason why the application is inactive.
MANDIS	The application was manually disabled using LD48.
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 Tables 108-5 on page 108-12 and Table 108-6 on page 108-13. Use LDs 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 craftsperson 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 as a prompt after the craftsperson 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 craftsperson to move a user from one telephone type to another without having to delete and recreate 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 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 multi-appearance DN group, the VMB for the Multi-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 LD20 to facilitate printing VMB data after it is entered.

LD20 provides three ways to print VMB data:

- Use the PRT DNB command to print the DN block. See Table 108-8.

Table 108-8**LD20 - Print the DN block**

Prompt	Response	Description
REQ	PRT	DN related information Customer Number Directory Number
TYPE	DNB	
CUST	0-99	
DN	xxxx	

- Use the PRT TNB command to print the TN block. See Table 108-9.

Table 108-9**LD20 - Print the TN block**

Prompt	Response	Description
REQ	PRT	TN block, or any telephone configured in LD11
TYPE	TNB, aaaa	
TN	l s c u	Terminal Number

- Use the PRT VMB command to print the VMB DN and VMB state. See Table 108-10. For a definition of each state, see Table108-11 .

Table 108-10
LD20 - Print VMB data

Prompt	Response	Description
REQ	PRT	VMB related information
TYPE	VMB	
CUST	0-99	
DN	xxxx xxxx-yyyy (ALL)	Print data for a single DN Print data for a range of DNs Print data for all DNs with VMBs
VMB_STATE	(ALL) UPDPEND CONFIGURED UPDFAIL MISMATCH UPDINPROG INVALID	Print all VMBs regardless of state Print VMBs in update pending state Print configured VMBs Print VMBs whose updates failed Print VMBs with database mismatches Print VMBs with updates in progress Print VMBs in an invalid state

Table 108-11
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 craftsperson 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 LD17). A VMB MISMATCH FOUND error appears on the Meridian 1 TTY indicating the mismatch. A craftsperson 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 LD48 to run VMB Audit on the DN.

- To print VMB data in LD83, respond with TNB at the REQ prompt. This response causes the TN block to print, including VMB data. See Table 108-12.

Table 108-12
LD83 - 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 108-11.

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 craftsperson 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

LD17 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 LD17 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 LD48. 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 craftsperson 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 LD48 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 VMB data and name (or to replace 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 LD48. 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 (LD10 and LD11).
- **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* (PO707599)
- *Station Administration* (PO707698)
- *Work Order System* (PO707699)
- *Traffic Reporting* (PO707700)

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/SL-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/SL-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/SL-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
- manage the various parameters set by the system administrator

The following platforms exist. Meridian MAX 4.0 is an AM-base 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-base 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)
- *ACD-MAX 3.0 Supervisor's User Guide* (P0706646)

Meridian MAX 4.0

- *Application Equipment Module installation guide* (553-3201-200)
- *Master Index* (553-4001-002)
- *Meridian MAX 3.3-AM Installation* (553-4001-101)
- *Meridian MAX 3.3-AM System Messages* (553-4001-801)
- *Meridian MAX 3.3-AM Overview* (553-4001-901)
- *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)
- *Meridian MAX-IPE 4.6 Supervisor's Guide* (PO741145)

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
- 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:

- SL-1 and Meridian digital telephone
- attendant console
- Automatic Call Distribution (ACD)

Depending on the packages equipped, you can have any Message Center option or combination of Message Center options.

For complete information, see *Message Center description and operation* (553-2691-100).

Network Message Services-Message Center (NMS-MC) X11 release 15 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 (DN), 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, then 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 (DN), 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 (that is, 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 an SL-1 or Meridian digital 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.
- Automatic Voice Network (AUTOVON)/Coordinated Dialing Plan (CDP)/Centralized Attendant Service (CAS)
MR is mutually exclusive of AUTOVON, CDP, and CAS.
- Call Transfer/Conference, Call Forward All Calls
The party that originates a call is charged. The charge cannot be moved to another party using XFER, Conference, or Call Forward All Calls.
- Multiple Appearance Directory Number (MADN)
For MADNs, the system selects the appropriate meter for the DN based by following this procedure:
 - a It accesses the meter of the most recently configured telephone having a Prime DN (PDN) appearance and Message Registration Allowed (MRA) class of service.
 - b 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 count exists at the customer level, not at the tenant level.
- Maintenance
Any maintenance testing done on metered trunks does not affect the meter values.

Feature packaging

Message Registration (MR), package 101, requires

- Controlled Class of Service (CCOS), package 81
- Background Terminal (BGD), package 99

Feature implementation

LD16-Activate Message Registration on routes.

REQ	CHG	Change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUT	0-511	Route number
TKTP	aaa	Trunk route type aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, FGOT, ISA, MCU, MDM, MUS, PAG, R232, R422, RAN, RCD, RLM, RLR, TIE, WAT
_MR	YES, RVB, (NO)	Only prompted if TKTP = COT or FGOT; MR provided on all routes, Reverse Battery (RVB) routes, or no routes (default)

LD14-Change a trunk.

REQ	CHG	Change
TYPE	COT	CO trunks
TN	l s c u	Terminal Number (TN)
CLS	PSP, (PIP)	Polarity sensitive or insensitive Use PSP for QPC218, QPC219, QPC295 Use PIP for QPC330, QPC331

LD10-Allow or deny 500/2500 telephones access to meters.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number (TN)
CLS	MRA, (MRD)	MR allowed or denied

LD11-Allow or deny SL-1 or Meridian digital telephones access to meters.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616
TN	l s c u	Terminal Number (TN)
CLS	aaa	Digit Display options aaa = ADD, DDS, NDD
	MRA, (MRD)	MR allowed or denied
KEY	xx MRK	MR key xx = key number

Feature operation

Not applicable.

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, SL-100. This feature is compatible with Meridian 1 Network Message Services.

Note: Throughout this discussion, the phrase *other system* refers to the DMS-100, DMS-250, or SL-100.

MWI Interworking enables Meridian 1 users to subscribe to a the voice message system on the other system, or users on the other system to subscribe to the voice message system on Meridian 1.

With this feature, a single message system can serve a combined network, with either of two configurations:

- Meridian 1 hosts the Message Center, and serves both Meridian 1 users and users of the other system in the same enterprise group. See *Message Center* on page 111-1.
- The other system hosts the Message Center, and serves both Meridian 1 users and users of the other system in the same or different enterprise groups. See Figure 113-2.

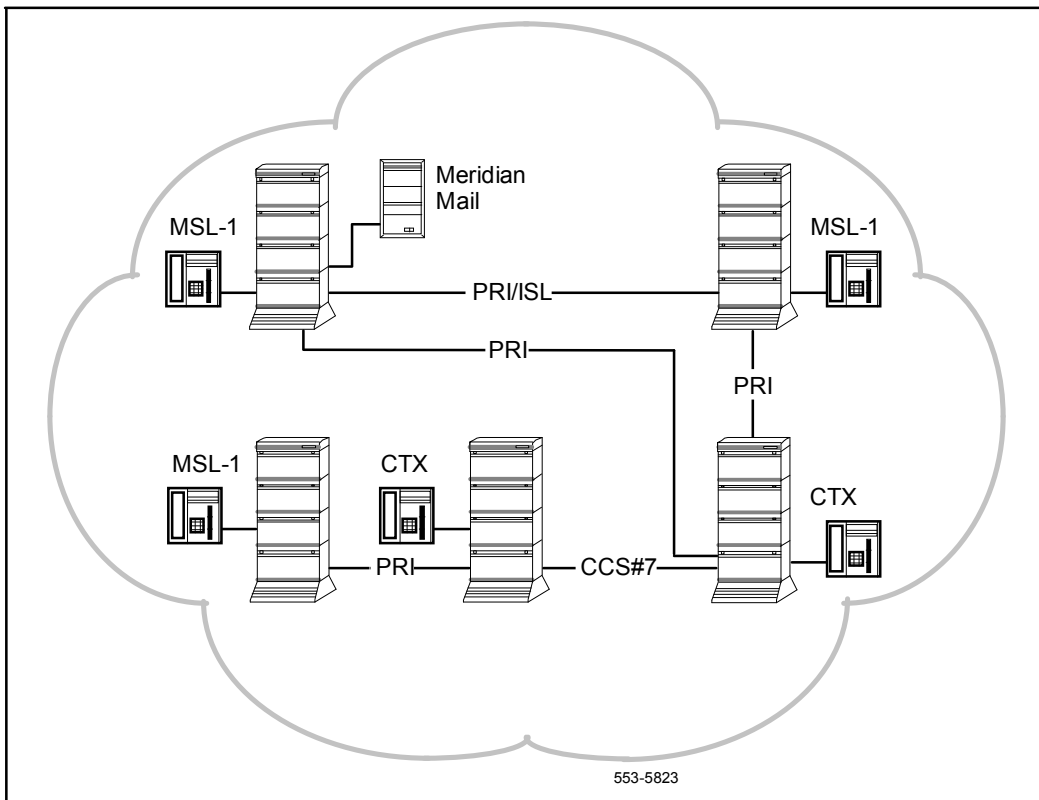
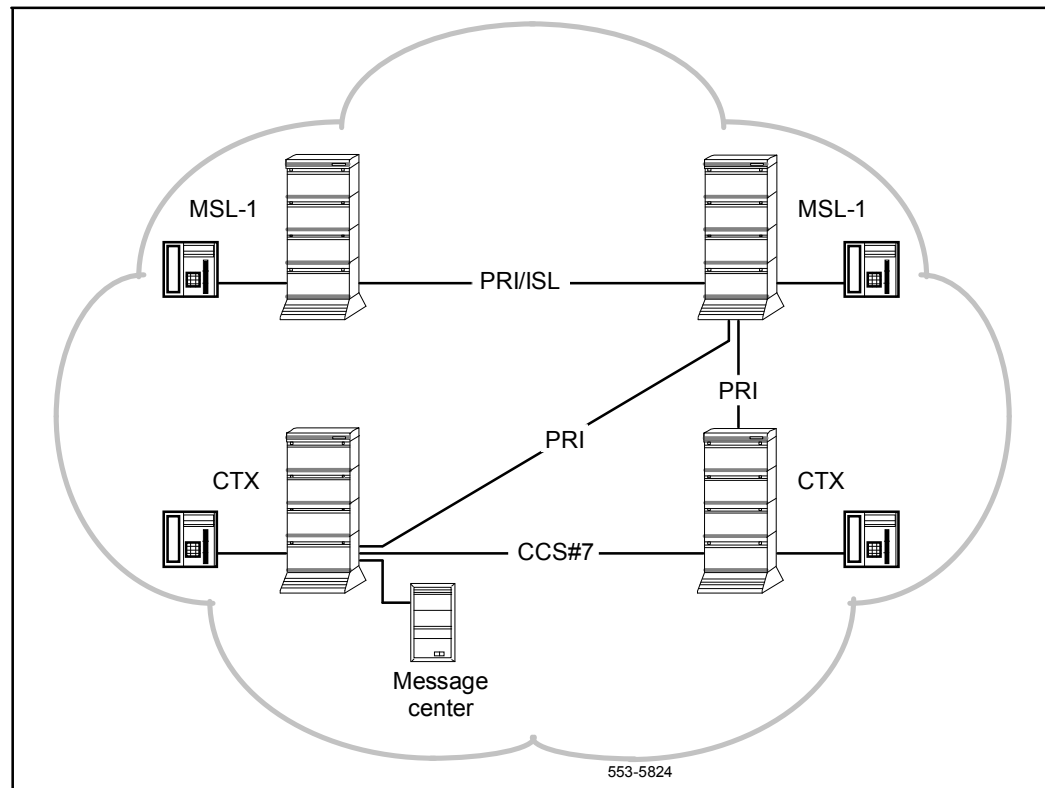
Figure 113-1**Private Corporate Network with Meridian 1 hosting the Message Center**

Figure 113-2
Private Corporate Network with DMS hosting the Message Center



Operating parameters

The switches in the network are connected as shown in Table 113-1.

Table 113-1
Network switch connections

To connect	Use
Meridian 1 to Meridian 1	ISDN/PRI/ISL
Meridian 1 to other system	PRI
Other system to other system	PRI/CCS#7

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 Signalling 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 other system can be a tandem switch. DMS BCS 36 or later supports DMS-100, DMS-250, and SL-100 systems. Only Northern Telecom systems are supported.

Feature interactions

- Multi 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
Meridian Mail Phase 8 and later supports Multi Tenant. For MWI Interworking, tenants that belong to the same customer can use one or multiple Message Center servers. Tenants from different customers 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 sets for call forwarding to Meridian Mail DN.
- 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.
- 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.
- 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 Overlay 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/AP Link Recovery
Calls in the Meridian Mail ACD queue are redirected to the ACD Night Call Forward DN when the Application Modular Link (AML) goes down.

Feature packaging

MWI Interworking is available as package 219. It requires the Network Message Service features of Meridian Mail release 7. It also requires that the other system be equipped with BCS 36 at a minimum. The package requirements for each node are described in the following tables.

Table 113-2
Package requirements for the originating node (the node with Message Center users)

MWI package 219	If connected to DMS (BCS 36) for Interworking
NMS package 175	
BACD package 40 and ACDA package 45	If ACD DN is used as the Message Center DN
ISDN Signaling package 145	
ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147	
ISDN Network Service package 148	
Message Center (MWC) package 46	
End-to-End Signaling (EES) package 10	

Table 113-3**Package requirements for the host node (the node hosting the Message Center)**

MWI package 219 NMS package 175 Integrated Message System (IMS) package 35 ISDN/AP package 77 BACD package 40 ACDA package 45 ISDN Signaling package 145 ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147 ISDN Network Services package 148 Message Center (MWC) package 46 End-to-End Signaling (EES) package 10	X11 release 19 or later is required.
---	--------------------------------------

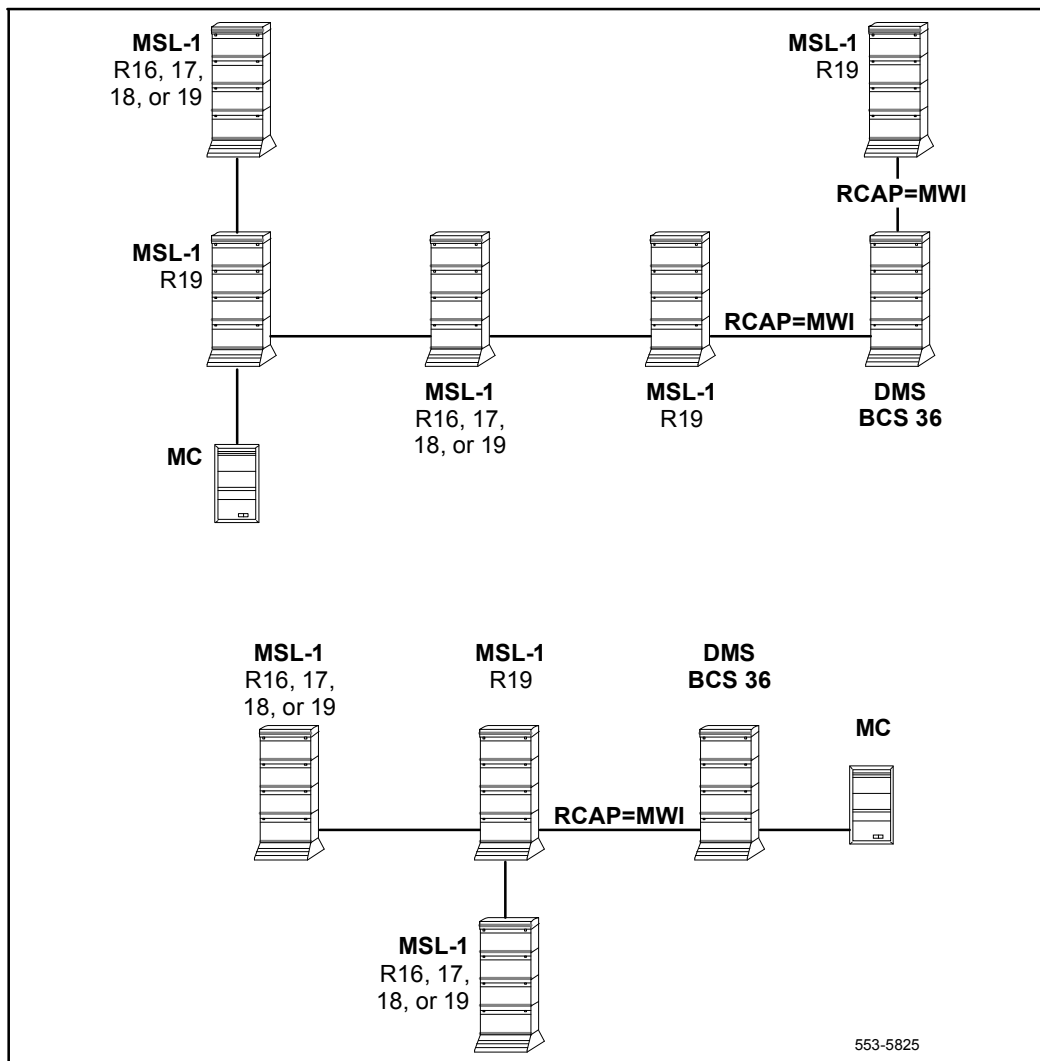
Table 113-4**Package requirements for the tandem node (the node that does not have Message Center users)**

MWI package 219 ISDN Signaling package 145 ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147 ISDN Network Services package 148	If connected to DMS (BCS 36) for Interworking
--	---

Feature implementation

See Figure 113-3 for the configuration required for MWI Interworking.

