SL-1

X11 features and services

SUPPLEMENT

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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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Systems and releases

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

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
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
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

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: — Call Transfer — Conference — Call Forward No Answer — Hunt — Call Pickup	BASIC	R1
1	Extended PBX Features Includes the following features: — 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 — 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: — CDR (4)	CTY	R1
6	CDR on Data Link Package dependencies: — CDR (4)	CLNK	R1
7	Recorded Announcement Package dependencies: — 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: — 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	Network Traffic Measurements One of the following packages must be equipped: — 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	Integrated Message System Package dependencies: — BACD (40) — ACDA (45) — MWC (46) Meridian Mail IMS applications require the following additional packages: — CSL (77) — CDRQ (83) — CSLA (85)	IMS	R2
36	Recorded Overflow Announcement Package dependencies: — RAN (7)	ROA	R2
37	Network Signaling Package dependencies: — 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) Package dependencies: — CDR (4)	ICDR	R10
109	Auxiliary Processor Link	APL	R10
110	Trunk Verification from a Station	TVS	R9.32
111	ACD Timed Overflow Package dependencies: — ACDB (41)	TOF	R10
113	Incoming DID Digit Conversion Package dependencies: NFCR (49)	IDC	R13
114	ACD-D Auxiliary Security Package dependencies: — ACDD (50) — LNK (51)	AUXS	R12
115	Directed Call Pickup	DCP	R12
116	ACD Priority Agent Package dependencies: — ACDA (45)	PAGT	R12
117	Call-by-Call Service Selection Package dependencies: — ISDN (145) — PRA (146) — IEC (149)* *The IEC package is required for Inter-Exchange Carrier.	CBC	R16

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: — 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: — 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: — CDR (4) — DNXP (150)	CDRE	R13
153	Application Module Link Package dependencies: — CSL (77) — IMS (35) MSDL requires MSDL package 222	IAP3P	R13
154	2.0 Megabit Primary Rate Interface Package dependency: — ISDN (145)	PRI2	R14

Number	Feature Name	Mnemonic	Release
155	ACD Activity Code Entry Package dependencies: — ACDD (50) — LNK (51) — AUXS (114)	ACNT	R13
157	Centrex Switchhook Flash	THF	R14
158	Feature Group D Package dependencies: — BARS (57) — NARS (58) (recommended)	FGD	R17
164	Limited Access to Overlays	LAPW	R16
170	Meridian Modular Telephone Package dependencies: — DSET (88) or TSET (89)	ARIE	R14
172	Console Presentation Group Level Services Package dependencies: — TENS (86)	CPGS	R15
173	Enhanced Controlled Class of Service Package dependencies: — CCOS (81)	ECCS	R15
174	Attendant Alternative Answering	AAA	R15

Number	Feature Name	Mnemonic	Release
175	Network Message Services Package dependencies: Network Message Center: — 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) Meridian Mail — 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) ACD Message Center: — 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	Enhanced Overflow Package dependencies: — TOF (111)	EOVF	R15

Number	Feature Name	Mnemonic	Release
179	Hospitality Voice Services 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)	HVS	R16
180	Digit Key Signaling Package dependencies: — RAN (7) — EES (10) — MSB (17) — IMS (35) — BACD (40) — ACDA (45) — MWC (46) — CSL (77) — CSLA (85) — APL (109)	DKS	R16

Number	Feature Name	Mnemonic	Release
192	Remote Virtual Queuing Package dependencies: — NTWK (148) — PRA (146) or ISL (147) — ISDN (145) — FCBQ (61) — MCBQ (38)	RVQ	R18
202	International PRA Package dependencies: — ISDN (145) — PRI2 (154)	IPRA	R15
203	Extended Peripheral Equipment (Superloop) Package dependencies: — XCT1 (205)	XPE	R15
204	Enhanced Conference, TDS and MFS card Package dependencies: — XCT1 (205)	XCT0	R15
205	Superloop Administration (LD97)	XCT1	R15
206	Multi-Language Wake Up Package dependencies: — AWU (102) — PMSI (103)	MLWU	R16
207	Network ACD Package dependencies: — BQUE (28) — NTWK (148) — EOVF (178)	NACD	R15

Number	Feature Name	Mnemonic	Release
208	Hospitality Screen Enhancement Package dependencies: — ARIE (170)	HSE	R17
209	Meridian Link Module Package dependencies: — IAP3P (153) (before X11 release 17 only) MSDL requires package 222 (X11 release 18 and later)	MLS	R16
210	Maid Identification Package dependencies: — 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: — AWU (102)	VAWU	R17
214	Enhanced ACD Routing Package dependencies: — MUS (44) — ACDB (41) — ACDA (45)	EAR	R17

Number	Feature Name	Mnemonic	Release
215	Customer Controlled Routing Package dependencies: — CSL (77) — EAR (214) — CALL ID (247) for Release 19 and later	CCR	R18
216	Basic Rate Interface Package dependencies: — ISDN (145) (required for Packet Handler options) — XPE (203) — MSDL (222)	BRI	R18
218	Hold in Queue for IVR Package dependencies: — CCR (215)	IVR	R18

Number	Feature Name	Mnemonic	Release
219	Message Waiting Indication Interworking with DMS Package dependencies: Originating Node: — 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) Host Node: — 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) Tandem Node: — 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 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) — CCDR (118)	M911	R19
225	Call Waiting Notification	CWNT	R19
227	MSDL Serial Data Interface Package dependency: — MSDL (222)	MSDL SDI	R19
228	Single Terminal Access Package dependencies: — MSDL (222) — MSDL SDI (227)	STA	r19

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	93 10 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
North American Numbering Plan	93 10 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

Feature module	Issue date
Privacy Override	93 08 01
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

Feature module	Issue date
Tones, Flexible Incoming	92 12 31
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

