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DMS-100 Family

North American DMS-100

Translations Guide Volume 2 of 20

Common Datafill and Miscellaneous Services Part 2 of 3

LEC0015 and up Standard 14.02 May 2001

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Contents

Translations Guide Volume 2 of 20

Common Datafill and Miscellaneous Services Part 2 of 3

Multi-Volume Topic Contents	v
NTP Summary Contents	xi
1 Introduction to Base Services	1-1
Understanding Base Services translations	1-1
AMA overview	1-1
AMA system architecture	1-2
AMA data	1-4
Preparing to datafill Base Services	1-9
AMADUMP utility	1-9
AMA options	1-9
Notes on BCS33	1-12
Notes on BCS34	1-13
Notes on BCS35	1-14
CCS7 system tables	1-15
Functional groups for Base Services	1-15
BAS AMA-Cook, BAS00001	1-16
BAS ANI, BAS00002	1-16
BAS Generic, BAS00003	1-16
BAS Generic-OAM, BAS00004	1-16
BAS Logs, BAS00007	1-16
BAS RSC-S, BAS00009	1-16
BAS Remotes Generic, BAS00012	1-16
BAS RSC-S Sync, BAS00015	1-16
BAS SCM/SMS/SMU, BAS00016	1-16
BAS ANI Enhanced, BAS00018	1-16
BAS International Remote Generic, BAS00026	1-16
2 Datafilling BAS AMA Cook	2-1
Automatic Message Accounting Teleprocessing System	2-2
New Software Delivery Data Transfer Control Mechanism	2-27

3	Datafilling BAS Generic	3-1
	1A EADAS/Network Management-U.S. only	3-3
	3-Way Call Chaining	3-25
	Application processor base and file processor	3-29
	BAS ABBT LCDCUT	3-69
	BAS Enhanced Permanent Signal	3-98
	Bellcore CAMA Format	3-109
	Bellcore LAMA Format	3-220
	CAC Blocking for IEC/INC	3-589
	Cancel Call Waiting-per Line	3-592
	CCS7 equipment tables	3-605
	CCS7 MTP/SCCP	3-641
	CUSD	3-755
	DN Attributes Service Order Enhancements	3-773
	DN Network Attributes	3-785
	EADAS Interface-U.S.	3-802

Multi-Volume Topic Contents

Translations Guide Volume 1 of 20 Common Datafill and Miscellaneous Services Part 1 of 3

NTP Summary Contents xiii

About this document Vol. 1, xvii

- How to check the version and issue of this document Vol. 1, xvii
- References in this document Vol. 1, xvii
- What precautionary messages mean Vol. 1, xx
- How commands, parameters, and responses are represented Vol. 1, xxi
 - Input prompt (>) Vol. 1, xxi
 - Commands and fixed parameters Vol. 1, xxi
 - Variables Vol. 1, xxi
 - Responses Vol. 1, xxi

1 Introduction to 10-digit translations Vol. 1, 1-1

- Understanding 10-digit translations Vol. 1, 1-1
- Signaling for 10-digit translations Vol. 1, 1-1
- Preparing to datafill 10-digit translations Vol. 1, 1-1
 - Call processing Vol. 1, 1-3
 - Digit manipulation Vol. 1, 1-3
 - Data tables Vol. 1, 1-6
 - Call processing functional areas Vol. 1, 1-17
 - Digit interpretation Vol. 1, 1-18
- Functional groups for 10-digit translations Vol. 1, 1-22
- Line to line translations Vol. 1, 1-23
- Line to treatment translations Vol. 1, 1-48
- Line to trunk translations Vol. 1, 1-82
- Provisioning for Enhanced Multi-NPA Vol. 1, 1-111
- Trunk to line translations Vol. 1, 1-145
- Trunk to treatment translations Vol. 1, 1-166
- Trunk to trunk translations Vol. 1, 1-196