Figure 113-3
Configuration Requirements for MWI Interworking



Response to the following prompts in the listed overlays activates MWI Interworking.

Table 113-5
LD 17-Configuring MWI remote D channel capability

REQ	CHG	
TYPE	CFN	
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.

Table 113-6
LD 23-Configuring a Message Center DN

REQ	NEW/CHG	
TYPE	ACD	
CUST	xx	
ACDN	xxxx	
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 ESN number prefixed by an ESN access code (if Uniform Dialing Plan (UDP) is used)

Feature operation

Not applicable.

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 may 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 should be run under one of the following conditions:

- automatically at a system specified time
- manually at any time (LD32)

Automatic scheduling should consider low traffic times, when there is still enough ambient light to avoid the dark affect. To prevent the automatic scheduling of LD32, LD32 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 LD32 is removed from the list.

Operating parameters

There are no feature requirements.

Feature interactions

There are no feature interactions.

Feature packaging

Message Waiting Lamp Maintenance requires Message Waiting Center (MWC), package 46.

Feature Implementation

LD17 - Define the time for the maintenance tests.

REQ	CHG	Change
TYPE	CFN	Configuration record
OVLY	Yes, (No)	Change overlay area options
PBXH	hh	PBX Hour for maintenance tests hh = Hour for tests, 0-23
	x	Enter x if no tests are to be performed

Feature operation

There is no specific procedure required to operate this feature.

MSDL Serial Data Interface

Serial Data Interface (SDI) is supported by the Multi-purpose Serial Data Link (MSDL) card with X11 release 19 and later. SDI extends the I/O capability of the MSDL card by providing an asynchronous serial data interface. SDI is composed of software components that reside on the Meridian 1 and the MSDL.

For a complete description of MDSL SDI, please refer to *X11 system management application* (553-3001-301).

Multiple Appearance DN Redirection Prime

With X11 release 18 and later, Multiple Appearance DN Redirection Prime (MARP) standardizes call redirection on Multiple Appearance DN (MADNs) by using a service changeable Multiple Appearance DN Redirection Prime Terminal Number (MARP TN).

Each defined single or multiple appearance DN has only one associated MARP TN. When a call redirection feature activated against a DN needs Terminal Number (TN)-specific information, the MARP TN is used to determine feature operation. Call redirection always refers to the MARP TN.

MARP provides consistent operation for the following call redirection features:

- Call Forward All Calls

Refer to the feature interactions section in this module for important information regarding Call Forward (CFW) operations.

- Call Forward Busy
- Call Forward No Answer
- Hunting

Operating parameters

Short Hunt takes precedence over MARP TN directions.

MARP is activated in LD17. If MARP is not active, call redirection occurs 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. Refer to specific call redirection modules in this document for details regarding the pre-X11 release 18 algorithms.

The MARP TN is defined in LD10 or LD11. When activated, only the MARP TN is used to determine call redirection.

If MARP is not activated, the following overlays 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 are

LDs 10, 11, 20, 22, 25, 80, 81, 82, and 83

When MARP is activated in service change (MARP = Yes) calls are immediately directed according to the MARP TN. There is no need to sysload.

Every single or multiple appearance DN has a MARP TN. MARP TNs are also defined for Data DNs, optional incoming two-way Hot Line DNs, and ringing and non-ringing 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 upissue, the MARP TN assignments remain. If MARP was activated, it retains that activity following the upissue. If MARP was deactivated, that status is also maintained following the upissue.

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 LD20 or LD22 (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 does include 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

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 set 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

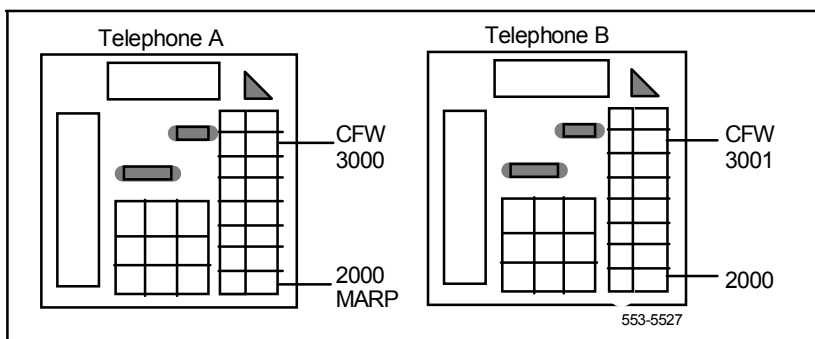
ACD DN's are not assigned MARP TN's. Agent Individual DN's (IDN's) are assigned MARP TN's.

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 116-1.

Figure 116-1
CFW and MARP



CFW DN on Telephone A is DN 3000.

CFW DN on Telephone B is DN 3001.

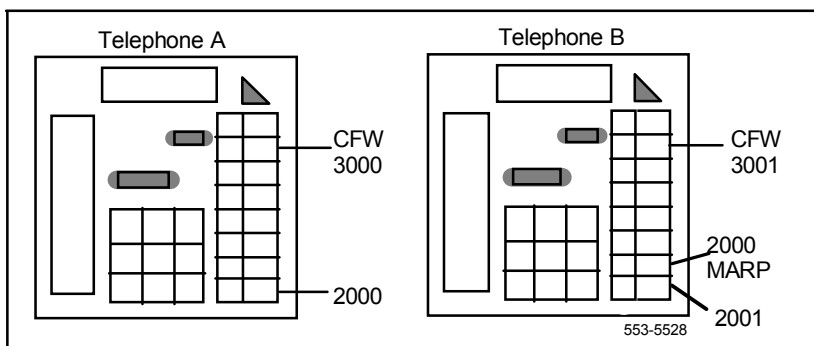
If *only* Telephone A has CFW active, calls to DN 2000 are forwarded to DN 3000.

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 116-2.

Figure 116-2
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 CWF active, all calls to DN 2000 go to DN 3001 because Telephone B is the MARP TN.

If *only* Telephone A has CWF active, all calls to DN 2000 go to DN 3000.

If *only* Telephone B has CWF 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.

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.

Feature packaging

This feature is included in the base X11 system software.

Feature implementation

If MARP is not activated, the following overlays 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.

LD10-Add a 500/2500 telephone with a Single Appearance DN.

REQ	NEW	Add new data to the system
TYPE	500	500/2500 set
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

LD10-Add a 500/2500 telephone with a Multiple Appearance DN.

REQ	NEW	Add new data to the system
TYPE	500	500/2500 set
TN	I s c u	Terminal number
DN	xxx...x	Directory number
_MARP ON TN	I s c u	<i>MARP ON TN</i> I s c u prints on the next line indicating TN I s c u is the current MARP.
_MARP	Yes, (No)	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.

LD10-Changing a 500/2500 telephone with a Multiple Appearance DN.

REQ	CHG	Modify existing data
TYPE	500	500/2500 set
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	Yes, (No)	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.

LD11-Add a telephone with a Single Appearance DN.

REQ	NEW	Add new data to the system
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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) 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

LD11-Add a telephone with a multiple appearance DN.

REQ	NEW	Add new data to the system
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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) scr (single-call ring) yyyy is an existing DN
_MARP ON TN	I s c u	<i>MARP ON TN</i> / <i>I s c u</i> prints on the next line indicating TN <i>I s c u</i> is the current MARP.
_MARP	Yes, (No)	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>I s c u</i> .

LD11- Changing a telephone with a Multiple Appearance DN.

REQ	CHG	Modify existing data
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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) scr (single-call ring) yyyy is the DN
_MARP ON TN	l s c u	<i>MARP ON TN</i> / <i>l s c u</i> prints on the next line indicating TN <i>l s c u</i> is the current MARP.
_MARP	Yes, (No)	Set the MARP to the working TN
KEY		Reprompts until <cr> is entered
SCH5524 DN nnnn NEW MARP	l s c u	This message indicates the MARP for the old DN nnnn is changed. The new MARP is TN <i>l s c u</i> .

LD10/LD11-Removing a MARP TN.

REQ	OUT	Remove data from the system
TYPE	aaaa	Telephone type aaaa = 500, 2500, SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	TN <i>l s c u</i> is the MARP for DN nnnn. This is the TN that is being removed.
SCH5524 DN nnnn NEW MARP	l s c u	This message indicates the MARP for the old DN nnnn is changed. The new MARP is TN <i>l s c u</i> .

LD17-Activating or deactivating MARP.

REQ	CHG	Change data
TYPE	CFN	Configuration record
PARM	YES	Change system parameters
_MARP	YES/NO	Activate or deactivate MARP. There is no default. <CR> retains the previous system data.

LD20 or LD22-Print MARP information.

REQ	PRT	Print information
TYPE	TNB (DNB, SL1)	Terminal number data block (Can also print out DN data block or telephone type.)

The printout will look like the following.

- For the DN datablock:

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

Not applicable.

Multiple Console operation

The Meridian 1 permits each customer to have up to 63 attendant consoles. X11 release 7 and earlier software permit 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 (SL-1M only)
- Paging
- Routing Control
- Speed Call Controller
- System Speed Call Controller
- 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 may be defined in a single Console Presentation Group (CPG).

Feature packaging

This capability 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 LD12
- Customer Data Block LD15
- Tenant-to-Tenant Access LD93

Feature operation

There is no specific procedure required to operate 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, 61, 71, and 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, are 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

Not applicable.

Multi-Tenant Service

The Multi-Tenant Service feature facilitates the resale by Meridian 1 customers of Meridian 1 services and resources. Telephones belonging to a customer may be divided into customer sub-groups known as tenants. The groups are separated by group access restrictions. Access to other tenants, to attendant consoles, and to trunk routes can be programmed in such a way that tenants can have private use of some facilities, share some, or be denied access to others. Call Detail Recording (CDR) records include the tenant number as well as the customer number.

The number of tenants that can be configured per customer depends on the number of configured customers and the amount of available memory. The maximum is 512 tenants per customer. All telephones default to Tenant 0 (zero).

All tenants share the customer's numbering plan and service-changeable features. Because the features are defined at the customer level, they are identical for each tenant. Possible features are outlined in the following paragraphs.

- Tenant-to-Tenant Access
A tenant's relationship with other tenants of the same customer is defined by Tenant-to-Tenant Access. A tenant can be configured to allow direct internal call access to some or all tenants of the same customer. Likewise, the tenant can be denied direct access to other tenants. To reach these tenants, a trunk call must be placed.

- **Tenant-to-Route Access**
Meridian 1 supports up to 128 trunk routes per customer. XN, NT, XT, 61, 71, and 81 systems support 512 trunk routes per customer on X11 release 14 and later software. Each tenant can share or have private access to any or all of these routes. Tenant access applies only to outgoing calls. All tenants have access to incoming calls on any route.
- **Attendant Console Groups**
Within the Multi-Tenant Service feature, all attendant consoles are placed into groups that are associated with specific tenants and specific incoming trunk routes. The group number range is from zero through 63. All attendant consoles configured for a customer are automatically members of group zero. The other groups are defined in service change to fit tenant requirements.

The Multi-Tenant feature functions as follows:

- **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 attendant console group number (AGNO) have been specified for the tenant.
- **Incoming External Calls**
Incoming external calls are presented only to the attendant console group specified to serve the trunk group.
- **Attendant Initiated Calls**
All attendants have access to the customer's numbering plan and can initiate calls to any customer's tenants.
- **Attendant Overflow Position**
The Attendant Overflow DN (AODN) is accessible to all tenants on incoming trunk calls. Attendant calls from tenants who do not have tenant access to the AODN do not divert to AODN but 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**
Internal attendant calls from tenant A to tenant B may be extended only if tenant A and tenant B are allowed Tenant-to-Tenant Access.
- **Access to Incoming Trunk Route**
Any tenant can be accessed 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.
- **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 tenants. Access to specific trunk routes is allowed or denied to individual tenants through service changes. Tenants who try to access denied routes receive normal intercept treatment.

Operating parameters

Refer to *Multi-Tenant Service description* (553-2831-100).

Feature interactions

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.

Feature packaging

Multi-Tenant Service (TENS), package 86, has no feature package dependencies.

Feature implementation

LD93- Enable, disable, or print Multi-Tenant Service for a specified customer.

REQ	NEW, OUT, PRT	
TYPE	TENS	Tenant service data block
CUST	0-99	Customer number
Note: Ensure that the customer night DN and the attendant overflow DN (if assigned) are accessible by all tenants		

LD93- Allow, deny, or print tenant-to-tenant access for a specified tenant.

REQ	CHG, PRT	Change or print
TYPE	TACC	Tenant-to-tenant access data block
CUST	0-99	Customer number
TEN	1-511	Tenant number
ACC	DENY	Access denied tenants are to be entered
	ALLOW	Access allowed tenants are to be entered
DENY	1-511 1-511	Tenant numbers denied access to and from this tenant (prompted if ACC=DENY)
	ALL	All tenant numbers denied access to and from this tenant (tenant can only access itself)
ALLOW	1-511 1-511	Tenant numbers allowed access to and from this tenant (prompted if ACC=ALLOW)
	ALL	All tenant numbers allowed access to and from this tenant
Note: Tenant 0 is reserved for telephones with a TEND Class of Service		

LD93- Allow, deny, or print tenant-to-route access for a specified trunk route.

REQ	CHG, PRT	Change or print
TYPE	RACC	Tenant-to-route access data block
CUST	0-99	Customer number
ROUT	0-511	Route number
ACC	DENY	Tenants denied access to the route are to be entered
	ALLOW	Tenants allowed access to the route are to be entered
DENY	1-511 1-511	Tenant numbers denied access to this route (prompted if ACC=DENY)
	ALL	All tenant numbers denied access to this route
ALLOW	1-511 1-511	Tenant numbers allowed access to this route (prompted if ACC=ALLOW)
	ALL	All tenant numbers allowed access to this route
Note: Tenant 0 is reserved for telephones with a TEND Class of Service		

LD93- Add or change attendant console group.