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

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	l s c u	Terminal Number
TGAR	X, (0)–31	Station or trunk TGAR X = remove TGAR value ***Note:*** With X11 release 12 and earlier, 0–15 TGAR codes are allowed.
CLS	(UNR)	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	l s c u	Terminal Number
TGAR	X, (0)–31	Station or trunk TGAR X = remove TGAR value ***Note:*** With X11 release 12 and earlier, 0–15 TGAR codes are allowed.
CLS	(UNR)	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	l s c u	Terminal Number
TGAR	X, (0)–31	Station or trunk TGAR X = remove TGAR value ***Note:*** With X11 release 12 and earlier, 0–15 TGAR codes are allowed.
CLS	(UNR)	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	ALOW	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 ALOW
	<CR>	Used when REQ = CHG
ALOW	xxx xxx ...	If CLR=DENY, enter the NPA/NXX codes (200–999) allowed
DENY	xxx xxx ...	If CLR=ALOW, 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)

Issued:	92 12 31
Status:	Standard
X11 Release:	13

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).

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

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	15

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.

Issued: 93 10 31
Status: Standard
X11 Release: All

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	l 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	l 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	l 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	l s c u	Terminal Number
CLS	(WTA), WTD	(Allow), deny warning tone

Feature operation

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

1 Select an idle loop key.

2 Press **Barge-In**.

3 Dial the route access code and the trunk member number, followed by the octothorpe (#).

Possible results are

- dial tone (trunk is idle and working)
- conversation (trunk is busy and working)
- modem carrier tone (long distance trunk is working)
- 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	l 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	l 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	l 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	l 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.

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

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.

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

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

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

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.

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

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.

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

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.

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

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 DNs 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.

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

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.

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

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**.

Issued: 92 12 31
Status: Standard
X11 Release: 8

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.

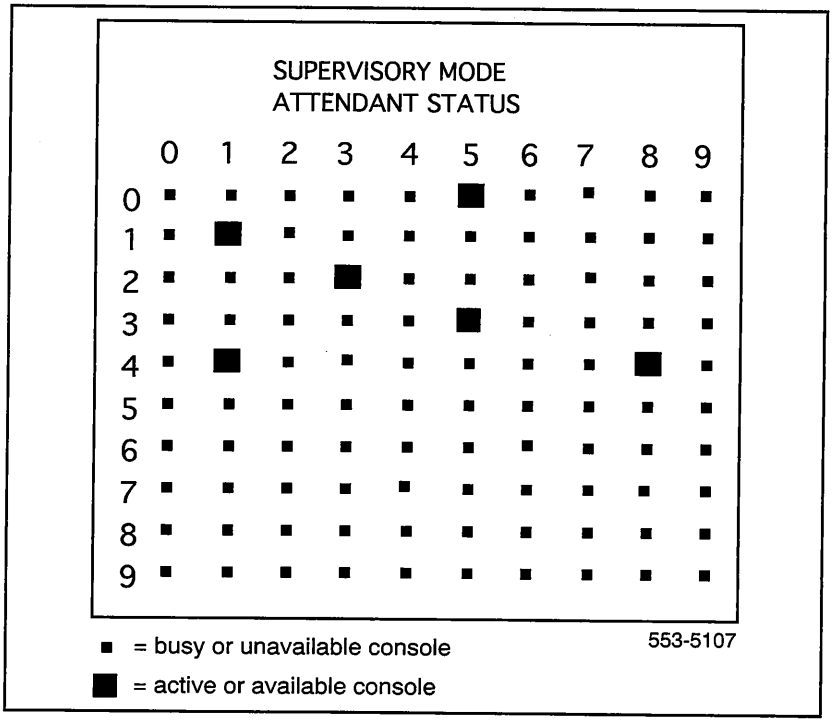
Attendant Status using Lamp Field Array

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	l 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 ≥ ITH1 but < ITH2)
ITH2	2–255	Visual indication threshold 2 (number of calls in queue ≥ ITH2 but < ITH3)
ITH3	3–255	Visual indication threshold 3 (number of calls in queue ≥ 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 ≥ ITH1 but < ITH2)
ITH2	2–255	Visual indication threshold 2 (number of calls in queue ≥ ITH2 but < ITH3)
ITH3	3–255	Visual indication threshold 3 (number of calls in queue ≥ 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 ≥ ITH1 but < ITH2)
ITH2	2–255	Visual indication threshold 2 (number of calls in queue ≥ ITH2 but < ITH3)
ITH3	3–255	Visual indication threshold 3 (number of calls in queue ≥ ITH3)

Feature operation

Enable/disable Supervisory mode

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

1 Press [S] 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 [S] 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.

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

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.

— FlashingAll of the trunks in the route are busy.

— Steadily litThe 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	14

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	l 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	l s c u	Terminal Number
CLS	ARHA, (ARHD)	Allow (Deny) Audible Reminder of Held Call

Feature operation

Not applicable.

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

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.

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

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 DNs 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.

Issued:	93 10 31
Status:	Standard
X11 Release:	All

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	4

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

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.

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

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

ID		Identification digit for CAMA routes
	0–9	For BEL
CAT		Category digits for CAMA routes (only if TKTP=CAMA)
		For NT4 and NT5
	00–99	
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	CAMA trunk
	CAA	CAMA-ANI trunk (SIGL=BEL in LD16)
TN	l 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.

Issued: 92 12 31
Status: Standard
X11 Release: 14

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.

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

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 is 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
SRCD	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	l 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	l 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.

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

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.

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

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).

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

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 DNs are updated unless a telephone is in the middle of Wake Up programming.

If the AWU Recall option is chosen, the recall is presented to any idle attendant console in the same Console Presentation Group (CPG) equipped with the AWU key.