2 Introduction to trunk tables Vol. 1, 2-1

- Understanding trunks translations Vol. 1, 2-1
- Functional groups for trunk tables Vol. 1, 2-3
- A5 trunk groups Vol. 1, 2-4
- A1 trunk groups Vol. 1, 2-17

AN trunk groups	Vol. 1, 2-24
ANI trunk groups	Vol. 1, 2-31
ATC trunk groups	Vol. 1, 2-41
Black Box Fraud Prevention	Vol. 1, 2-58
CA trunk groups	Vol. 1, 2-63
CELL trunk groups	Vol. 1, 2-71
CISANI trunk groups	Vol. 1, 2-78
CLID From PX Trunks with Blocking Option (PXCLID)	Vol. 1, 2-89
DA trunk groups	Vol. 1, 2-99
DS0 trunk groups	Vol. 1, 2-107
E911 trunk groups	Vol. 1, 2-114
ES trunk groups	Vol. 1, 2-126
GER2W trunk groups	Vol. 1, 2-137
GERIC trunk groups	Vol. 1, 2-145
GEROG trunk groups	Vol. 1, 2-153
IBNT2 trunk groups	Vol. 1, 2-160
IBNTI trunk groups	Vol. 1, 2-180
IBNTO trunk groups	Vol. 1, 2-200
IET trunk groups	Vol. 1, 2-215
INT101 trunk groups	Vol. 1, 2-230
IR trunk groups	Vol. 1, 2-237
IS trunk groups	Vol. 1, 2-243
IT trunk groups	Vol. 1, 2-251
ITL2 trunk groups	Vol. 1, 2-267
ITOPS trunk groups	Vol. 1, 2-275
LOOPA trunk groups	Vol. 1, 2-287
LP4W trunk groups	Vol. 1, 2-294
LPBK trunk groups	Vol. 1, 2-320
MAINT trunk groups	Vol. 1, 2-332
MTR trunk groups	Vol. 1, 2-349
NFA trunk groups	Vol. 1, 2-364
NU trunk groups	Vol. 1, 2-373
OC trunk groups	Vol. 1, 2-384
OI trunk groups	Vol. 1, 2-396
OP trunk groups	Vol. 1, 2-405
OPR trunk groups	Vol. 1, 2-420
OS trunk groups	Vol. 1, 2-440
P2 trunk groups	Vol. 1, 2-450
PRI trunk groups	Vol. 1, 2-464
PRIVLN trunk groups	Vol. 1, 2-495
PX trunk groups	Vol. 1, 2-503
RC trunk groups	Vol. 1, 2-524
RONI trunk groups	Vol. 1, 2-532
ROTL trunk groups	Vol. 1, 2-541
SC trunk groups	Vol. 1, 2-549
SOCKET trunk groups	Vol. 1, 2-564
SPC trunk groups	Vol. 1, 2-573
T2 trunk groups	Vol. 1, 2-582
T101 trunk groups	Vol. 1, 2-598
T105 trunk groups	Vol. 1, 2-606
TD trunk groups	Vol. 1, 2-614

TDDO trunk groups Vol. 1, 2-624
 TI trunk groups Vol. 1, 2-633
 TL trunk groups Vol. 1, 2-648
 TO trunk groups Vol. 1, 2-656
 TOPS trunk groups Vol. 1, 2-668
 TOPSARU trunk groups Vol. 1, 2-708
 TOPSVL trunk groups Vol. 1, 2-719
 TPS101 trunk groups Vol. 1, 2-726
 TTL2 trunk groups Vol. 1, 2-736
 VR trunk groups Vol. 1, 2-744
 X75 trunk groups Vol. 1, 2-754
 ZI trunk groups Vol. 1, 2-765