REQ	NEW, CHG, OUT, PRT	
TYPE	ACG, CPG	Attendant console group data block
CUST	0-99	Customer number
AGNO	1-63	Attendant console group number Note: Attendant 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)

LD93- Assign or print tenant-to-attendant console access.

REQ	CHG, PRT	Change or print
TYPE	TACG, TCPG	Tenant-to-attendant console access data block
CUST	0-99	Customer number
TEN	1-511	Tenant number
AGNO	0-63	Attendant console group number
Note: Tenant 0 is reserved for telephones with a TEND Class of Service		

LD93- Assign or print route-to-attendant console access.

REQ	CHG, PRT	Change or print
TYPE	RACG, RCPG	Route-to-attendant console access data block
CUST	0-99	Customer number
ROUT	0-511	Route number
AGNO	0-63	Attendant console group number

LD10- Add or change Multi-Tenant Service assignments on 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	(TENA)	Tenant service allowed
	TEND	Tenant service denied (station shares customer resources and is a non-tenant)
TEN	1-511	Tenant number (prompted if CLS=TENA)
Note: Tenant 0 is reserved for telephones with a TEND Class of Service		

LD11- Add or change Multi-Tenant Service assignments on SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL 1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
CLS	(TENA)	Tenant service allowed
	TEND	Tenant service denied (station shares customer resources and is a non-tenant)
TEN	1-511	Tenant number Prompted if CLS = TENA.
Note: Tenant 0 is reserved for telephones with a TEND Class of Service		

Feature operation

Not applicable.

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 craftspersons by enabling them to perform tasks in parallel.

For a complete description of Multi-User Login, please refer to *X11 system management application* (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 should 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 one 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, then 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.
- **Conference**
With enhanced music on hold, when a call is placed on consultation hold while a conference is being established, music plays. Once the conference is established, music no longer plays. If the call returns to a two-party call, music plays whenever the call is held.

With basic music on hold, when a call is placed on consultation hold while a conference is being established, music does not play.
- **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.

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 advanced features description* (553-2671-101).

Feature implementation

LD17-Add or change conference loops for Music on Hold.

REQ	CHG	Change
TYPE	CFN	Configuration record
CEQU	Yes, (No)	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

LD16-Add or change a music route.

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.		

LD14-Add or change a music trunk.

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 LD17

LD16-Enable/disable Music on Hold for trunk routes.

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	Yes, (No)	Music on Hold is or is not to be provided for this trunk route
MRT	xxx	Music route number

LD23-Enable/Disable Music for an Automatic Call Distribution Directory Number.

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

There is no specific procedure required to operate 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 122-1.

Table 122-1
Features vs. No Music, Music, and Enhanced Music

	Without Music		Music Only		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	Yes	Yes	Yes
Splitting	No	No	No	Yes	Yes	Yes
Camp-On	No	No	N/A	Yes	N/A	Yes

Operating parameters

The requirements for Enhanced Music on Hold are the same as for Music on Hold. See [Music](#) on page 121-1.

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
- Recorded Announcement (RAN), package 7

Feature implementation

LD17-Add or change conference loops for Music on Hold.

REQ	CHG	Change
TYPE	CFN	Configuration record
CEQU	Yes, (No)	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)

LD15-Enable/disable Music for a customer.

REQ	CHG	Change
TYPE	CDB	Customer data block
CUST	0-99	Customer number
MUS	Yes, (No)	Enhanced music for telephones
MUSR	0-511	Music route for telephones

LD16-Add or change a music route.

REQ	NEW, CHG	New or change
TYPE	RDB	Rout 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.		

LD14-Add or change a music trunk.

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 LD17
Note: At least one music trunk per network group is required for each customer requiring music.		

LD16-Enable/disable Music on Hold for trunk routes.

REQ	NEW, CHG	New or change
TYPE	RDB	Rout data block
CUST	0-99	Customer number
TKTP	COT, DID, FEX, TIE, WAT	Trunk type
MUS	Yes, (No)	Music on Hold is/is not to be provided for this trunk route
MRT	0-511	Music route number

Feature operation

There is no specific procedure required to operate this feature.

Network Message Services

The Network Message Services (NMS) uses signaling capabilities from the Integrated Services Digital Network (ISDN) to provide messaging services over a network link. Networks with Primary Rate Interfaces (PRI) or Integrated Services Links (ISL) can extend existing message services to users supported by that network, on a customer basis. Access to the Network Message Services (NMS), and feature activation from the messaging system, is transparent to the end user.

Network Message Services (NMS) is composed of two distinct applications: NMS-Message Center (NMS-MC) and NMS-Meridian Mail (NMS-MM).

Network Message Services-Message Center (NMS-MC)

With X11 release 15 and later, NMS-MC provides centralized Message Centers for switches on ISDN Primary Rate Interface (PRI) and Integrated Services Link (ISL) networks. This feature carries the networking capabilities for a caller to access the Message Center attendant or Automatic Call Distribution (ACD) agent. The NMS-MC provides two types of functions over the ISDN PRI/ISL network:

- Message Center Access
- message waiting indication

Three types of Message Centers are supported:

- Automatic Call Distribution (ACD) Message Centers
- DN-type Message Centers
- Attendant Message Centers

Network Message Services-Meridian Mail (NMS-MM)

With X11 release 16 and later, NMS-MM enhances Meridian Mail by providing transparent access to Meridian Mail across the network. Two types of functions are provided over the ISDN PRI/ISL network:

- Message Center access
- message waiting indication and cancellation

For further information refer to the following modules in this document:

- Integrated Services Digital Network (ISDN)
- Meridian Mail applications
- Message Center

Operating parameters

Refer to the X11 features and services modules listed previously.

Feature interactions

Refer to the X11 features and services modules listed previously.

Feature packaging

Network Message Services (NMS), package 175, requires:

- Message Center (MWC), package 46

For Network Message Services-Meridian Mail (NMS-MM), the following software is required:

- X11 release 16 software
- Meridian Mail version SP7

The NMS feature requires ISDN to operate, with all the packages necessary to support ISDN. The minimum requirement is:

- Advanced Network Services (NTWK), package 148

Message Services in the Automatic Call Distribution (ACD) environment require the following ACD packages:

- Basic Automatic Call Distribution (BACD), package 40
- ACD Package A (ACDA), package 45
- ACD Package B (ACDB), package 41
- ACD Package C1 (ACDC), package 42

NMS in X11 release 15 does not support the following packages:

- Integrated Voice Messaging (IVMS)
- Multiple Message Center interworking

The user network must be equipped with either a universal dialing plan or the Coordinated Dialing Plan throughout, but not a mixture of both, as an ISDN requirement.

Feature implementation

Refer to the X11 features and services modules listed previously. For a complete description of the prompts and responses required, see the *X11 input/output guide* (553-3001-400).

Feature operation

There is no specific procedure required to operate this procedure.

New Flexible Code Restriction

New Flexible Code Restriction (NFCR) controls the access of toll denied telephones to outgoing trunk routes. Calls are allowed or denied based on the specific digit sequence dialed.

Toll denied (TLD) telephones and trunks that have been assigned a Network Class of Service (NCOS) are allowed or denied calling privileges according to the Facility Restriction Level (FRL) assigned to the NCOS. Up to eight FRL codes are allowed per trunk route.

When accessing an outgoing route, the assigned Facility Restriction Level (FRL) of the user determines which digits are allowed or denied on that route. When the user dials a digit that is denied, intercept treatment is invoked.

This feature also applies to telephones with a Conditionally Toll Denied (CTD) or Conditionally Unrestricted (CUN) Class of Service unless Basic Alternate Route Selection/Network Alternate Route Selection (BARS/NARS), Coordinated Dialing Plan (CDP), or Automatic Number Identification (ANI) is activated for the call.

New Flexible Code Restriction (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. Code restriction trees are used to analyze the digits dialed. The construction and maintenance of up to 255 code restriction trees is provided in service change. When entered in the bypass field, specified numbers are allowed to process without restriction. Each trunk route can access up to eight code restriction trees and each code restriction tree can be used by more than one trunk route. The code restriction tree corresponding to the station user's Facility Restriction Level (FRL) is defined by the trunk route.

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 through nine 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 (LD19) and NFCR (LD49) are both enabled for the same customer, NFCR takes precedence. Any parameters required for Code Restriction are ignored.

Feature interactions

- 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 class of service (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 class of service (CUN) stations subject to ANI are treated as unrestricted calls.
- BARS/NARS/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.
- 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

Feature packaging

NFCR, package 49, requires:

- Network Class of Service (NCOS), package 32

Feature implementation

LD15-Enable NFCR for a customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
NFCR	Yes, (No)	Enable (disable) NFCR
MAXT	1-255	Maximum number of code restriction trees

LD87-Define NCOS groups and associated FRL.

REQ	NEW, CHG	Create 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 an route list (RLI) to which it has access. 0 is the most restrictive, 7 is the least restrictive and can access more entries.

LD49-Add, change, or print code restriction trees.

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 (0-254)
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
BYPSS	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
BYPSS	xx...xx	Digit sequence to be bypassed

LD16-Associate a FRL with a code restriction tree.

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.

LD10-Assign a 500/2500 telephone a Toll Denied and Network Class of Service.

REQ	CHG	Change
TYPE	500	Telephone type a
TN	I s c u	Terminal Number
NCOS	(0)-99	NCOS
CLS	TLD	Toll Denied class of service

LD11-Assign SL-1 and digital telephones a Toll Denied and Network Class of Service.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
NCOS	(0)-99	NCOS
CLS	TLD	Toll Denied class of service

LD1-Assign a trunk a Toll Denied and Network Class of Service.

REQ	CHG	Change
TYPE	aaa	Trunk type aaa = CSA, TIE, WAT
TN	I s c u	Terminal Number
NCOS	(0)-99	NCOS
CLS	TLD	Toll Denied class of service

LD24-Assign a DISA data block a Toll Denied and NCOS.

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

LD88-Assign an Authorization code a Toll Denied and NCOS.

REQ	CHG	Change
TYPE	AUB	Authorization code data block
CUST	0-99	Customer number
SPWD	xxxx	Security password
CLAS	(0)-115	Classcode to be assigned
NCOS	(0)-99	NCOS
COS	TLD	Toll Denied class of service

Feature operation

There is no specific procedure required to operate this feature.

Night Key for DID Digit Manipulation

The Night Key for DID Digit Manipulation (NKDM) uses DID Incoming Digit Conversion (IDC) to convert received DID digits into Night Service Directory Number (DN). NKDM is used to switch between a Night and Day modes.

The Day/Night mode is controlled by a DID Route Control (DRC) key on an attendant console, SL-1 telephone, or digital 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 (AOP) is not equipped)
- when an attendant activates the DID Route Control (DRC) key
- when a Console Presentation Group (CPD) attendant goes into Night Service
- when an SL-1 or digital 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.
- Pretranslation
The Trunk Access Code (from the attendant console)

Feature packaging

The night Key for DID Digit Manipulation (NKDM) is not a packaged feature; however, the following packages are required:

- Network Class of Service (NCOS), package 32
- New Flexible Code Restriction (NFCR), package 49
- Incoming Digit Conversion (IDC), package 113

Feature implementation

LD15-Enable Incoming Digit Conversion for Night mode.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
NFCR	Yes, (No)	Enable New Flexible Code Restriction (NFCR)
MAXT	1-255	Maximum number of NFCR trees
IDCA	Yes, (No)	Enable IDC
DCMX	1-255	Maximum number of IDC conversion tables. The sum of the values of MAXT and DCMX cannot exceed 255 per customer.
Note: IDC cannot be disabled if any telephone has a DCR key.		

LD49-Add, change, or print code restriction trees.

REQ	NEW, CHG, PRT	Create 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 DNs 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.

LD16-Set IDC tree for Night mode. Note that a DID route cannot be removed if it is controlled by a DCR key.

REQ	CHG	Change
TYPE	RDB	Route Data Block
TKTP	DID	DID route
IDC	Yes, (No)	Enable IDC
DCNO	0-254	IDC tree for Day mode
NDNO	0-254	IDC tree for Night mode
	<CR>	Set tree to the same number as Day mode (default)

LD12-Define a DID Route Control key (DRC) on an attendant console.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	l s c u	Terminal Number
KEY	xx DRC yyy	DRC xx = key number 0-9 (0-19 on M2250) yyy = route number (0-511)

LD11-Define a DRC key on an SL-1 or Meridian digital telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx DRC yyy	DRC xx = key number 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 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 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.
- TAFAS: 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 LD17 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 (2 sec. on, 4 sec. 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 LD14 on page 123-4 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 DNs. 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

- 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.
- Directory Number Expansion (DNXP)
If the DNXP package is equipped, the Night DNs can be up to 7 digits; otherwise, the DN can be a maximum of 4 digits.

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 the instant of time changeover and 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.
- 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, then the user can no longer pick up the call using TAFAS.

Feature packaging

Night Service is included in basic X11 system software.

Feature implementation

LD15- Add or change Night Service for a customer.


REQ	CHG	Change
TYPE	CDB	Customer Data Block
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)
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)
Note: Night Service DN times must be defined in ascending order.		

LD14- Add or change Night Service DN for trunks.

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:

- 1 Press **Shift** plus  at any console, or unplug all handsets and headsets.

To cancel Night Service when all handsets and headsets are unplugged:

- 1 Plug in at least one handset or headset.

To cancel Night Service at a console when a handset or headset is plugged in:

- 1 Press **Shift** plus 

Note: If all attendant consoles are put in Position Busy, the system automatically goes into Night Service.

No Hold Conference

Combined with Conference, Speed Call, System Speed Call, Autodial, and Hotline, 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 Hotline into single key. The new combined keys are the Conference-Autodial (CA), Conference-Speed Call (CS), and Conference-Hotline (CH) feature keys. A No Hold Conference (NHC) key can also be configured, acting as a simple conference key.

Conference-Hotline 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 Hotline list.

When a telephone is connected to another party, you can originate a Conference-Autodial (CA), Conference-Speed Call (CS), or Conference-Hotline (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 Hotline 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 established, and the key lamp flashes. All tone signals provided by the far end (ringback, for example) are heard by all parties involved in the conference call.

Note: 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.

Note: 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 (a vacant number, or an illegal list entry, for example) 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 Hotline 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 SL-1 and Meridian digital telephones with the CA, CS, CH, and NHC keys. It is not available on the M3000, 500/2500 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 Hotline numbers assigned in LD18 on page 124-5.

Data calls are not supported.

Feature interactions

All four keys can coexist with each other as well as with other Conference, Autodial, Speed Call, and Hotline features.

This feature can be enabled at any time that a regular Conference-6 feature can be activated.

Whenever the CS key is programmed for a System Speed Call list, all calls made with that key are System Speed Calls.

The CH key supports only one-way Hot Line calls.

Centralized Attendant Service (CAS) attendants are not supported.

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 Hotline (EHOT) for the CH key (package 70)
- System Speed Call to configure CS or CH keys (package 34)

Feature implementation

LD18-Provision Speed Call or Hot Line numbers for CS and CH keys.

REQ	NEW, CHG	Add, change, or remove a Speed Call list
TYPE	SCL, SSC, HTL	Speed Call, System Speed Call, Hotline
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 xx = 4, 8, 12, (16), 20, 24, 28, or 31
SIZE	1-1000	Maximum number of entries in the Speed Call list
WRT	No, (Yes)	Data is correct and list can 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	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: xxxx DISK: yy.y

Where xxxx 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.