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	10

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.

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

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	10

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

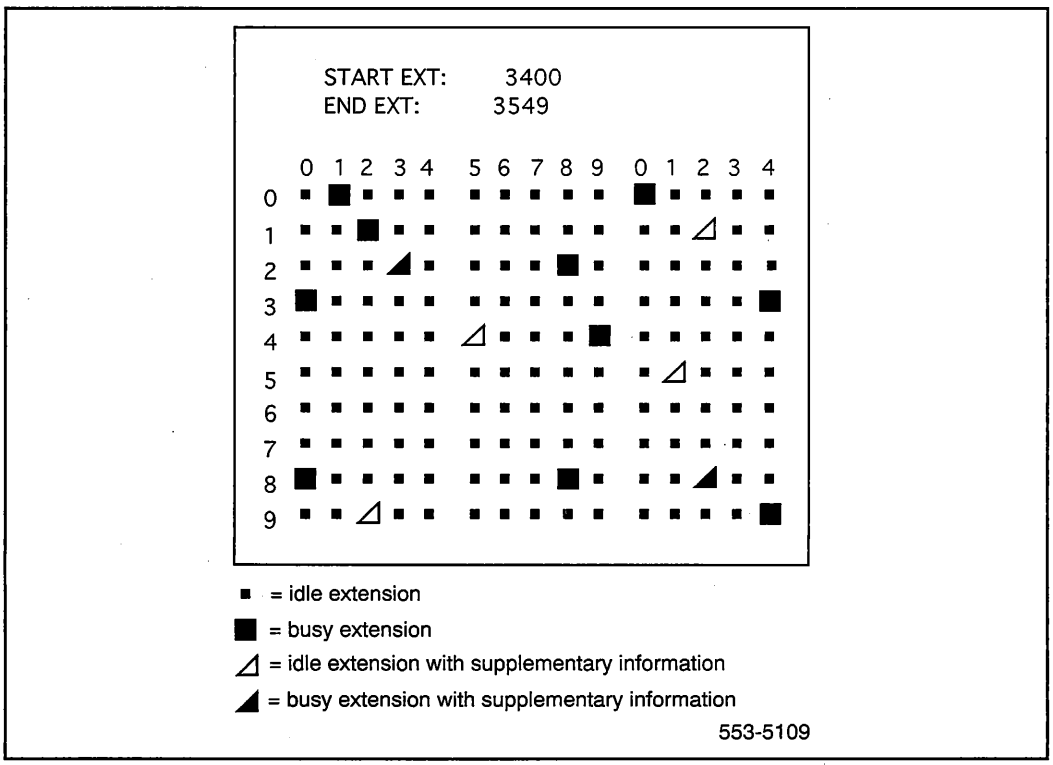
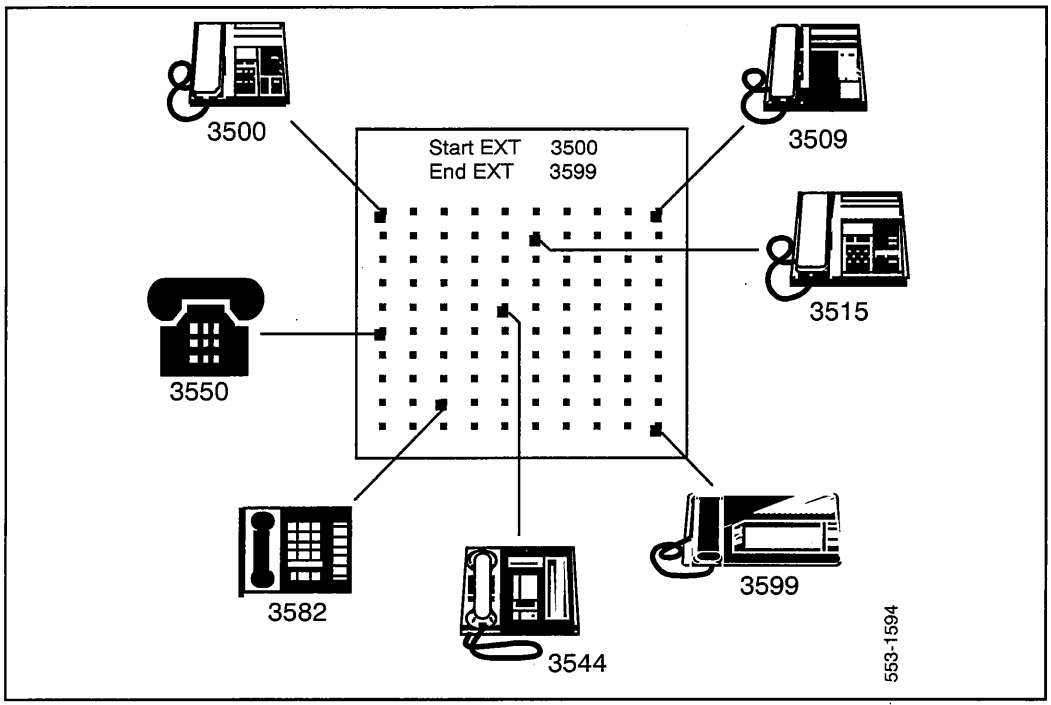


Figure 38-2 shows a system monitored by the EBLF. Each telephone represents a busy DN, listed beneath the telephone icon. The display screen at the top of the module defines the hundreds group as 35. The CGM displays the busy DNs within that group. The larger squares represent busy telephones within 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	Include (exclude) Standard Busy Lamp Field or
	IBL, (XBL)	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	l 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	l 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	l 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).

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).

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

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 outpulsing, 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 ther 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) Calss 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

Note: If OAL and OTL are NO, then OAN is always NO.

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.