Translations Guide Volume 2 of 20

Common Datafill and Miscellaneous Services Part 2 of 3

1	Introduction to Base Services	Vol. 2, 1-1
	Understanding Base Services translations Vol. 2, 1-1	
	AMA overview Vol. 2, 1-1	
	AMA system architecture Vol. 2, 1-2	
	AMA data Vol. 2, 1-4	
	Preparing to datafill Base Services Vol. 2, 1-9	
	AMADUMP utility Vol. 2, 1-9	
	AMA options Vol. 2, 1-9	
	Notes on BCS33 Vol. 2, 1-12	
	Notes on BCS34 Vol. 2, 1-13	
	Notes on BCS35 Vol. 2, 1-14	
	CCS7 system tables Vol. 2, 1-15	
	Functional groups for Base Services Vol. 2, 1-15	
	BAS AMA-Cook, BAS00001 Vol. 2, 1-16	
	BAS ANI, BAS00002 Vol. 2, 1-16	
	BAS Generic, BAS00003 Vol. 2, 1-16	
	BAS Generic-OAM, BAS00004 Vol. 2, 1-16	
	BAS Logs, BAS00007 Vol. 2, 1-16	
	BAS RSC-S, BAS00009 Vol. 2, 1-16	
	BAS Remotes Generic, BAS00012 Vol. 2, 1-16	
	BAS RSC-S Sync, BAS00015 Vol. 2, 1-16	
	BAS SCM/SMS/SMU, BAS00016 Vol. 2, 1-16	
	BAS ANI Enhanced, BAS00018 Vol. 2, 1-16	
	BAS International Remote Generic, BAS00026 Vol. 2, 1-16	
2	Datafilling BAS AMA Cook	Vol. 2, 2-1
	Automatic Message Accounting Teleprocessing System Vol. 2, 2-2	
	New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-27	
3	Datafilling BAS Generic	Vol. 2, 3-1
	1A EADAS/Network Management-U.S. only Vol. 2, 3-3	
	3-Way Call Chaining Vol. 2, 3-25	

Application processor base and file processor Vol. 2, 3-29
 BAS ABBT LCDCUT Vol. 2, 3-69
 BAS Enhanced Permanent Signal Vol. 2, 3-98
 Bellcore CAMA Format Vol. 2, 3-109
 Bellcore LAMA Format Vol. 2, 3-220
 CAC Blocking for IEC/INC Vol. 2, 3-589
 Cancel Call Waiting-per Line Vol. 2, 3-592
 CCS7 equipment tables Vol. 2, 3-605
 CCS7 MTP/SCCP Vol. 2, 3-641
 CUSD Vol. 2, 3-755
 DN Attributes Service Order Enhancements Vol. 2, 3-773
 DN Network Attributes Vol. 2, 3-785
 EADAS Interface-U.S. Vol. 2, 3-802

Translations Guide Volume 3 of 20
Common Datafill and Miscellaneous Services Part 3 of 3

1	Datafilling BAS Generic (continued)	Vol. 3, 1-1
	Feature Group A - AMA Vol. 3, 1-3	
	Feature Group A - EQAC Vol. 3, 1-37	
	Feature Group B - AMA End Office Vol. 3, 1-53	
	FGB AMA End Office (ATT Format) Vol. 3, 1-100	
	FGB AMA End Office (NT Format) Vol. 3, 1-128	
	FGB AMA Tandem (ATT Format) Vol. 3, 1-159	
	Flexible Bellcore AMA Vol. 3, 1-184	
	LCM REX Controller Enhancement Vol. 3, 1-207	
	Local Call Detail Recording Vol. 3, 1-222	
	Messaging Services Functional Component Re-engineer Vol. 3, 1-232	
	Network Management Vol. 3, 1-244	
	Network Management - Enhanced Vol. 3, 1-280	
	Preserve EADAS Data Over SW Application-U.S. only Vol. 3, 1-347	
	Random Conditional Routing Vol. 3, 1-358	
	Remote Call Forwarding Vol. 3, 1-363	
	SERVORD Enhancement for SLE Vol. 3, 1-389	
	Talk Battery Alarm Vol. 3, 1-396	
	Ten-per Line-digit GTT for CLASS Features Vol. 3, 1-404	
	Traffic Separation Measurements System (TSMS) Vol. 3, 1-407	
2	Datafilling BAS ANI Enhanced	Vol. 3, 2-1
	DMS-200 ANI to Charge Number Conversion Vol. 3, 2-2	
3	Understanding BAS CCS7	Vol. 3, 3-1
	Components of a telephone call Vol. 3, 3-1	
	Common channel signaling Vol. 3, 3-2	
	CCS7 protocol: a layered model Vol. 3, 3-3	
	Message transfer part Vol. 3, 3-4	
	Signaling connection control part Vol. 3, 3-4	
	Transaction capabilities application part Vol. 3, 3-5	