LD11-Add or change No Hold Conference for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
KEY	xx CA 4-(16)-23 y...y	Combined NHC and Autodial key xx = key number y...y = target number stored in the key (maximum 23 digits)
	xx CH D yy z...z	Combined NHC and Direct Hotline key xx = key number yy = number of digits in the target number z...z = target number stored within the key
	xx CH L 0-999	Combined NHC and Hotline key xx = key number 0-999 = Hot Line list entry
	xx CS yyy	Combined NHC and Speed Call key xx = key number yyy = Speed Call list number
	xx NHC	NHC key xx = key number

Feature operation

No Hold Conference (NHC)

To establish a NHC call using the NHC key:

- 1 Establish a call.
- 2 Press **NHC**. The indicator goes on steadily.
- 3 Dial the number for conference. The indicator flashes until the call is answered.
- 4 The conference is complete.

Conference-Autodial (CA)

To store an Auto dial 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 a NHC call using the CH key:

- 1 Establish a call.
- 2 Press **CH** (Conference-Hotline). The indicator flashes until the call is answered.
- 3 The conference is complete.

Conference-Speed Call (CS)

To establish a 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.

Off Hook Alarm Security

With X11 release 18 and later, Off Hook Alarm Services (OHAS) allows any call 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 set 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), Multiple Appearance DN, or an Automatic Call Distribution (ACD) DN. The OHAS DN cannot be an Attendant DN, Listed DN, a SPRE, Virtual ACD Agent, or a Trunk Access Code. To receive OHAS treatment, a telephone must have Alarm Security Allowed (ASCA) class of service. To associate a telephone with an OHAS DN:

- Assign the ASCA class of service in LD10 or LD11.
- Assign an Off Hook Interdigit OHAS number (OHID) in LD10 or LD11.
- *For digital telephones only*, assign a Forced Out of Service (FSVC) OHAS number in LD11.
- Associate the OHID and FSVC (if necessary), and the Alarm Security Timer (ASTM) to an OHAS DN through the ODNx prompt in LD15.

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).

Telephones associated with OHAS DNs intercept to single-appearance DNs, Multiple Appearance DNs, or ACD DNs. OHAS treatment is provided if one of the following events takes place on a telephone associated with an OHAS DN:

- Dial tone timeout
- Interdigit timeout
- Digital telephones 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).

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

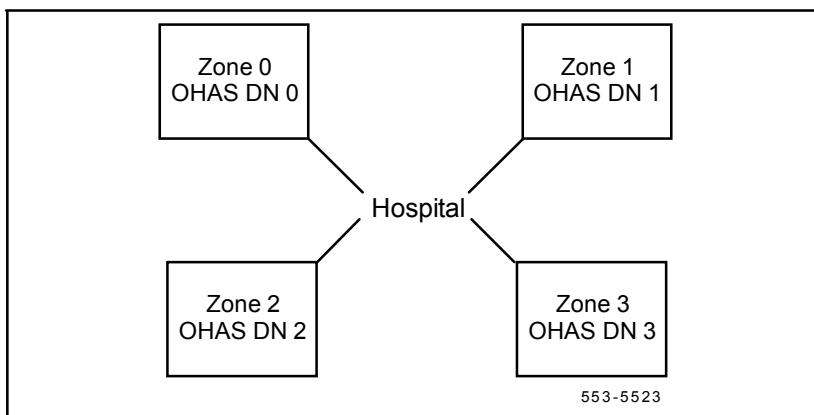
The two methods for handling multiple OHAS DNs are zone and event dependent, and are described in the following sections.

Multiple OHAS DNs-zone dependent

OHAS allows for multiple OHAS DNs within a single customer, 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 128-1, 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.

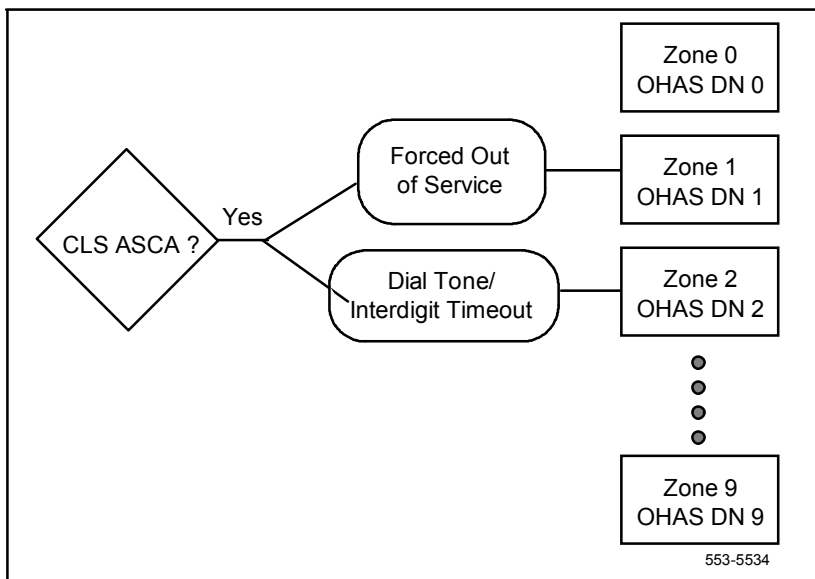
Figure 128-1
Zone Dependent example



Multiple OHAS DNs-event dependent

OHAS can distinguish between OHID timeout and the FSVC events by having a single telephone with separate OHAS DNs for OHID timeout and FSVC events. For example, 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 128-2
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 OHAS0001OHAS treatment due to Forced Out of Service call treatment			

Operating parameters

OHAS is not supported for attendants or networks.

OHAS intercept treatment for telephones FSVC is provided only for the following telephones:

- M2009, M2112, and M2018
- M2317
- M3000
- 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 Data Line Cards (ISDLs) take approximately 6 sec. to recognize a FSVC condition.
- Peripheral Controller cards take approximately 1 sec. to recognize a 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
 - 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.
- 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.
- No Hold Conference (NHC)

OHAS treatment occurs when a telephone with ASCA class of service attempts a NHC call and the ASTM expires. The OHAS DN is conferenced in with the other conferees.
- Last Number Redial/Stored Number Redial

OHAS treatment may apply to these features if the ASTM expires.

- ESN and trunk access codes
If an ESN or trunk access code is dialed, the dial tone/interdigit timer is stopped and the set will not recall to the designated ODN after the specified time period has elapsed.
- Room Status
OHAS and Offhook Detection in Room Status feature are mutually exclusive.
- 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 3-second delay. If the ASTM is 3 seconds or less, the OHAS intercept treatment may occur.

Feature packaging

OHAS is included in X11 base system software.

|

Feature operation

There is no procedure required to operate this feature.

Feature implementation

LD15- Define the Off Hook Alarm Services (OHAS) Directory Numbers (DNs).

REQ	NEW, CHG	Add or change a customer
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
LLT	(OVF), ATN, OFA	Flexible line-lockout treatment
OHAS	YES, (NO)	Change OHAS parameters. 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 DNs and is programmable in one-second increments.
Note: OHAS DNs must have ASCA class of service assigned in LD10 or LD11.		

LD10-Assign Alarm Security Allowed (ASCA) class of service

REQ	NEW, CHG	Add or change a PBX telephone
TYPE	500, 2500	Telephone type
CLS	ASCA, (ASCD)	ASCA, Alarm Security Denied (ASCD)
OHID	(0)-9	OHID
Note: When ASCA is assigned, the OHAS DN must be defined in LD15.		

LD11-Assign Alarm Security Allowed (ASCA) class of service

REQ	NEW, CHG	Add or change a BCS telephone
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
CLS	ASCA, (ASCD)	ASCA, ASCD
OHID	(0)-9	OHID
FSVC	(0)-9	FSVC OHAS DN number (FSVC prompt is given only to digital telephones)
Note: When ASCA is assigned, the OHAS DN must be defined in LD15.		

Feature operation

There is no specific procedure required to operate 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 basic X11 system software.

Feature implementation

LD10-Add or change Off-Premise Extension class of service for single line telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	OPX, (ONP)	Telephone is an off-premises or on-premises extension

Feature operation

There is no specific procedure required to operate this feature.

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 Office Data Administration System (ODAS) and the overlay program to use for each task:

Type of print 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 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

Refer to *Office Data Administration System description and engineering* (553-2721-100).

Feature packaging

ODAS, package 20, has no feature package dependencies.

Feature implementation

LD84/85- Assign or change station line designator (DES) entry for telephones.

TN	l s c u	Terminal Number
DES	a...x	DES (one to six alphanumeric characters)

LD10- Assign or change DES entry for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
DES	a...x	DES (one to six alphanumeric characters)

LD11- Assign or change DES entry for 500/2500, SL-1, M3000, and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
DES	a...x	DES (one to six alphanumeric characters)

Feature operation

There is no specific procedure required to operate this feature.

On Hook Dialing

The On Hook Dialing feature enables an SL-1 or Meridian digital 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 500/2500 telephones.

Feature interactions

There are no feature interactions.

Feature packaging

On Hook dialing is included in basic X11 system software.

Feature implementation

Not applicable.

Feature operation

There is no specific procedure required to operate 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 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
- Flexible Hotline

Feature packaging

Optional Outpulsing Delay (OOD), package 79, has no feature package dependencies.

Feature implementation

Not applicable.

Feature operation

There is no specific procedure required to operate 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 may reside in Overlay Cache Memory at one time. The CACH prompt in LD17 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 LD17 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 LD17 sets an overlay priority flag. A priority flag prevents the removal of an overlay from cache memory by loading another overlay. The number of priority flags set cannot exceed the number of cache memory buffers specified.

When an LDxx 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 entry at the CACH prompt in LD17, 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 by 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 set cannot exceed the number of cache buffers allocated.

To load an overlay from disk use the command LDxx D. This is necessary for the system to determine which overlay to read. The LDxx D command loads the overlay from disk and overwrites the same overlay existing in cache memory.

Using the LDxx 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 81 telephones.

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

This feature is included in the base X11 system software.

Feature implementation

LD17-Change system configuration record

REQ	CHG	Change data
TYPE	CFN	Configuration data block
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

There is no procedure required to operate this feature.

Override

Override 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-ms burst repeated every 16 seconds.

The Override feature can be used after a user has dialed a busy Directory Number (DN).

Operating parameters

On SL-1 and digital telephones, a separate Override key must be assigned. An associated lamp is not required.

On 500/2500 telephones, 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

- Conference
Override cannot be used to enter a conference call.

Feature packaging

Override is included in basic X11 system software.

For 500/2500 telephones, Flexible Feature Code (FFC), package 139, must be equipped.

Feature implementation

LD10-Allow Override for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	OVDA, (OVDD)	Override allowed or denied for this telephone
	XFA, (XFD)	Transfer allowed or denied
	(WTA), WTD	Warning Tone Allowed or Denied (WTA is required to be overridden)

LD11-Add or change Override for SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I s c u	Terminal Number
CLS	(WTA), WTD	Warning Tone Allowed or Denied (WTA is required to be overridden)
KEY	xx OVR	Override key (must be key 34 for M3000)

LD14-Define Warning Tone Allowed for trunks to permit Override.

REQ	CHG	Change
TYPE	aaa	Trunk type aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, WAT
TN	I s c u	Terminal Number
CLS	(WTA), WTD	Warning Tone Allowed or Denied (WTA is required to be overridden)

LD57-Configure Flexible Feature Code (FFC) for Override on 500/2500 telephones.

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 SL-1 or digital 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 SL-1 or digital telephone:

- 1 Press **Release** or hang up.
- 2 You are disconnected. The original call remains active.

To override a call in progress from a 500/2500 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 a 500/2500 telephone:

- 1 Press **Release** or hang up.
- 2 You are disconnected. The original call remains active.

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 LD10 or LD11.

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 effectively removes the TFD timer from all the trunks in that route.
- The range of the timer is 1 hour, in 30-second increments (0-3600). The TFD timer is independent of all other timers.

Feature interactions

- Private Line Routes
Route 31 cannot be assigned as a paging route on X11 release 13 and earlier software.

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
- ISDN ISL/PRI trunks

Feature packaging

Paging is included in basic X11 system software.

Feature implementation

LD16-Add or change a Paging trunk route.

REQ	CHG	Change
TYPE	RDB	Route Data Block
CUST	0-99	Customer Number
ROUTE	0-511	Route Number
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

LD16- Define the timer for the Time Forced Disconnect feature.

REQ	CHG	Change
TYPE	RDB	Route Data Block
CUST	0-99	Customer Number
ROUTE	0-511	Route Number
CNTL	Yes, (No)	Changes to controls or timers (default is No)
TIMR	TFD xxxx	TFD timer xxxx = 0-(30)-3600 seconds, in 30-second increments

LD14-Add or change a Paging trunk within the Paging trunk route.

REQ	CHG	Change
TYPE	PAG	Paging 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.
CUST	0-99	Customer Number
SIGL	DX2 DX4 EAM EM4 LDR OAD	DX signalling (2-wire) - QPC71 only DX signalling (4-wire) - QPC71 and NT8D15 E&M signalling (2-wire) - QPC71 and NT8D15 E&M signalling (4-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	Yes, (No)	Answer and disconnect supervision required

LD12-Assign Paging key for an attendant console. No programming is required to allow the attendant dial access to Paging.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	I s c u	Terminal Number
KEY	xx PAG yy...y	Paging key xx = key number (0-9 on M1250, 0-19 on M2250) yy...y = access code of Paging trunk route

LD10-Allow or deny dial access to Paging for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
TGAR	xx	Allow/deny access to Paging trunk

LD11-Allow or deny dial access to Paging for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
TGAR	xx	Allow/deny access to Paging trunk

Feature operation

There is no specific procedure required to operate this feature.

Pretranslation

In a business or hospitality environment, many communications situations can be simplified with a flexible dialing plan. Pretranslation lets you create a 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, special service, and so on
- internal call restrictions
- 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
- **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. The groups are generally set up as follows:

- trunk and DISA calls default to group 0
- attendant consoles are always unrestricted and are unaffected by pretranslation
- telephones and terminals default to group 0, but may be assigned to groups 1-254.

Note: Before X11 release 14, there are a maximum of 8 Pretranslation groups (0-7).

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 (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 136-1
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 136-2.

Table 136-2
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 136-3.

Table 136-3
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 Zero in this model are shown in Table 136-4 and the corresponding Pretranslation Table is listed in Table 136-5.

For an explanation of the groups used in this model, see Table 136-3.

Table 136-4
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 136-5
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 One in this model are shown in Table 136-6 and the corresponding Pretranslation Table is listed in Table 136-7.

Table 136-6
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 136-7
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 Two in this model are shown in Table 136-8 and the corresponding Pretranslation Table is listed in Table 136-9.

For an explanation of the groups used in this model, see Table 136-3.

Table 136-8
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 136-9
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 Three in this model are shown in Table 136-10 and the corresponding Pretranslation Table is listed in Table 136-11.

For an explanation of the groups used in this model, see Table 136-3.

Table 136-10

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 136-11

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 Four in this model are shown in Table 136-12 and the corresponding Pretranslation Table is listed in Table 136-13.

For an explanation of the groups used in this model, see Table 136-3.

Table 136-12

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 136-13

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

The following limitations apply to the Pretranslation feature:

- Pretranslation table codes are limited to the four described previously.
- User groups are limited to 255 (8, before X11 release 14).
- Each pretranslation table entry can be up to 31 characters long, however, it is recommended that a maximum of 8 characters is 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.