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 outpulsed digits; prompted if OAL or OTL = Yes No = put dialed digits into CDR Yes = put outpulsed 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 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 **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	l 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)

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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.

Issued:	93 08 01
Status:	Standard
X11 Release:	All

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 (MARP) TN. See the description for MARP 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	10

Call Forward by Call Type

Call Forward Call Type (CFCT) routes calls receiving no answer or busy signal to separately defined DNs 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

CW 013401 1800 555-4545
CW04013

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

REQ	CHG	Change
TYPE	500	Telephone type
TN	l 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	l 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	13

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.

Issued:	93 10 31
Status:	Standard
X11 Release:	19

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	10

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 determine 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 supoort 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

LD15 – Define Call Forward No Answer for a customer.

	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.

Issued:	92 12 31
Status:	Standard
X11 Release:	10

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	l 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 ***Note:*** To implement SFA in X11 release 14 and earlier, specify both FNA and MWD. X11 release 15 and later allow SFA to be implemented with an MWA Class of Service.
FTR	FDN xxxx...x	Flexible Call Forward No Answer DN

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.

Issued:	93 10 31
Status:	Standard
X11 Release:	4

Call Hold, Deluxe

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

Individual Hold indicates only those calls placed on hold on 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	l 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	l s c u	Terminal Number
CLS	XHA, XHD	Enable or disable Exclusive Hold (default XHD)

Feature operation

Not applicable.

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

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.

Issued: 93 10 31
Status: Standard
X11 Release: 2

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 DNs appearing on line three if they are different from those on line two, or if no DN appears on line two. There is no DN information on line two if the attendant has initiated the AWU process while not on an active call. No DES information is appended, since AWU operates on a DN basis.

- Calls held or 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	CPND name string for this DIG; maximum of 27 characters; see Call Party Name Display composition on page 50-3.
	<CR>	Leave this entry unchanged
DN	xxx...x	DN of name string being changed or removed
	ALL	Remove all DN-defined entries
	<CR>	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.

Issued:	93 10 31
Status:	Standard
X11 Release:	All

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.

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

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 DNs 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	l 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, (GPUD)	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.

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

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.

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

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	l 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	l 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	3

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)

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

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.

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

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)

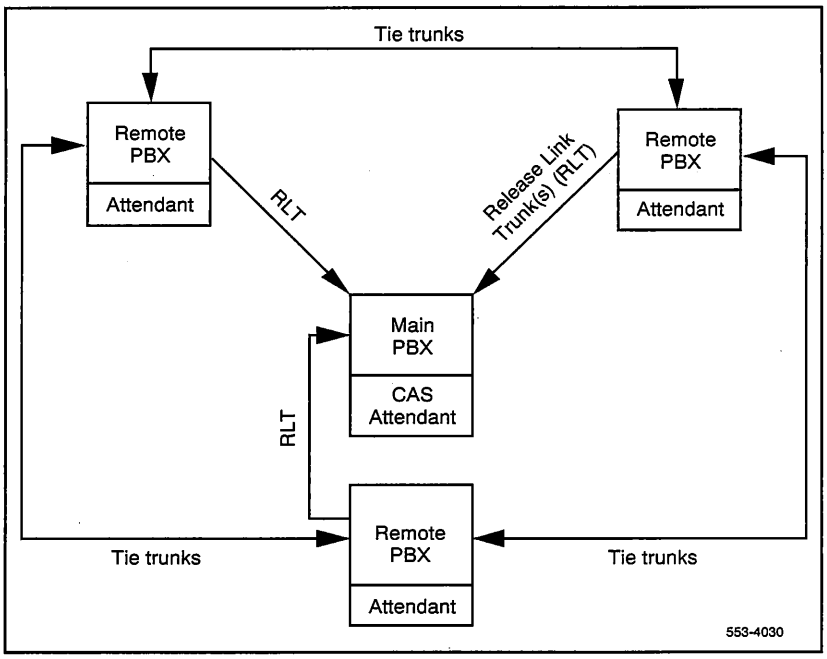
— Recalls, intercepts, or transfers to attendant

— 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



Issued:	92 12 31
Status:	Standard
X11 Release:	14

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	l 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).

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

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	l 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	l 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.

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

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	l 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	l 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	l 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	l 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	l 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	15

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	7

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 CUN CTD TLD SRE FRE FR1 FR2	Unrestricted Conditionally unrestricted Conditionally toll-denied Toll-denied Semi-restricted Fully restricted Fully restricted 1 Fully restricted 2

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**.

Issued:	93 10 31
Status:	Standard
X11 Release:	15

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 programing 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

Note: Input restrictions apply when CCSA is active. When CCSA is inactive, the telephone has the CLS assigned in LD10/11.

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 dies 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**.

Issued:	92 12 31
Status:	Standard
X11 Release:	5

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	l 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.

Issued:	93 08 01
Status:	Standard
X11 Release:	5

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 redisplays 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 to 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	17

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	10

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.

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

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.

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

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.

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

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:

— DNXP (DN Expansion)
The DN 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

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	l 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	13

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	13

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.

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

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**.

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

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.

Issued:	93 08 01
Status:	Standard
X11 Release:	All

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	l 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

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

FCC requirements

FCC Part 68 regulations require that any equipment or software manufactured or imported on or after April 17, 1992, and installed by any aggregator, must allow all users to use Equal Access codes to selectively access the long distance carrier of their choice. As defined in FCC docket 90-313, an *aggregator* is any business that, in the ordinary course of operations, makes telephones available to the public or to transient users of the premises, for interstate telephone calls using a provider of operator services. Aggregators include hotels or motels, hospitals, universities, airports, gas stations, or pay telephone owners.

Aggregators, although they must allow callers access to any long distance caller, are permitted to block calls *selectively*. Selective equal access lets aggregators choose to block direct-dialed calls that result in charges to the originating telephone. Aggregators cannot block operator-assisted calls.