Feature interactions

Pretranslation cannot be used with the following features:

- Automatic Trunk Maintenance
- Private Line
- Telset Messaging
- Authorization Code
The first digit dialed after a valid Authorization Code is sent to the pretranslator.
- 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 calls are automatically assigned XLST 0.
- Electronic Switched Network (ESN)
The pretranslator is used with calls to HNPA, HLOC, and Home CDP locations.
- Flexible Feature Codes
FFC codes must be accessible through a Pretranslation Table entry in order for users to activate features in this manner.
- 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.

Feature packaging

Pretranslation (PXLT), package 92 has no feature package dependencies.

Feature implementation

LD17-Allocate sufficient Speed Call lists to be used as Pretranslation Tables (X11 release 13 and later software).

REQ	CHG	Change
TYPE	CFN	Configuration record
MSCL	(0)-8191	Maximum number of Speed Call lists

LD18-Add or change a Speed Call list to be used for each Pretranslation calling group.

REQ	NEW, CHG	New 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	No, (Yes)	Data is correct and can be updated in data store
STOR	x *	x is the first digit dialed * = block call
	x ***	*** = delete the digit
	x space <CR>	space <CR> = pass digit unchanged
	x yyyy...y	yyyy...y = replacement digits
WRT	No, (Yes)	Data is correct and can be updated in data store
STOR	<CR>	Ends input of list entries

LD18-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 LD15.

REQ	NEW, CHG	New or change
TYPE	PRE	Pretranslation (X11 release 14 and later software)
CUST	0-99	Customer number
XLAT	xxx yyyy	Pretranslation list xxx = Pretranslation calling group number (0-254) yyyy = corresponding Speed Call list number (1-8190) Note: XLAT appears in LD15 in X11 release 13 and earlier software.

LD15-Activate Pretranslation and define calling groups to Speed Call list correlation.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
PREO	0, 1	Allow or deny Pretranslation 0 = no Pretranslation 1 = Pretranslation
XLAT	x yyyy	Pretranslation list x = Pretranslation calling group number (0-7) yyyy = corresponding Speed Call list number (1-8190) Note: XLAT appears in LD18 in X11 release 14 and later software.

LD10-Associate a 500/2500 telephone with a Pretranslation group.

REQ	NEW, CHG	New or change
TYPE	500	Telephone type
TN	I 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)

LD11-Associate a SL-1 or Meridian digital telephone with a Pretranslation group.

REQ	NEW, CHG	New or change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I 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

There is no specific procedure required to operate this feature.

Privacy

SL-1 and Meridian digital 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 500/2500 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

- Privacy Override
The user can override the inherent privacy on SL-1 and Meridian digital 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 basic X11 system software.

Feature implementation

Not applicable.

Feature operation

There is no specific procedure required to operate this feature.

Privacy Override

An SL-1 or Meridian digital 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 single line telephones.

Feature interactions

- Exclusive Hold
Telephones with POA class of service cannot bridge into calls on Directory Numbers (DNs) with Exclusive Hold active.
- Call Transfer
Calls in a Privacy Override conference state cannot be transferred.
- Call Park
Calls in an Privacy Override conference state cannot be parked.
- 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 basic X11 system software.

Feature implementation

LD11-Allow or deny Privacy Override on an SL-1 or digital telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	I 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 SL-1 and Meridian digital 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

Available only with SL-1 or Meridian digital telephones in multiple appearance single call arrangements.

The system must be equipped with a conference loop.

Feature interactions

- 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 basic X11 system software.

Feature implementation

LD11-Allow/deny Privacy Release for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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 an SL-1 or Meridian digital 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
- 500/2500/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 number of 126 Private Lines are available per customer.

X11 release 14 and later software allow 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 (SL-1 or Meridian digital 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
- Call Forward No Answer
- 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.

Feature packaging

Private Line Service is included in basic X11 system software.

Feature implementation

LD16-Add or change a Private Line trunk route.

REQ	CHG	Change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUTE	0-511	Route number
TKTP	COT	Central Office trunk
AUTO	Yes, (No)	Trunks in this route autoterminate
ICOG	IAO	Incoming and outgoing route

LD14-Add or change Private Line trunks in the Private Line trunk route.

REQ	NEW, CHG	New or change
TYPE	COT	Central Office trunk
TN	l 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	Yes, (No)	Call modification is or is not inhibited for private line

LD10-Add or change Private Line Service for 500/2500 telephones.

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 LD14)

LD11-Add or change Private Line Service for SL-1 Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 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 LD14)
	xx PVR yyy...y	Private Line ringing key (yyy...y is the same as for PRDN prompt in LD14)

Feature operation

There is no specific procedure required to operate 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 (CMIN)
- 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
- Message monitoring

Note: Upon loading X11 release 19, these features are not automatically activated. You must go into LD17 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 that, 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 (that is, 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
- Background Terminal (BGD), package 99

Note: PMSI Standardization requires release 19 software.

Feature implementation

Refer to *Property Management System Interface description* (553-2801-101).

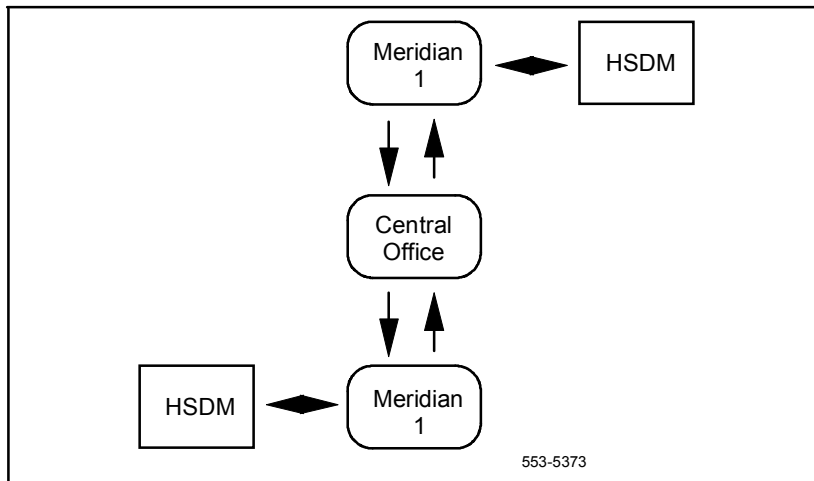
Feature operation

There is no specific procedure required to operate 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 142-1.

Figure 142-1
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 kb digital data call. The digital data call then transports across the vendor's digital network to another Meridian 1 or an SL-100.

Note 1: Public Switched Data Service (PSDS) requires X11 release 16 or later. The various data modules are supported for different releases.

Note 2: The Meridian Communications Adapter (MCA) operates with X11 release 16 and later. The QMT21 module operates with X11 releases 16 and 17.

Operating parameters

PSDS calls are supported in the following situations:

- an SL-1 and the Central Office (CO)
- a tandem call from an SL-100 to an SL-1
- an SL-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 SL-1 networks (Point to Point), users can access the existing data facility in the SL-1 to support data calls, or they can select the Switched 56 data mode. For mixed vendors 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

PSDS is included in basic 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 *X11 input/output guide* (553-3001-400) to configure the Route Data Block.

Feature operation

Originating data calls

For direct access, dial the regular 7-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 PSDS, 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-232-C or V.35 interface. With release 14 and later, the MCA also allows synchronous applications (DTEs such as, video conferencing equipment and Group 1V fax units) to be connected to the telephone. Refer to *Meridian Communications Unit and Meridian Communications Adapter* (553-2731-109) for detailed information on the MCA.

Meridian Communications Unit (MCU)

The Meridian Communications Unit (MCU) is a release 19 feature that provides a stand-alone 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 asynch, and 64 Kbps synch, 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
- 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, and 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. Uses PSDS and T-Link protocols on external calls
- Meridian Communications Unit (MCU) - a stand-alone- version of the MCA. Uses T-Link and PSDS protocols on external calls.
- Basic Rate Interface (BRI) telephones. Use T-Link, V.110, and V.120 protocols.
- High Speed Data Module (HSDM). When configured to use PSDS.

Refer to *Transparent Data Networking* (553-2731-110) for detailed information on TDN.

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)

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 using the QPC74, 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).

Feature interactions

When using the QPC74, all ports on the card must be dedicated as TYPE RAN or TYPE MUS.

Feature packaging

- Recorded Announcement (RAN), package 7, requires:
- Intercept Treatment (INTR), package 11

Feature implementation

LD16-Add or change Recorded Announcement (RAN) trunk route. (Part 1 of 2).

REQ	NEW, CHG	New 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.

LD16-Add or change Recorded Announcement (RAN) trunk route. (Part 2 of 2).

	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	Yes, (No)	Supervision is or is not 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.		

LD14-Add or change Recorded Announcement (RAN) trunk.

REQ	NEW, CHG	New 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 xxx = 0-511 yyy = 1-254

Feature operation

There is no specific procedure required to operate 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 LD15. The following thresholds can be defined for these timers.

Table 144-1
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 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) cannot share the same trunk card.

Private Lines are not eligible for ROA.

Feature interactions

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
- Station Category Indication (SCI)
- Night Service
The ROA feature is inactive when the system is in Night Service.
- Automatic Call Distribution (ACD)
The RAN route used for ROA may be the same route that is used for ACD and Intercept Treatment.

Feature packaging

Recorded Overflow Announcement (ROA), package 36, requires:

- Recorded Announcement (RAN), package 7

Feature implementation

LD16-Add or change Recorded Announcement (RAN) trunk route.

REQ	NEW, CHG	New 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
	AUD	Audichron recording device (required when connecting to a Universal Trunk Card)
	CK2	Cook Electric recording device
	DGT	Digital Recorders 213300 & 213400. Allows announcements of up to 192 seconds on X11 release 15 and later software.
CON		NT7M series digital recorders. Allows announcements of up to 512 seconds on X11 release 15 and later software.
REP	1-15	Number of times announcement is repeated during each connection
POST	ATT	Call is routed to attendant after specified number of repetitions (applies to Direct Inward Dialing (DID) calls on Intercept)
	DIS	RAN is removed after specified number of repetitions (call keeps its place in Automatic Call Distribution (ACD) queue)
STRT	IMM	Call connects immediately to announcement
	DDL	Call connects to announcement at the start of announcement
ASUP	Yes (No)	Supervision is or is not 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.		

LD14-Add or change Recorded Announcement (RAN) trunk.

REQ	CHG	Change
TYPE	RAN	RAN trunk data block
TN	l s c u	Terminal Number
CUST	0-99	Customer number
RTMB	xxx yyy	Route and member number xxx = 0-511 yyy = 1-254

LD15-Enable a Recorded Announcement (RAN) route for the customer.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	ROI/(ROX)	Recorded Overflow included (excluded)
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

There is no specific procedure required to operate this feature.

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

There are no feature interactions.

Feature packaging

Recorded Telephone Dictation is included in basic X11 system software.

Feature implementation

LD16-Add or change a trunk route for the Recorded Telephone Dictation feature.

REQ	CHG	Change
TYPE	RDB	Route Data Block
CUST	0-99	Customer number
ROUT	0-511	Route number
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

LD14-Add or change a trunk for the Recorded Telephone Dictation feature.

REQ	CHG	Change
TYPE	RDB	Route Data Block
TN	l s c u	Terminal Number
CUST	0-99	Customer number
RTMB	rrr mm	Route and member number
SIGL	aaa	Trunk signaling
STRO	aaa	Outgoing start arrangement
SUPN	Yes, (No)	Answer and disconnect supervision required

Feature operation

There is no specific procedure required to operate this feature.

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 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 LD15, at the SCPL prompt
- add passwords in LD10 and LD11, at the SCPW prompt
- allow Call Forward All Calls in LD10 and LD11
- define Remote Call Forward Activate (RCFA), Deactivate (RCFD), and Verify (RCFV) Flexible Feature Codes (FFC) in LD57

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.

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 ACD telephone should not appear as a Prime DN on another telephone.

Changes to the Station Control Password length do not take affect until after a data dump and sysload.

Refer to Flexible Feature Codes for additional information.

Operating parameters

RCFW is not supported for ACD telephones.

Feature interactions

Attendant Administration - Attendant Administration does not support the telephone programming associated with Remote Call Forward.

Feature packaging

The following software packages are required to implement Remote Call Forward:

- Extended PBX Features (OPTF), package 1
- Flexible Feature Codes (FFC), package 139
- Controlled Class of Service (CCOS), package 81

The following software packages are required to implement RCFW on 500/2500 telephones.

- 2500 Telephone Features (SS25), package 18
- 500 Telephone Features (SS5), package 73

Feature implementation

LD15 - Set the Station Control Password length.

REQ	CHG	Change
TYPE	CDB	Customer Data block
CUST	0-99	Customer number
SCPL	0-8	Station control password length (0-8) Entering 0 deletes the password and disables the Remote Call Forward 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

LD57 - Define Remote Call Forward FFCs.

REQ	CHG	Change
TYPE	FFC	Flexible Feature Codes
FFCT	Yes, (No)	FFC Confirmation Tone (optional)
CODE	RCFA	Remote Call Forward Activate
RCFA	xx	xx = RCFA code
CODE	RCFD	Remote Call Forward Deactivate
RCFD	xx	xx = RCFD code
CODE	RCFV	Remote Call Forward Verify
RCFV	xx	xx = RCFV code

LD10 - Set the Station Control Password for single line telephones and allow Call Forward.

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 LD15)
	X	Entering X deletes the password
FTR	CFW 4-(16)-23	Allow Call Forward and set forwarding DN length.

LD11 - Set the Station Control Password for SL-1 and Meridian digital telephones and allow Call Forward.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
SCPW	xxx...x	Station control password (0-8 digits as defined by prompt SCPL in LD15)
	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 digits (defined in LD15).

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 will be forwarded.
- 5 Dial the end-of-entry digit(s).

If the number you are forwarding calls to does not match your entry in step 4, you will hear a fast busy signal. You will hear a confirmation tone after entering the forward number if they do match and confirmation tone is enabled in LD57.

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 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 SL-1 common equipment
- A Digital carrier link (such as Northern Telecom LD-1)
- 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
- 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 (TFS), (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.

LD17-Add or change a voice/RPE loop(s) (Part 1 of 2).

REQ	CHG	Change
TYPE	CFN	Configuration data block
CEQU	Yes, (No)	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 yyy = 0-79 0-79 For enhanced networks xxx yyy = 0-159 0-159

LD17-Add or change a voice/RPE loop(s) (Part 2 of 2).

REMO	xxx yyy	Single density remote terminal loops xxx yyy = 0-79 0-79 For enhanced networks xxx yyy = 0-159 0-159
TERD	xxx yyy	Double density local terminal loops For nonenhanced networks xxx yyy = 0-79 0-79 For enhanced networks xxx yyy = 0-159 0-159
REMD	xxx yyy	Double density remote terminal loops For nonenhanced networks xxx yyy = 0-79 0-79 For enhanced networks xxx yyy = 0-159 0-159
TERQ	xxx yyy	Quad density local terminal loops For nonenhanced networks xxx yyy = 0-79 0-79 For enhanced networks xxx yyy = 0-159 0-159
REMQ	xxx yyy	Quad density remote terminal loops For nonenhanced networks xxx yyy = 0-79 0-79 For enhanced networks xxx yyy = 0-159 0-159

Feature operation

There is no specific procedure required to operate 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. 500/2500 telephones have 6 seconds, while SL-1 and digital telephones have 30 seconds.

Operating parameters

A key/lamp pair must be assigned to SL-1 and digital telephones for Ring Again. M3000 and M2317 telephones access Ring Again with a soft key.

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 500/2500 telephones, a Special Prefix (SPRE) or Flexible Feature Code (FFC) may be used.

Feature interactions

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 Queueing option to queue for outgoing trunks.

Feature packaging

Ring Again is included in Extended PBX Features (OPTF), package 1, and has no feature package dependencies.

Feature implementation

LD10-Add or change Ring Again for single line telephones.

REQ	CHG	Change
TYPE	500	Single line telephone
TN	l s c u	Terminal Number
CLS	XRA, (XRD)	Ring Again is allowed or denied

LD11-Add or change Ring Again for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx RGA	Ring Again key 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.

SL-1 and Meridian digital 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.

Single line 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.

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 500/2500 telephones. A new customer option allows a visual indication of when the 500/2500 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-232-C 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:

- 500/2500 telephones
- SL-1 and M1309 telephones
- 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 AUTOVON, 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 500/2500 telephones. This is mutually exclusive of Integrated Messaging System (IMS) and Meridian Mail Message Centers.

All 500/2500 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, then the wake-up call for that room is canceled after a check-in or check-out operation.
- 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
- Background Terminal (BGD), package 99

For lamp status, the requirements are as follows:

- Do Not Disturb, Individual (DNDI), package 9
- Message 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.

LD10-Add or change Controlled Class of Services (CCOS) for 500/2500 telephones requiring Room Status updates.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	CCSA, (CCSD)	Controlled CLS allowed or denied

LD11-Add or change Room Status key (RMK) for digit display telephones used for Room Status.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	ADD	Automatic digit display enabled
	DDS	Digit display enabled
KEY	xx RMK	Room Status key

LD15-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 500/2500 telephones equipped with a Message Waiting (MW) lamp.

REQ	CHG	Change
TYPE	CDB	Customer data block
CUST	0-99	Customer number
DNDL	Yes	Indicator goes on when DND is active
	(No)	Default; indicator does not go on
CCOS	UNR	Unrestricted call service
	CUN, CTD, TLD, SRE, FRE, FR1, FR2	With CCOS active, the restrictions entered apply

Feature operation

To read the Room Status by using the RMK (display needed):

- 1 Without lifting the handset, press **Status**.
- 2 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)
- 7 = NS (not for sale)

To change the Room Status by using the RMK:

- 1 Without lifting the handset, press **Status**.
- 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)
 - 7 = NS (not for sale)
- 4 Press **Status**.

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)
 - 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*.

Secretarial Filtering

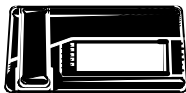
Secretarial Filtering is an application of Call Forward All Calls. It allows you to forward all calls to a second telephone. The user at the second telephone answers the forwarded calls and can choose to transfer the call back to you.

In the following example, a manager at DN 2222 forwards all calls to a secretary at DN 3333.

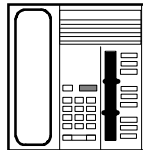
A call placed to DN 2222 is forwarded to the secretary at DN 3333. The secretary answers the calls decides that the manager should take the call, and transfers it back to DN 2222. The secretary can also place calls from DN 3333 to DN 2222. In this example the manager receives only the calls originated or transferred by the secretary.

Figure 150-1
Secretarial Filtering example

- 1 Call to 2644 is forwarded to 2743
- 2 Call is answered on 2744 and transferred to 2643
- 3 2744 answers only calls forwarded from 2644.
It can originate and transfer calls.



Set A
PDN 2643



Set B
PDN 2743

SDN 2644
CFAC to 2744

SDN 2744

553-5359

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 DNs 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

There are no feature interactions.

Feature packaging

Secretarial Filtering is included in basic 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 [Call Forward All Calls](#) on page 40-1.

Short Buzz for digital telephones

When a call is presented to a digital telephone that is offhook, a buzz tone is given. The duration of this secondary buzz is shortened from 2 seconds to an average of 0.8 seconds, with a minimum length of 0.5 seconds and a maximum length of 1 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 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

This capability is included in basic X11 system software.

Feature implementation

Not applicable.

Feature operation

Not applicable.

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, SL-1 telephones, Meridian digital telephones, and attendant consoles may have a Speed Call key/lamp pair.

500/2500 telephones can activate Speed Call by using Special Prefix (SPRE) or Flexible Feature Codes (FFC).

500/2500 telephones, SL-1 telephones, Meridian digital 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. SPU's cannot program Speed Call codes; they can use only the Speed Call lists.

Each stored number is assigned a Speed Call code from the Speed Call list. Each list may 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 SL-1 telephone, Meridian digital telephone, or attendant console. Any number of users can be assigned to a list. 500/2500 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, may be programmed as part of the entry.

Speed Call list entries can be defined in LD18 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

- Last Number Redial
 A number dialed using Speed Call will become the Last Number Redial number on all telephones except the M2317 and M3000.

Feature packaging

Speed Call is part of Extended PBX features (OPTF), package 1, and has no feature package dependencies.

Feature implementation

LD17-Set maximum number of Speed Call lists.

REQ	CHG	Change
TYPE	CFN	Configuration Record
MSCL	0-8191	Maximum number of Speed Call lists (quantity)

LD18-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.

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

LD18-Add or change a Speed Call list.

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 (4, 8, 12, 16, 20, 24, 28, or 31)
SIZE	1-1000	Maximum number of entries in the Speed Call list
WRT	No, (Yes)	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	No, (Yes)	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.

LD10-Add or change Speed Call for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
FTR	SCU yyyy	Speed Call User, list number (0-8190)
	SCC yyyy	Speed Call Controller, list number (0-8190)

LD11-Assign a Speed Call list to SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx SCU yyyy	System Speed Call User key
	xx SCC yyyy	Speed Call Controller key xx = key number yyyy = Speed Call list number (0-8190) Note: M3000 must use key 21. M2317 must use key 0-10 or key 21.

LD12-Assign a Speed Call list to an attendant console.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	l s c u	Terminal Number
KEY	xx SCC yyyy	Speed Call Controller xx = key number yyyy = list number (0-8190)

Feature operation

To store Speed Call entries from an SL-1, Meridian digital 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 an SL-1, Meridian digital 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 a 500/2500 telephone (Controller):

- 1 Lift the handset and press octothorpe (#) +2 (2500 telephone) or SPRE+75 (500/2500 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 one through three for each entry to be stored.

To make a Speed Call (User):

- 1 Lift the handset and dial #3 (2500 telephone), or SPRE 76 (500/2500 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 ESN access code and dialed number. The digits stored are recorded in CDR, if equipped, for billing purposes.

The Speed Call entry can be one of the following:

- SPRE + 6 + Authorization Code
- SPRE + 6 + Authorization Code + #
- 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 SL-1 and Meridian digital 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 feature interactions.

Feature packaging

The following packages are required to implement this enhancement:

- Basic Authorization Code (packages 24 and 25) or Network Authorization Code (option 63)
- Autodial/Speed Call (package 1) or System Speed Call (option 34) or Network Speed Call (package 39)

Feature implementation

An Authorization Code can now be entered as part of a Speed Call list.

Feature operation

Not applicable.

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, TGAR access restrictions and code restrictions.

500/2500 telephones, SL1 telephones, Meridian digital telephones and attendant consoles can activate System Speed Call by using SPRE or Flexible Feature Codes (FFC).

A 500/2500 telephone can be designated as a System Speed Call User only (not Controller) and can access one System Speed Call list. SL-1 and Meridian digital 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 you can define 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 may 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 LD18 or from telephones or attendant consoles equipped with a System Speed Call Controller key.

Prior to X11 release 19, the craftsperson enters each System or regular Speed Call List individually. X11 release 19 enhances LD 18 so the craftsperson can add or copy up to 100 System and regular Speed Call Lists at a time.

Feature interactions

- Basic or 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.
- 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.
- Attendant Administration
System Speed Call lists may be assigned using Attendant Administration.
- 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.
- Flexible Feature Code (FFC)
With FFC, a confirmation tone is provided for speedcall store after the EOD (end-of-dial) string is entered.

Feature packaging

System Speed Call (SSC), package 34, has no feature package dependencies.

Feature implementation

LD17-Set maximum number of Speed Call lists.

REQ	CHG	Change
TYPE	CFN	Configuration Record
MSCL	0-8190	Maximum number of Speed Call lists (quantity)

LD18-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.

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

LD18-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; xxxx = number of list to be copied; 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 (4, 8, 12, 16, 20, 24, 28, or 31)
SIZE	1-1000	Maximum number of entries in the Speed Call list
WRT	No, (Yes)	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	No, (Yes)	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.

LD10-Add or change System Speed Call for 500/2500 telephones.

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)

LD11-Add or change System Speed Call list for SL-1 and digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
SSU	yyyy	System Speed Call list number (0-4095) for dial access
KEY	xx SSU yyyy	System Speed Call user key
	xx SSC yyyy	System Speed Call Controller key xx = key number yyyy = System Speed Call list number (0-4095) Note: M2317 and M3000 must use key 21.

LD12-Add or change a System Speed Call list for attendant consoles.

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 xx = key number yyyy = System Speed Call list number (0-4095)

Feature operation

To store System Speed Call entries from an SL-1, Meridian digital 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 remains flashing.

To make a System Speed Call from an SL-1, Meridian digital 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 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 a 500/2500 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 may be equipped 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
- 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 LD15, 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 7 station categories (1-7) may 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

- **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.
- **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.

Feature packaging

Station Category Indication (SCI), package 80, has no feature package dependencies.

Feature implementation

LD15-Add or change a Station Category Indication ICI key/lamp pair for attendant consoles.

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	Full restricted (call from fully restricted telephones)

LD10-Change SCI for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
SCI	0-7	SCI number

LD11-Change SCI for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
SCI	0-7	SCI number

Feature Operation

Not applicable.

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 500/2500 and digital telephones; it does not apply to 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 pre-assigned 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 may be assigned to more than one ATR telephone.

There is cross-checking between Overlays 10 and 11, which define a station specific authorization code, and Overlay 88, which ensures that the user has entered a valid authorization code.

Overlay 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 ATR 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 available as package 229. Basic Authorization Codes (BAUT) (package 25) is a prerequisite.

Feature implementation

The following entries create the Authorization Code data block:

LD88-Create Authorization Code data block (AUB).

Prompt	Response	Comment
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
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)

The following entries create the Authorization Code Table.

LD88-Create an Authorization Code Table.

Prompt	Response	Comment
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)

The following service changes are required to activate Station Specific Authorization Code.

LD10/11-Activate SSAU.

Prompt	Response	Comment
REQ	NEW/CHG	Add or modify
TYPE	xxxx	Telephone type: 500 (500 or 2500) 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000, SL1
CLS	(AUTU), AUTR, AUTD	Authcode unrestricted Authcode restricted Authcode denied
MAUT	YES/(NO)	Modify assigned authcodes for this telephone
SPWD	xxxx	Correct security password (if one is defined)
AUTH	x nnnn X x	x is in the range of 1-6; nnnn is the assigned authcode (a valid authorization code defined in Overlay 88). 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.		

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 offhook.
- 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 basic X11 system software.

Feature implementation

Not applicable.

Feature operation

There is no specific procedure required to operate 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 500/2500 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 single line 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 3 second delay in outpulsing.

The 3 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 an SL-1 or digital 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 500/2500 telephones, in order to store a number dialed to a busy DN, the maximum length of the stored number must be at least 5 (see prompt FTR RDL xx in LD10).

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.
- 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.

Feature packaging

Stored Number Redial (SNR), package 64, has no feature package dependencies.

Feature implementation

LD10-Add or change SNR for single line telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	XFA, (XFD)	Call Transfer allowed
FTR	RDL xx	Activate SNR xx is the maximum number of digits that can be stored xx = 4, 8, 12, (16), 20, 24, 28, 31

LD11-Add or change SNR for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx RDL yy	Add an SNR key xx = key number yy is the maximum number of digits that can be stored yy = 4, 8, 12, (16), 20, 24, 28, 31

LD12-Add or change SNR for attendant consoles.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	l s c u	Terminal Number
KEY	xx RDL	Add a SNR key

Feature operation

Attendant consoles, SL-1, and digital telephones

To store a number prior to dialing (for attendant consoles, SL-1, and digital 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 SL-1 and digital telephones only):

- 1 Press **Stored No.**

To call a stored number:

- 1 Press **DN** (SL-1 or digital telephones) or the **Loop** key (consoles).
- 2 Press **Stored No.** The number is dialed.

500/2500 telephones

To store a number prior to dialing:

- 1 Lift the handset.
- 2 Dial SPRE 78, or the 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.

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.

Note: Digital telephones is used as a generic term and includes the M2000 series telephones, the M2317 telephone, the M3000 Touchphone, and Meridian Modular Telephones.

500/2500 type telephones

500/2500 type telephones are regular telephones not normally associated with a business environment, but they are compatible with the Meridian 1 system. 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 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 SL-1 or Meridian digital 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 159-1 lists the feature codes available using SPRE.

Table 159-1
Feature codes used with SPRE (Part 1 of 2)

Dial SPRE +	Operation performed
1	Ring Again
2	Cancel Ring Again
3	Ringing 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

Table 159-1
Feature codes used with SPRE (Part 2 of 2)

Dial SPRE +	Operation performed
86 + x (status)	Room Status
86 + 1	Cleaning Request
86 + 2	Cleaning In Progress
86 + 3	Room Cleaned
86 + 4	Passed Inspection
86 + 5	Failed Inspection
86 + 6	Cleaning Skipped
86 + 7	Not For Sale
87	Disconnect Trunk, Conference 6 (500/2500 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 ACD-PBX telephone Log in/out
98	Unassigned ACD-PBX telephone Activate/deactivate Not Ready

Table 159-2
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 3 fixed control keys. Table 159-3 summarizes the different models of SL-1 telephones.

Table 159-3
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 159-4 lists the modules you can add on to an SL-1 telephone.

Table 159-4

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 9 programmable keys.
- M2018 has 18 programmable keys.
- 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 telephone

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 above describes as being accessible. Each soft key is associated with a label, seven characters wide, on the display screen immediately above the key.

Soft keys 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 soft keys. Some features cannot be added to the soft keys. See Table 159-5 for a description of soft key feature assignments.

Note 1: 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.

Note 2: The second appearance of a data DN must be assigned to key 10 on the voice TN, for keypad dialing.

Table 159-5
M2317 soft key 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
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 LD11):		
19	RNP	Ringing 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 159-6 gives information on feature key assignments.

Note: The second appearance of a data DN must be assigned to key 17 on the voice TN for keypad dialing.

Table 159-6
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 159-6
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 1: 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 SL-1 and SL-100, using digital transmission over standard twisted-pair wiring. Table 159-7 summarizes the different models of Meridian Modular Telephones.

Note: 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 159-7
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 jacks

The Meridian Modular Telephones are designed to accommodate various add on modules to increase their functionality. Table 159-8 lists the modules you can add on to a Meridian Modular Telephone.