Northern Telecom complies with the FCC Equal Access rules in dockets 90-313, 91-35, and their appendixes, in a software up-issue of X11 release 14 (14.59 or later), and X11 release 17 and later. X11 release 19 supports the expanded codes described in the following section.

Note: X11 releases 15 and 16 do not support Equal Access.

Carrier Access Code

Prior to the first quarter of 1995, the CAC is defined as 10XXX, where '10' is the Equal Access identifier and XXX is the CIC. During the first quarter of 1995, Carrier Identification Code Expansion will occur. The CAC will become 101XXXX (an Equal Access identifier of '101' followed by a four-digit CIC). For a period of approximately 18 months following introduction of the new format, both old and new formats will be accepted. During 1996, support for the 10XXX format will terminate. Meridian 1 software permits both formats.

Equal Access dialing plans

X11 software supports Equal Access dialing plans as follows:

- Allow operator-assisted North American and international dialing.
  - CAC + 0
  - CAC + 0 + (NPA) + NXX + XXXX
  - CAC + 01 + CC + NN
- Allow or deny direct North American and international dialing.
  - CAC + 1 + (NPA) + NXX + XXXX
  - CAC + 011 + CC + NN

Legend:

CAC = Carrier Access Code (10XXX or 101XXXX)

NPA = Numbering Plan Area (area code in the North American Numbering Plan)

NXX = end-office code
(N = any digit except 0 or 1; X = any digit (0–9))

XXXX = any four digits

CC = Country Code

NN = National Number

Route types

Equal Access Compliance supports COT, FEX, WAT, DID, and tie routes.

A tie route is supported only if standard signaling is specified in LD16 (SIGO = STD). To enable Equal Access call restrictions to function properly, DTI tie routes must be voice only. (DTI tie routes configured as voice/data are not supported for connection to a central office.) Tie routes must be either outgoing or incoming/outgoing (ICOG = IAO or OGT).

Call restriction

Call restriction relies on fixed pattern recognition to determine which calls can be denied. Switch administrators can restrict two kinds of direct-dialed Equal Access calls: North American calls with the 101XXXX+1+NPA+NXX+XXXX format and international calls with the 101XXXX+011+CC+NN format. If either restriction option is chosen, the administration must verify that the OCAC flag is correctly set as described in "Feature packaging" on page 79-3.

Call restrictions do not affect attendant calls.

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

Feature packaging

Equal Access compliance is included in basic X11 software. The Network Class of Service package (NCOS, package 32) is required to configure Equal Access.

Feature implementation

Carrier Identification Code Expansion supports and extends the General Carrier Restriction method of blocking calls. Given the expansion in the number of Carrier Identification Codes, it is no longer practical to support Selective Carrier Restriction functionality. (Carrier Identification Code Expansion continues to provide the selective blocking function required by the FCC; Northern Telecom and the FCC interpret the term "selective" differently.) For these reasons, prompts pertaining to GCR and SCR in LD16 no longer appear.

Customers who chose the ITOL option to block international calls should also have international calls blocked at the Central Office to reduce the likelihood of unauthorized international calls.

Before and during the permissive period, when both the three-character and the four-character CIC are allowed, current Equal Access users must set the Original Carrier Access Code (OCAC) flag to YES in LD17. The default is NO, indicating that only the new CAC format is acceptable. A YES setting for OCAC in LD17 lets customers use both the original and the new CAC formats. All customers who currently have Equal Access configured should set OCAC to YES in LD17 immediately after sysload when installing new software that includes the new expansion feature. When the original CAC is no longer acceptable (sometime in 1996), OCAC should be set to NO.

Note: New Equal Access customers do not need to change the OCAC flag until the feature is configured.

BARS/NARS routing

Equal Access determines restrictions without looking at a call's originating type (ESN or Direct Access). Routing has no effect on Equal Access call restriction: calls receive the same restriction treatment whether they originate from a trunk access code or from BARS/NARS. Equal Access is not a BARS/NARS feature and does not require BARS/NARS dialing.

To configure BARS/NARS to route Equal Access calls, simply use a special number (SPN) of 10 (the Equal Access code) to identify the calls as Equal Access calls and route them accordingly.

Example

Configure BARS/NARS for Equal Access call routing, assuming that calls originate from Customer 0 and go out over Route 10. To route Equal Access calls originating from Customer 0 over Route 10, using route list index 100 and access code 1 (AC1), configure the database as follows.

The configuration in this example routes all Equal Access calls placed through BARS/NARS with access code 1 (AC1) over route 10. Note that the SPN is "10," to support the original CIC format, rather than "101," as required under the new CIC format. Set the SPN to "101" if support for the original CIC format is unnecessary or if another dialing sequence beginning with "10" is introduced into North American Numbering Plan.

Follow these steps:

1 In LD17, set OCAC as appropriate.

REQ	CHG	Change existing route data
TYPE	CFN	Route Data Block
PARM	YES	Change system parameters
_NDRG	(NO) YES	Enable or disable new distinctive ringing
_OCAC	(NO) YES	Support original CAC format (must be set to YES during interim period, NO following interim period)

2 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

3 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

4 In LD87, configure an NCOS for Equal Access.

REQ	CHG	Change NCTL data
CUST	0	Customer number
FEAT	NCTL	Change NCTL block
NCOS	4	Network class of service group number
EQA	YES	This NCOS permits Equal Access call restriction capabilities

5 Assign an NCOS to a set in LD10 or LD11.

REQ	CHG	Change existing set data
TYPE	aaa	Specify set type
TN	l s c u	Specify set Terminal Number
NCOS	4	Network class of service group number

6 In LD16, enable Equal Access for this route.

REQ	CHG	Change existing route data
TYPE	RDB	Change Route Data Block
CUST	0	Specify customer number
ROUT	10	
EQAR	YES (NO)	Enter YES to enable Equal Access and selective blocking for this route. A YES response triggers the next two prompts.
_NTOL	ALOW/ (DENY)	Specify that Equal Access North American calls billed to originating telephone are to be denied
_ITOL	ALOW/ (DENY)	Specify that Equal Access international calls billed to originating telephone are to be denied

The configuration in this example routes Equal Access calls placed via NARS/BARS using AC1 over route 10 and blocks all Equal Access toll calls for NCOS = 4. Note that Equal Access toll calls placed via direct trunk access to route 10 also will be blocked.

Feature operation

There is no specific procedure for operating this feature.

Operating parameters

Not applicable.

Feature Interactions

Not applicable.

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 outpulse the digits at a maximum rate of 10 digits per second.

Operating parameters

Tone Digit Switch cards QPC197 and QPC251 cannot coexist with the QPC609 or NT8D17 within the same 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	17

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.

Issued: 93 08 01
Status: Standard
X11 Release: 17

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 = 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
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	Station Control Password Must be the same length as SCPL in LD15
	X	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	Single-character replacement for * and # in CEPT defaults
	<CR>	Create defaults only
ALL	YES, NO	Remove or don't remove all FFCs (prompted only if REQ = OUT)
CODE	nnnn	FFC type
	ALL	All prompts
	<CR>	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.

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

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 DNs must have been previously defined as members of a group.

Each customer within the Meridian 1 system can have up to 64 groups assigned. Each group has up to ten member DNs. X11 release 13 and later software allows 20 members per group. Any DN in the system can be assigned as a member of a group, and a DN can be a member of more than one group.

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.

Issued:	93 08 01
Status:	Standard
X11 Release:	All

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	l 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 DNs, 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	l 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	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	nn HOT D cc x...x	One-way Hot Line key
	nn HOT L aaa	One-way Hot Line List key
	nn HOT D cc x...x xxxx	Two-way Hot Line key
	nn HOT L aaa xxx...x	Two-way Hot Line List key
	nn CH D cc x...x	Combined No Hold Conference and Direct Hot Line feature (X11 release 14 and later software)
	nn CH L aaa	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**.

Issued: 93 10 31
Status: Standard
X11 Release: All

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

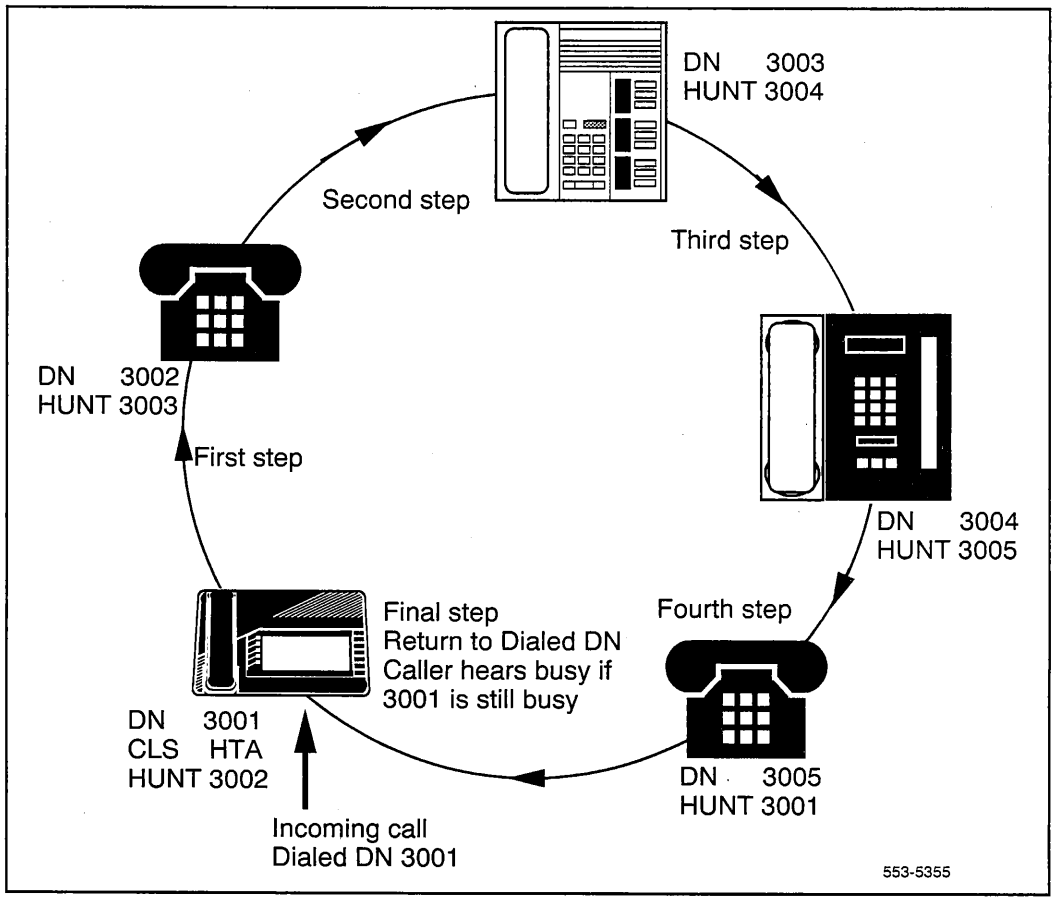
The following pages describe and illustrate each of these ways to hunt.

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.