Table 159-8
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

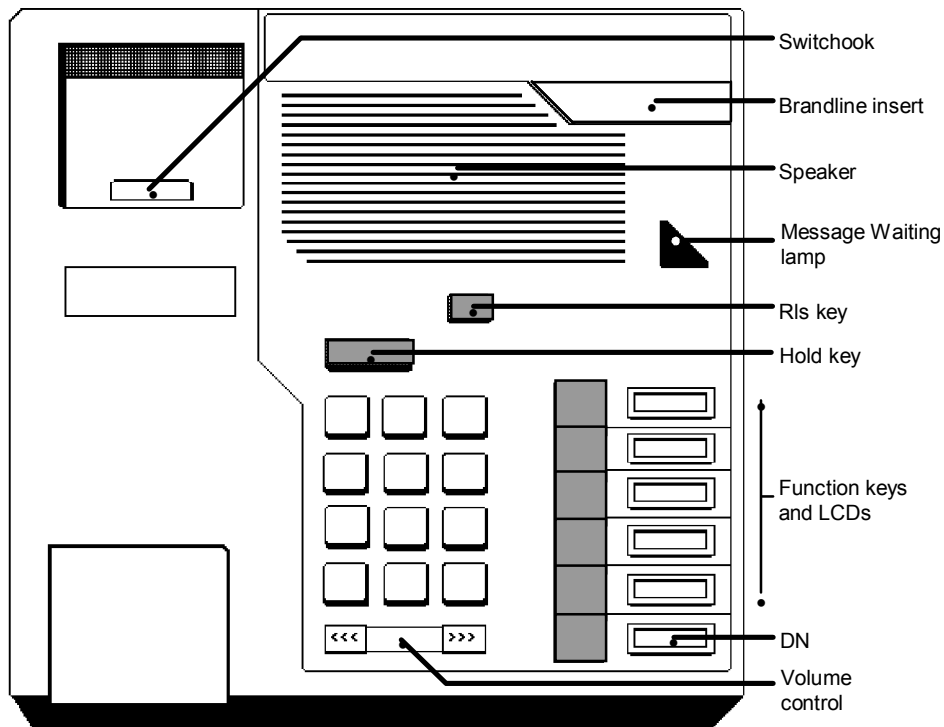
The M2006 is a digital single-line telephone that provides on-hook dialing, volume control, Release, and Hold keys, and a Message Waiting indicator. In addition, it provides four or five programmable feature keys (five if the data option is not in use). It also has a one-way speaker and a programmable data option.

The M2006 may have an optional external alerter interface which connects to any standard remote alerting device.

The M2006 works off any digital line card

Figure 159-1 shows the M2006 telephone.

Figure 159-1
M2006 telephone



553-1850

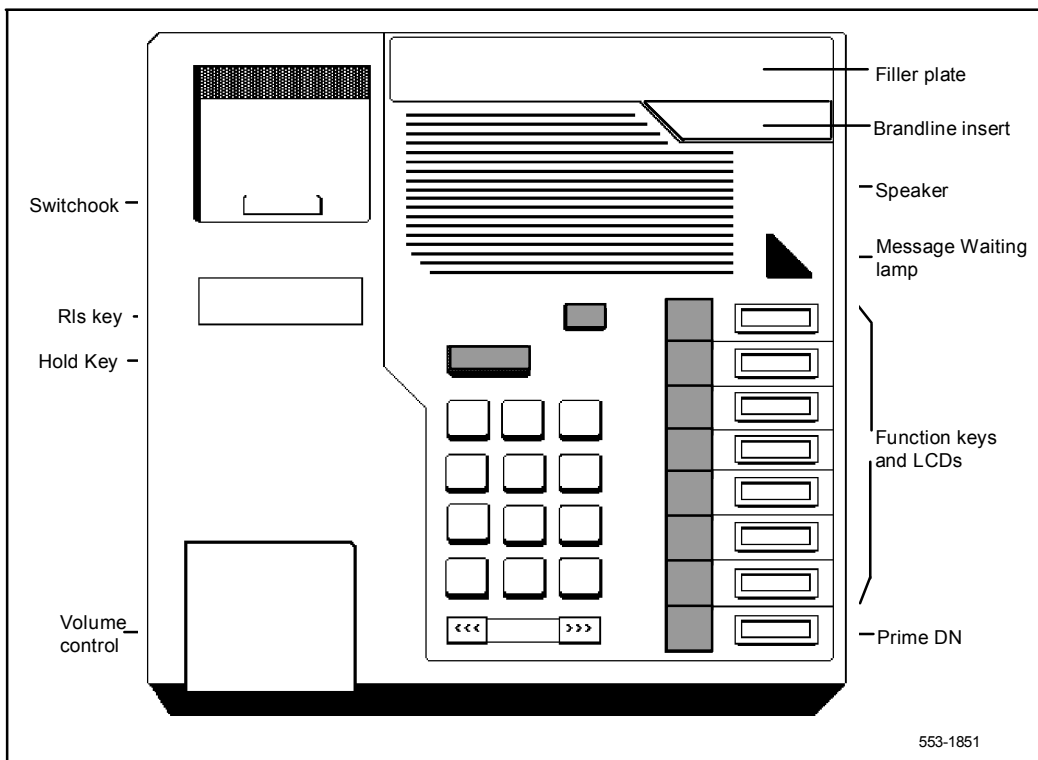
M2008

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 159-2 shows the M2008 telephone.

Figure 159-2
M2008 telephone



M2616, M2216 (Models 1 and 2)

The 2616 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 of (each of 22 keys), an alphanumeric display option (two lines of 24 characters each), programmable data adapter, and an external alert interface.

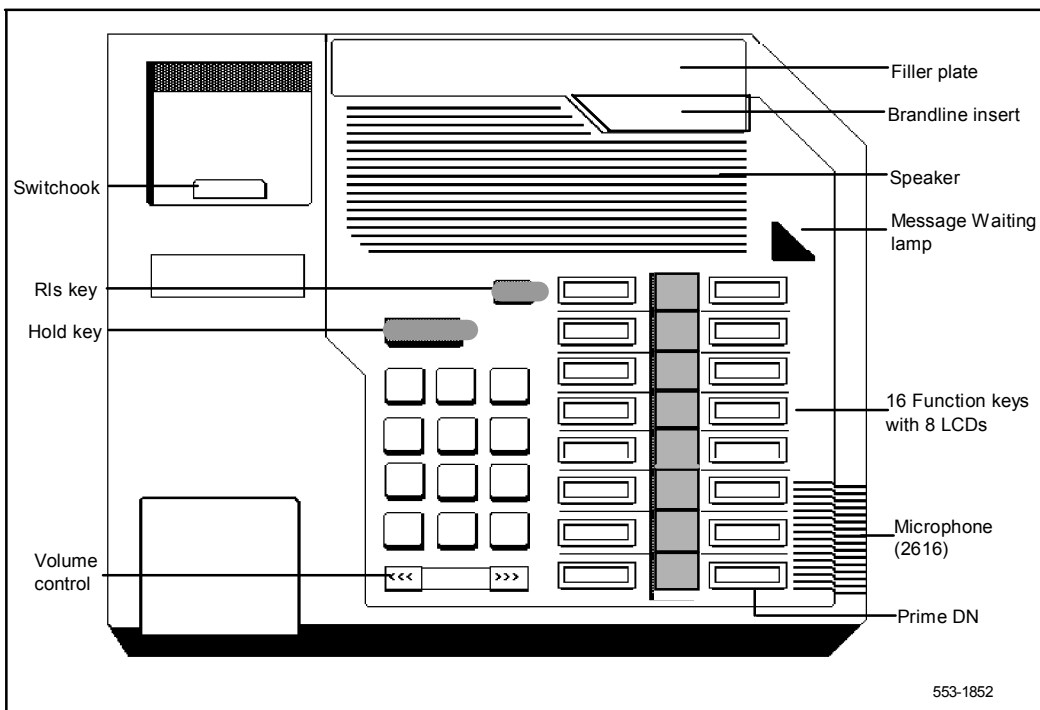
The M2616 Model 1 and the M2216 Model 2 are almost identical to the M2616 with the following exceptions:

- 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.

Figure 159-3 shows the M2616 telephone.

Figure 159-3
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)
- *X11 input/output guide* (553-3001-400)

Operating parameters

Refer to the preceding Northern Telecom publications.

Feature interactions

Refer to the preceding Northern Telecom publications.

Feature packaging

500/2500 type and SL-1 telephone capabilities are included in basic 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
- M3000 Touchphone (TSET), package 89

Feature implementation

LD10-Add or change 500/2500 type telephones.

REQ	NEW, CHG	New or change
TYPE	500	Telephone type
TN	l s c u	TN location (loop, shelf, card, unit)
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	0 - xx	Customer number
DN	xxx...x	Directory number
TGAR	0 - xx	Trunk Group Access Restriction
CLS	aaa	Class of service mnemonics for feature assignment

LD11-Add or change SL-1 and digital telephones.

REQ	NEW, CHG	New or change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
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. Note: Card density must be 4D if TYPE is not SL-1.
DES	a...x	Designator (1 - 6 characters, alphanumeric)
CUST	0-99	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)
<p>Note 1: A Message Waiting allowed (MWA) Class of Service must be defined to enable the message waiting lamp.</p> <p>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.</p>		

LD17-Meridian Modular Telephones related prompts and responses.

REQ	CHG	Change
TYPE	CFN	Configuration record
ATRN	(No), Yes	Change transmission parameters
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.		

LD17-Meridian Modular Telephones related prompts and responses for X11 release 18 and later.

REQ	CHG	Change
TYPE	CFN	Configuration record
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
TOLR	(0)-63	Transmit Objective Loudness Rating
AGCD	Yes, (No)	Automatic Gain Control disabled
Note: Default settings are recommended. See <i>Summary of transmission parameters</i> (553-2201-182) before changing these parameters.		

LD11-Add data TN to digital telephones.

REQ	NEW	New
TYPE	aaaa	Telephone type aaaa = 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
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	Yes, (No)	All digital connection prefix
KEY	xx aaa yyy...y	DN and feature key assignment (key number, feature mnemonic, directory number if applicable). See Note.
<p>Note: Recommended key assignments for data TN are</p> <p>Key 0 = DN (for data)</p> <p>Key 1 = DN (secondary)</p> <p>Key 2 = TRN (Transfer)</p> <p>Key 3 = ADL xxxx (Auto Dial directory number)</p> <p>Key 4 = RGA (Ring Again)</p> <p>Key 5 = SSC, SCU, SSC, SSU (Speed Call, System Speed Call, controller or user-not available on M2006)</p> <p>Key 6 = DSP (Display key for M2008, M2016S, M2216ACD, M2616)</p>		

LD11-Add data TN to SL-1 telephones with data module.

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 8
CUST	0 - 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). See Note.
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) Key 9 = RLS (Release)		

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 (MOT) 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 MOT 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 MOT 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 1 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 MOT 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.

Feature interactions

Loops used when updating time or date cannot be put on hold.

A call cannot be answered while the display/change key is activated; however, the keys can be used once the call is established.

Feature packaging

Time and Date (TAD), package 8, has no feature package dependencies.

Feature implementation

LD12-Assign Time and Date keys on attendant consoles.

REQ	CHG	Change
TYPE	ATT, 1250, 2250	Console type
TN	l s c u	Terminal Number
KEY	xx DDT	Add a Display Date key
	xx DTM	Add a Display Time key
	xx MOT	Add a Display/Change Date key
	xx MTM	Add a Display/Change Time key
Note: The range of key numbers (xx) is 0-19 on the M2250 console, 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 (MOT)**.
- 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 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 are available on all systems. Flexible Tones and Cadences (FTC) in X11 release 16 allow the tones to be changed.

Basic Tones and Cadences

Special dial tone

Special dial tone is supplied by the system to indicate that 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 may 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 his or her telephone. Overflow tone is best described as a fast sounding 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 161-1). 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 161-2).

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 the 500/2500 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 5 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.

Feature interactions

A customer option determines whether the cadence will be defined by the originating or by the terminating end of the call.

- Audible Reminder of Held Call
This feature allows for a definable cadence as a reminder of a held call. With a 500/2500 telephone, the cadence is determined by the customer's Flexible Tones and Cadence (FTC) table for the holding party. Ringing on a 500/2500 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 Park Recall and Group Call Ring**
Recall Ring and Group Call Ring will be given special entries in the FTC table. New entries will be added to the FTC overlay (LD56) to define the cadence for SL-1, digital, and 500/2500 telephones. The new Recall Ring entry will be used to ring a telephone when recalling a Parked Call.
- **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.

Operating parameters

The tones that can be produced are limited to which tones are 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, then the Call Park Recall cadence takes precedence. If FTC is not equipped, then the distinctive precedence ringing is given.

Because Enhanced Flexible Tones and Cadences (EFTC) is an enhancement of Flexible Tones and Cadences (FTC), the FTC package must be equipped.

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 161-1

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 CO trunks waiting for the DN to answer.
ACD RGA Ringback tone	Given to a caller to an 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, disabled, or that a not-allowed action has been carried out.
LDN tone	Indicates to a 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.

Table 161-1
Hardware controlled tones (Part 2 of 2)

Tone	Description
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 attendant from 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 161-2
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.

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
- 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 SL-1 and Meridian digital telephones.

Flexible Incoming Tones does not apply to the following:

- 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
- 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

- ACD
If an ACD agent telephone has FIT allowed and is either 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

This capability is included in basic X11 system software.

Feature implementation

LD15-Allow or deny Flexible Incoming Tones (FIT) at the customer level.

REQ	CHG	Change
TYPE	CDB	Customer Data Block
CUST	0-99	Customer number
OPT	SBA, (SBD)	FIT allowed (denied) for SL-1 sets
	DBA, (DBD)	FIT allowed (denied) for Meridian digital telephones

LD11-Allow or deny Flexible Incoming Tones for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	FITA, (FITD)	FIT allowed (denied)

Feature operation

There is no specific procedure required to operate this feature.

Trunk Verification from a Station

Trunk Verification from a Station (TVS) provides the capability for a classmarked 2500 type telephone 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 PBX 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) class 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 LD32.

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.

Feature packaging

Trunk Verification from a Station (TVS), package 110, has no feature package dependencies.

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) restrictions 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 implementation

LD10-Allow or deny Trunk Verification from a 2500 telephone.

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	TVA, (TVD) DTN	Allow (Deny) TVS 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
mmm	is the number of the trunk member that is to be seized, mmm must be three digits (001, for example)

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

- Barge-In, Busy Verify, and 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

This capability is included in basic X11 system software.

Feature implementation

LD10-Assign Warning Tone Allowed for 500/2500 telephones.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	WTD, (WTA)	Warning tone denied (allowed)

LD11-Assign Warning Tone Allowed for SL-1 and Meridian digital telephones.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
CLS	WTD, (WTA)	Warning tone denied (allowed)

LD14-Assign Warning Tone Allowed for trunks.

REQ	CHG	Change
TYPE	aaa	Trunk type aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, WAT
TN	l s c u	Terminal Number
CLS	WTD, (WTA)	Warning tone denied (allowed)

Feature operation

No procedure is required for this feature to operate.

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)
- External Hunt DN (EHT)

The Station Control Password feature must be active, with passwords defined in LD15, 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 numbers from a rotary, pushbutton, 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 USR key is available only on digital telephones.

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 LD15) 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 LD15 is replaced with DFN0, DFN1, and DFN2, with the same value range and default.

Additionally, the Ringing Cycle Option (RCO) prompt appears in LD10 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 RCO value and the CFNx and DFNx entries in the Customer Data Block.

Table 165-1
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 4 rings CFNA treatment after 2 distinctive rings
1	CFN1 (Value set to 6) DFN1 (Value set to 5)	CFNA treatment after 6 rings CFNA treatment after 5 distinctive rings
2	CFN2 (Value set to 3) DFN2 (Default value of 4)	CFNA treatment after 3 rings CFNA treatment after 4 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.

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's must be established, via a service change.

This feature cannot be used remotely. A user can only change redirection DN's or the RCO for the telephone being used to access USCR.