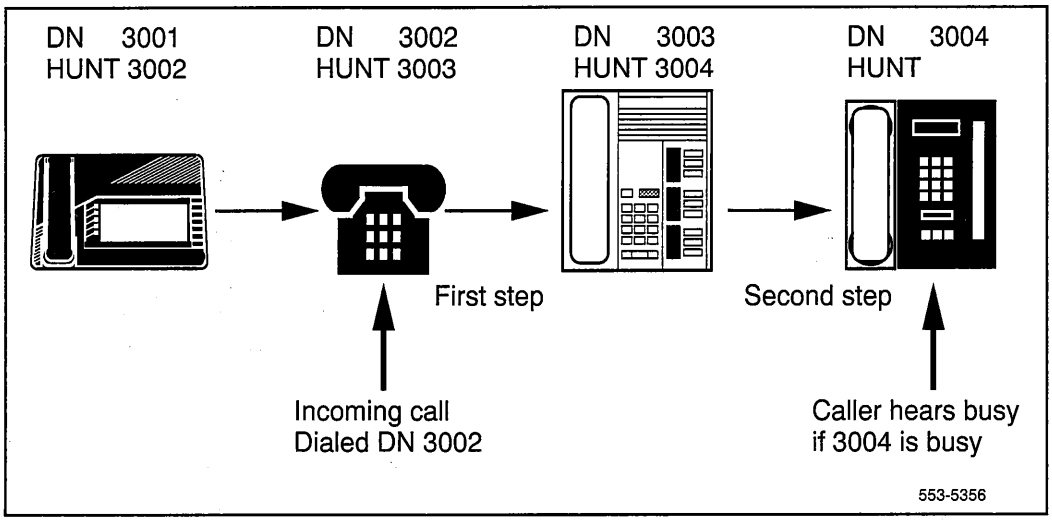
Figure 86-1
Circular Hunting example



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.

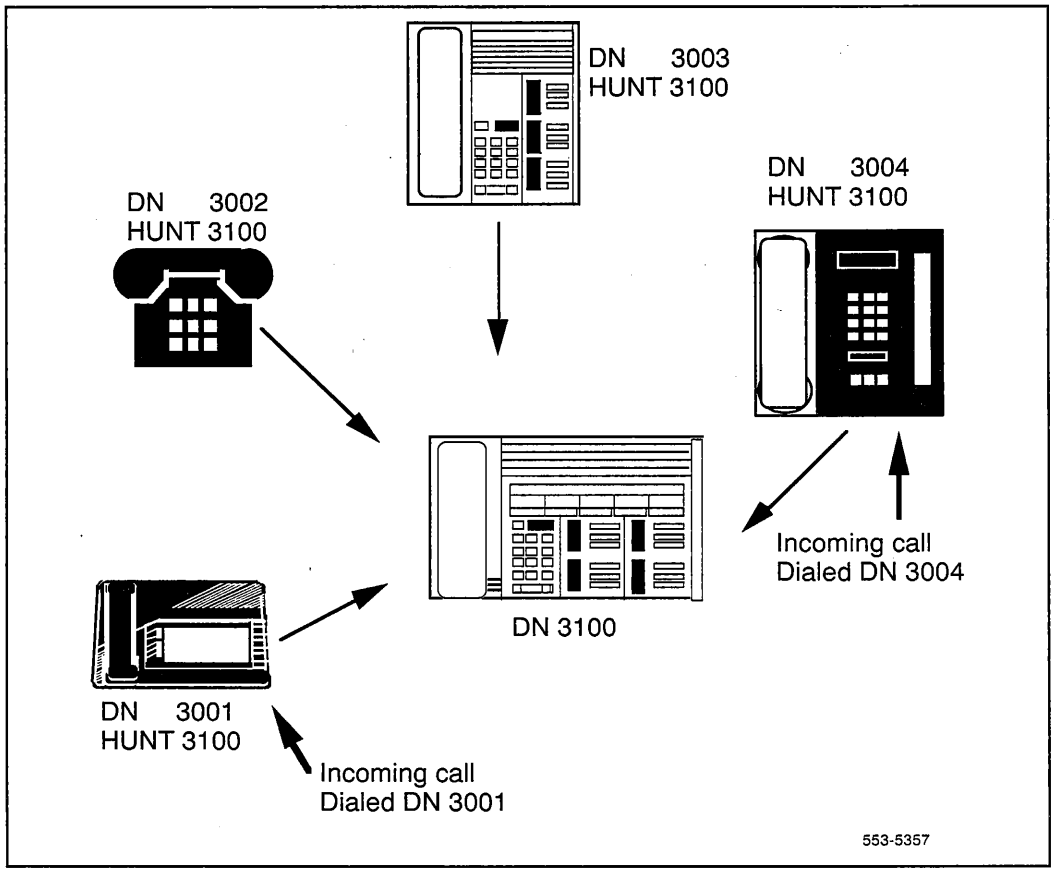
Figure 86-2
Linear Hunting example



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.

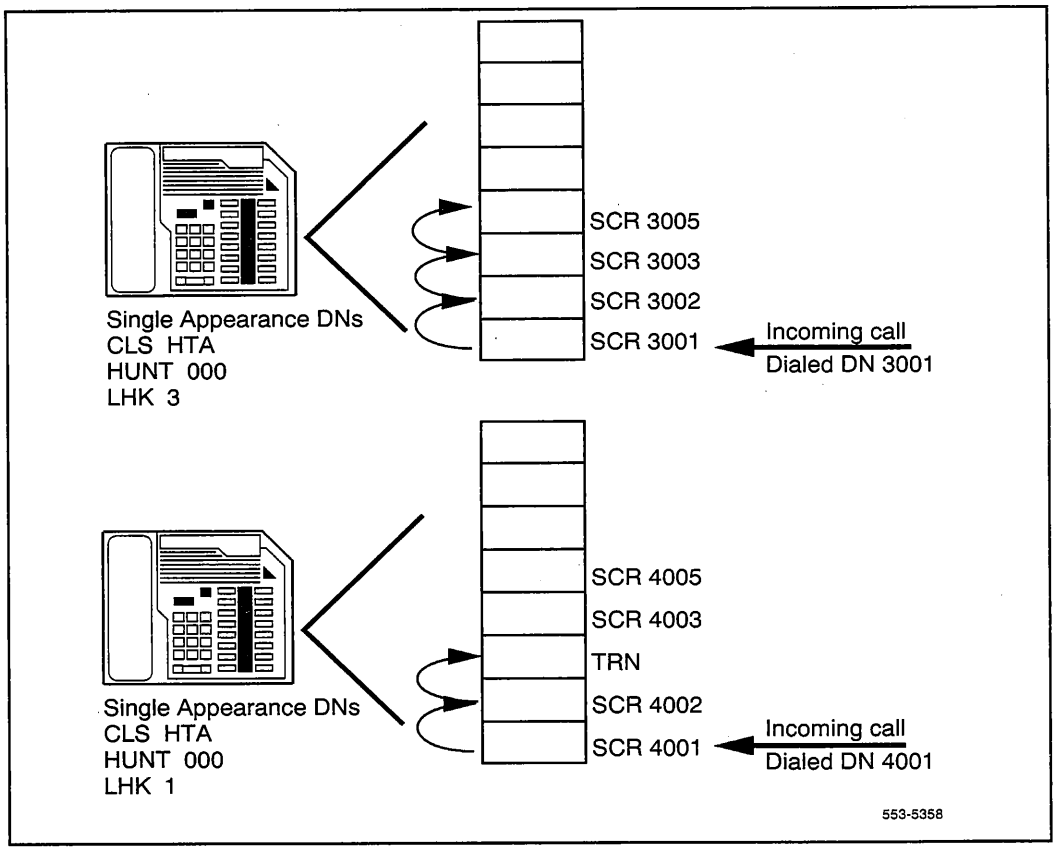
Figure 86-4 shows an example of Short Hunting.

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



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 (ISDLCs) 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	l 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	15

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.

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

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	15

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 DNs 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	l 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 DNs 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 DNs 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	14

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)

Note 1: Before adding, changing, or removing a link, the device must be disabled. Refer to the *X11 input/output guide* (553-3001-400) for overlay programs and commands to disable or enable devices.

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.

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

Note 1: Before adding, changing or removing a link, the device must be disabled. Refer to the *X11 input/output guide* (553-3001-400) for overlay programs and commands to disable or enable devices.

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.

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	14

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.

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

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	l 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	l 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	l 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	l 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	l s c u	Terminal Number
CDEN	SD, DD	Single or double density card

Feature operation

Not applicable.

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

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

O = overflow tone

A = intercept to the attendant

C = choice of overflow tone, attendant, or Recorded Announcement (RAN)

NA = not applicable

DISC = call disconnected

Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with "C", a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.

Feature interactions (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)

O = overflow tone

A = intercept to the attendant

C = choice of overflow tone, attendant, or Recorded Announcement (RAN)

NA = not applicable

DISC = call disconnected

Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with "C", a choice can be made between overflow, attendant busy or a RAN. Four entries are required for each intercept situation.

Feature 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	18

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.

Issued:	92 12 31
Status:	Standard
X11 Release:	8

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 outpulsed 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.

Issued:	92 12 31
Status:	Standard
X11 Release:	17

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.

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

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.

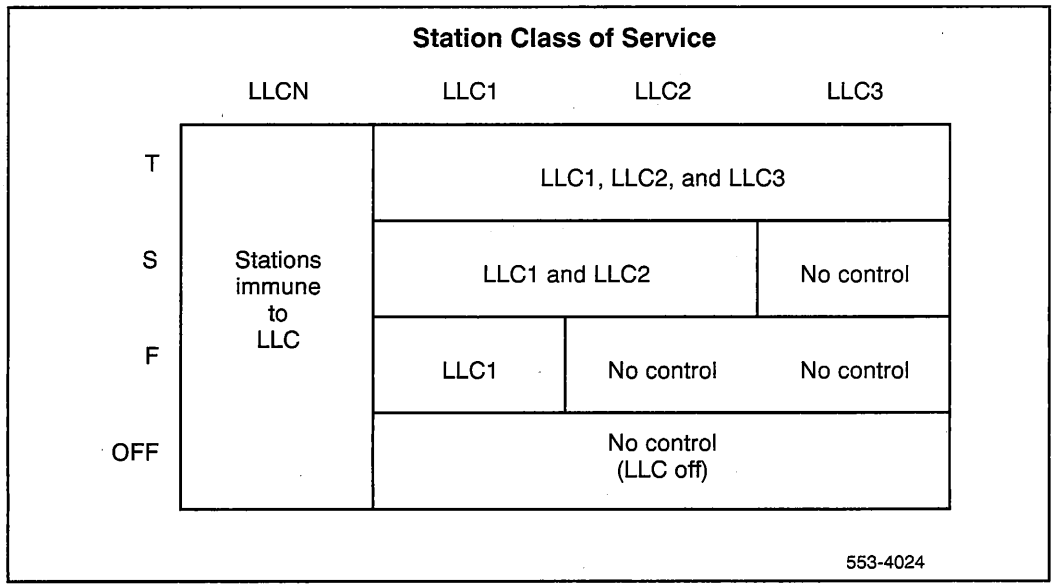
Figure 97-1 describes the hierarchical nature of LLC. Restrictions are based on the number of originating calls blocked by the probability level set in the LD program.

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)



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.

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

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) OFA ATN	Overflow tone, then lockout Overflow tone, then attendant intercept Attendant intercept
DLT		Line lockout treatment for Direct Inward System Access (DISA) calls
	(OVF)	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 to4 superloops to one IPE module)