Feature interactions

- Autodial
USCR does not support Autodial; it cannot be used to dial all or part of the digits for USCR programming.
- Attendant Administration
Attendant Administration does not support assigning the USR key, RCO, or USRA/USRD Class of Service.
- 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 (CFCT)
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 (SFA)
The number of ringing cycles before SFA is determined by the RCO for the ringing DN, as with CFNA.
- Dial Access to Features and Services
The 9915 feature code accesses USCR from a 500/2500 or a digital telephone. The user dials this code after dialing the SPRE.
- 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.
- Enhanced Hot Line and Flexible Hot Line
A 500/2500-type telephone with a hot line feature cannot use USCR because it cannot access any features through SPRE or FFC.
- Hunting
USCR permits a user to alter the HUNT DN's or EHT from a telephone.
- 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 TN block of the MARP for the called DN determines the number of times the DN rings.
- Multiple Appearance Redirection Prime (MARP)
When a multiple appearance DN is rung, the determination of the number of ringing cycles for CFNA depends on the value of the MARP prompt in LD17. If the value is YES , the number of ringing cycles is determined by the RCO number of the DN that is classified as a MARP TN. If the DN is a Multiple Appearance DN (MADN), the RCO values in the other TN blocks for that DN are ignored.

If the MARP value is NO , the RCO is taken from the first TN in the DN block with a primary appearance of the DN. If none, then 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.
- Speedcall
Speedcall 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.

LD10-Setting up USCR for 500/2500 telephones

Prompt	Response	Comments
REQ	NEW, CHG	New or change
TYPE	500	Type of telephone
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	USRA, (USRD)	User Selectable Redirection class of service (permitting SPRE and FFC access) allowed or denied
Note: The craftsperson can use easy change to change the RCO and USRA/USRD CLS. At the ITEM prompt, type RCO <value> where value is 0-2.		

LD11- Setting up USCR for digital telephones

Prompt	Response	Comments
REQ	NEW, CHG	New or change
TYPE	xxxx	Type of telephone: SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
RCO	(0), 1, 2	Ringin Cycle Option for CFNA, in the range of 0-2, with a default of 0
SCPW	xxx...xx	Station Control Password
CLS	USRA, (USRD)	User Selectable Redirection class of service (permitting SPRE, FFC, and USR key access) allowed or denied
KEY	xx USR	Key number of the USR key
Note: The craftsperson can use easy change to change the RCO and USRA/USRD CLS. At the ITEM prompt, type RCO <value> where value is 0-2.		

LD15-Setting up USCR in the Customer Data Block

Prompt	Response	Comments
REQ	NEW, CHG	New or change
TYPE	CDB	Customer Data Block
CUST	xx	Customer number (0-99)
CFN0	xx	Number of normal rings for CFNA, Option 0 (1-15; default is 4)
CFN1	xx	Number of normal rings for CFNA, Option 1 (1-15; default is 4)
CFN2	xx	Number of normal rings for CFNA, Option 2 (1-15; default is 4)
DFN0	xx	Number of distinctive rings for DFNA, Option 0 (1-15; default is 4)
DFN1	xx	Number of distinctive rings for DFNA, Option 1 (1-15; default is 4)
DFN2	xx	Number of distinctive rings for DFNA, Option 2 (1-15; default is 4)
SCPL	(0)-8	Length of Station Control Password. If 0=password disabled; cannot use USCR

LD57-Setting up USCR

Prompt	Response	Comments
REQ	NEW, CHG	New or change
CUST	xx	Customer number (0-99)
CODE	USCR, ALL	Prompt for USCR FFC, or all FFC code types
USCR	xxxxxxx	USCR FFC (1-7 digits)
USCR	yyyyyyy	Define additional FFC codes, as needed
USCR	<cr>	Ends the entry of FFC codes

Feature operation

As a prerequisite to accessing the feature, the conditions shown in Table 165-2 must be met for the selected access method.

Table 165-2
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

Procedure 165-1**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 165-3.

Table 165-3**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 new RCO if assigning the RCO; enter redirection DN if assigning the DN.
- 7 Place telephone on-hook, or press the RLS key on a digital telephone.

Procedure 165-2**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 165-3.
- 4 Enter new RCO if assigning the RCO; enter redirection DN if assigning the DN.
- 5 Press the USR key again.

Procedure 165-3**To assign or query a redirection DN using an FFC:**

- 1** Take the telephone off-hook, or press the DN key on a digital telephone.
- 2** Enter the USCR FFC.
- 3** Enter the Station Control Password.
- 4** Enter the USCR Option Code, as shown in Table 165-3.
- 5** Enter new RCO if assigning the RCO; enter redirection DN if assigning the DN.
- 6** Place telephone on-hook, or press the RLS key on a digital 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 only 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 M2112, M2317, M2616). It requires Class of Service Handsfree Allowed/HFA on the destination telephone, which is set at the telephone level.

Note: BRI, M3000, and SL-1 telephones do not support the Handsfree feature.

Feature interactions

- 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.
- Auto Answer Back (AAB)
This feature is not affected by the Handsfree Voice Call feature.

Feature packaging

Voice Call requires the Extended PBX Features package (Package 1).

Handsfree Voice Call requires release 19 or above.

Feature implementation

LD11-Add or change Voice Call for the originating SL-1 or Meridian digital telephone.

REQ	CHG	Change
TYPE	aaaa	Telephone type aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000
TN	l s c u	Terminal Number
KEY	xx SCR yyy...y	Adds a single appearance single call key on the terminating telephone xx = key number 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 xx = key number yyy...y = the DN of the terminating telephone This key activates the feature.

LD15-Add or change Handsfree Voice Call for the Meridian 1 system.

REQ	CHG	Change
TYPE	CDB	Customer data block
CUST	0	Customer number
OPT	HVA, (HVD)	System option HVA

Feature operation

Voice Call and Handsfree Voice Call operations are described below.

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

Examples of both Handsfree Voice Call options are listed below:

HVA option

The originating telephone (telephone A) places a VCC/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 re-establish 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.

2500 Telephone Features

This feature allows 2500-type telephones to access features otherwise available only with SL-1 and Meridian digital telephones. By dialing an octothorpe (#) and a single digit access code, 2500 type 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 LD10 (500/2500 telephone administration).

Except for the access codes used, feature operation is the same as SL-1 and Meridian digital telephones.

Feature interactions

- 500 Set Features
When 500 Set 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

2500 Set Features (SS25), package 18, has no feature package dependencies.

Feature implementation

LD10-Enable 2500 Set features

REQ	CHG	Change
TYPE	500	Telephone type
TN	I s c u	Terminal Number
CLS	XFA, (XFD)	Allow or deny transfer
FTR	CFW xx	Call Forward All Calls and DN length (4-23) X CFW to remove
	SCC xxxx	Speed Call Controller and list number X SCC to remove
	SCU xxxx	Speed Call User and list number X SCU to remove
	SSU xxxx	System Speed Call User and list number X SSU to remove
	PHD	Allow Permanent Hold 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 a 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 a 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 a 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 a 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 a 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 a 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 a 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 a 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, dial #2. You hear a dial tone.
- 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.

To change a number associated with a list, follow these steps:

- 1 Lift the handset, dial #2. You hear a 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, dial #2. You hear a 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, dial #3. You hear a 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 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 a dial tone.
- 2 Dial #4.
- 3 Hang up.

The call remains on hold until you lift the handset again, or the other party disconnects.

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 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 LD10 (500/2500 telephone administration).

Except for the SPRE codes used, feature operation is the same as with SL-1 and Meridian digital telephones.

Feature interactions

- 2500 Set Features
When the 2500 Set Features (SS25), package 18, is equipped, 2500-type telephones also access by dialing the SPRE and a two digit access code.

Feature packaging

500 Set Features (SS5), package 73, requires the following:

- 2500 Set Features (SS25), package 18.

Feature implementation

LD10-Enable 500 Set Features.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	XFA, (XFD)	Allow (deny) transfer
FTR	CFW xx	Call Forward All Calls and DN length (4-23) X CFW to remove
	SCC xxxx	Speed Call Controller and list number X SCC to remove
	SCU xxxx	Speed Call User and list number X SCU to remove
	SSU xxxx	System Speed Call User and list number X SSU to remove
	PHD	Allow Permanent Hold 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 the dial tone.
- 2 Dial the DN 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 a 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 the dial tone.
- 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.

To change a number associated with a list, follow these steps:

- 1 Lift the handset and dial SPRE + 75. You hear a dial tone.
- 2 Dial the Speed Call code (0-999), followed by the new phone 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 in a Speed Call list, follow these steps:

- 1 Lift the handset and dial SPRE + 75. You hear a 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 a 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 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 active on a call, follow these steps:

- 1** Flash the switchhook. You hear a 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 Type Line Disconnect

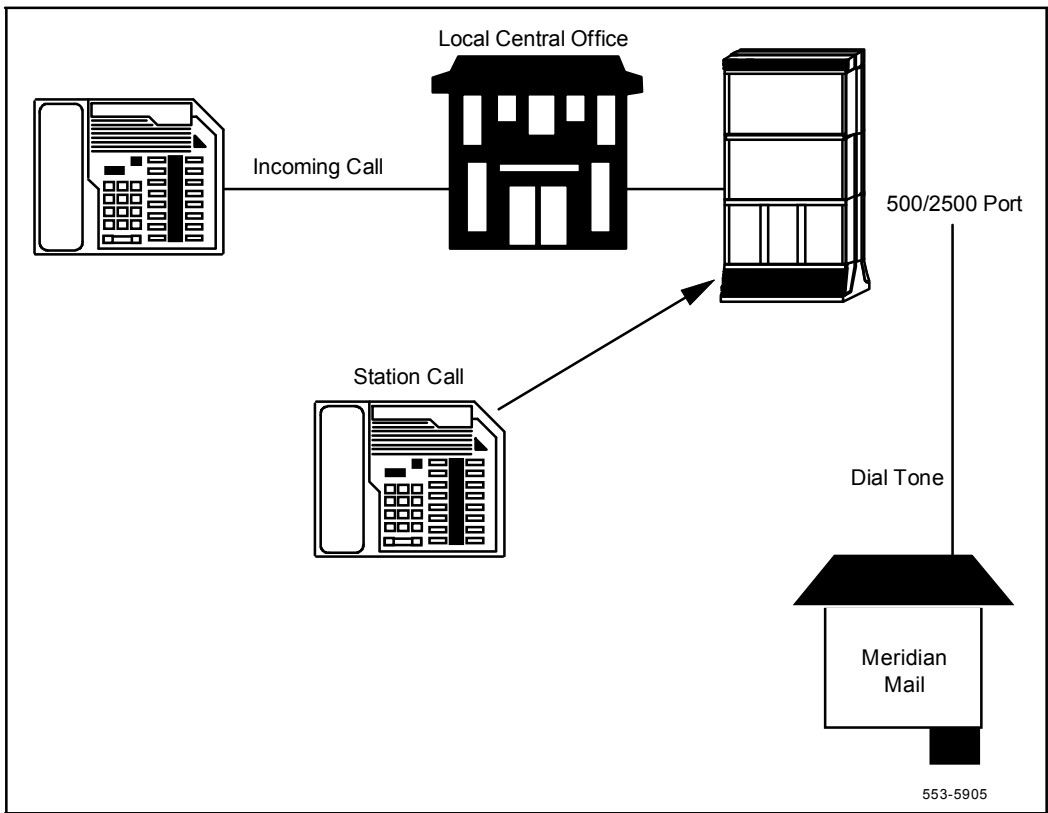
500/2500 Type Line Disconnect is invoked when the Meridian 1 system detects on-hook/disconnect supervision from a party connected to a 500/2500 type port. Dialtone is sent to this port for a specified period of time (default is 6 seconds) which is defined in LD15 at the Line Disconnect Tone Timer (LDTT) prompt. Refer to the feature implementation for a list of LD15 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, for example, during an automated message or a voice mail message.

This feature is programmed in LD10, LD15, LD20, LD21, LD81, and LD83. Refer to the *X11 input/output guide* (553-3001-400) for a list of these prompts and responses.

Figure 169-1 illustrates how an incoming trunk call or internal call functions with 500/2500 Type Line Disconnect.

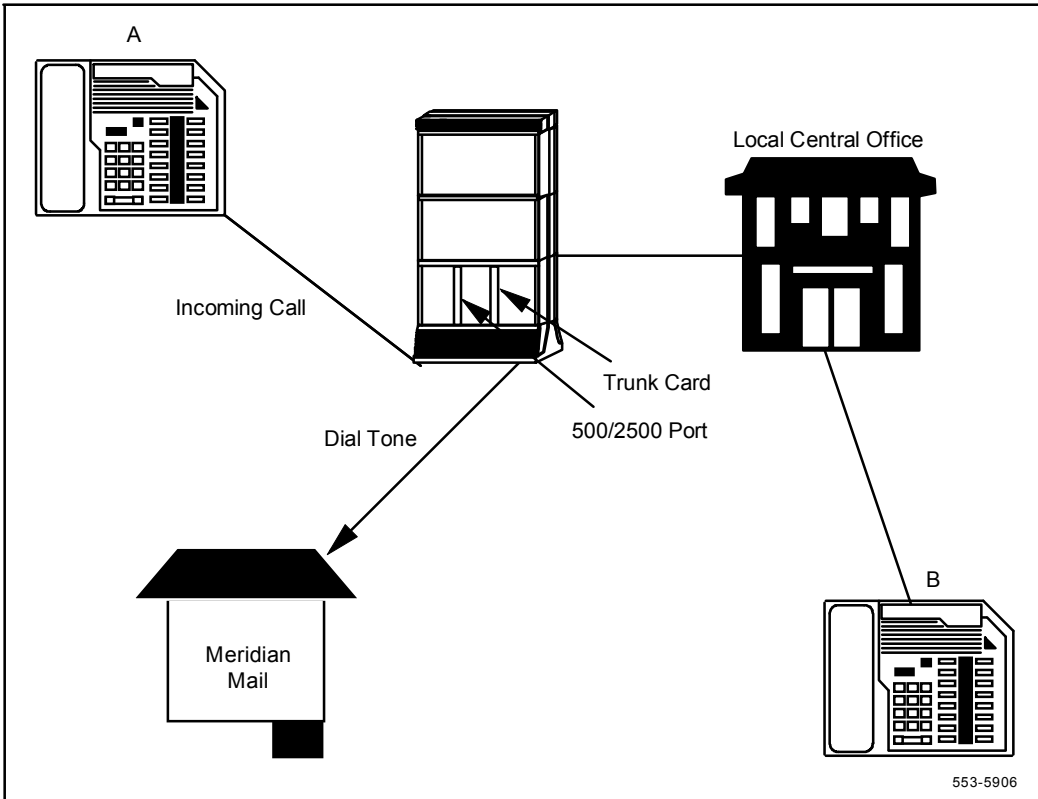
Figure 169-1
Incoming Trunk Call of Internal Call Disconnects



This illustration shows the incoming trunk call or internal call disconnected and dialtone being provided by the 500/2500 type port with the new Class of Service (CLS) Line Disconnect Tone Allowed (LDTA)

Figure 169-2 illustrates how an outgoing call functions with this feature.

Figure 169-2
Outgoing Call from the Meridian 1 to a Central Office



This illustration shows an outgoing call to from the Meridian 1 system to the Central Office. Station A transfers Station B to Meridian Mail and goes on-hook. The dialtone is provided by the 500/2500 type port with the new CLS LDTA after Station B disconnects.

Operating parameters

A 500/2500 port with LDTA Class of Service 500/2500 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
- 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 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 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 basic X11 system software.

Feature implementation

LD10-Allow or deny Line Disconnect Tone for 500/2500 ports.

REQ	CHG	Change
TYPE	500	Telephone type
TN	l s c u	Terminal Number
CLS	LDTA, (LDTD)	Line Disconnect Tone allowed (denied)

LD15-Define Line Disconnect Tone timer in the Customer data block.

REQ	CHG	Change
TYPE	CDB	Telephone type
CUST	0-99	Customer number
LDTT	2-(6)-30	Line Disconnect Tone timer in seconds

Feature operation

No specific procedure is required for this feature to operate.



SL-1

X11 features and services

SUPPLEMENT

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