ISDN user part Vol. 3, 3-6
 Network application processes Vol. 3, 3-6
 Elements of a CCS7 network Vol. 3, 3-6
 Signaling point Vol. 3, 3-7
 Service switching point Vol. 3, 3-7
 Signaling transfer point Vol. 3, 3-7
 Service control point Vol. 3, 3-8
 Integrated node Vol. 3, 3-8
 Signaling links Vol. 3, 3-8
 What is translations? Vol. 3, 3-10
 Translations database Vol. 3, 3-10
 Terms used in translations Vol. 3, 3-11
 data Vol. 3, 3-11
 datafill Vol. 3, 3-11
 field Vol. 3, 3-11
 key field Vol. 3, 3-12
 range Vol. 3, 3-12
 subfield Vol. 3, 3-12
 table editor Vol. 3, 3-12
 tuple Vol. 3, 3-12
 Using the table editor to modify datafill Vol. 3, 3-12

4 Introduction to SMB translations Vol. 3, 4-1

Understanding SMB translations Vol. 3, 4-1
 Signaling for SMB translations Vol. 3, 4-2
 Preparing to datafill SMB translations Vol. 3, 4-2
 Functional groups for SMB translations Vol. 3, 4-2
 SMB translations Vol. 3, 4-2
 Application and file processors Vol. 3, 4-3

5 Datafilling SAID Essentials Vol. 3, 5-1

Datafilling BAS SAID Vol. 3, 5-2
 Network Facility Access Vol. 3, 5-14
 NFA: Remote Access, Flash Processing Vol. 3, 5-82
 SAID Enhanced Signaling Protocol Vol. 3, 5-126
 SAID on MBS Vol. 3, 5-152
 SAID Universal Access Vol. 3, 5-166

6 Datafilling FAX-Thru Service Vol. 3, 6-1

FAX-Thru Service Vol. 3, 6-2

7 Datafilling MDS Call Messenger Vol. 3, 7-1

Call Messenger Vol. 3, 7-2

8 Datafilling XLAS Translations Vol. 3, 8-1

Random and Circular Hunting Vol. 3, 8-2

NTP Summary Contents

This summarized table of contents defines the category of product information that can be found in each volume of the *Translations Guide*. Each volume of the *Translations Guide* contains a detailed listing of the contents of that volume and a multi-volume contents listing if related subject matter spans multiple volumes.

Volume 1 of 20

Common Datafill and Miscellaneous Services Part 1 of 3
10-digit Translations, Trunk Tables

Volume 2 of 20

Common Datafill and Miscellaneous Services Part 2 of 3
Base Services, BAS AMA Cook, BAS Generic

Volume 3 of 20

Common Datafill and Miscellaneous Services Part 3 of 3
BAS Generic (continued), BAS ANI Enhanced, BAS CCS7,
SMB Translations, SAID Essentials, FAX-Thru Service,
MDS Call Messenger, XLAS Translations

Volume 4 of 20

SS7 Datafill
Number Translation Services, DMS SP/SSP, Trunk Signaling,
ISDN User Part (ISUP)

Volume 5 of 20

Screening and Routing Datafill
Universal Translations, Universal Call Processing, UDDD Service,
AIN Essentials, AIN Service Enablers

Volume 6 of 20

Competitive Services Part 1 of 2
LNP Translations, Equal Access, EQA Local, EQA Toll

Volume 7 of 20

Competitive Services Part 2 of 2

LATA Equal Access System, Number Portability Service Base, Local Services, LOC Carrier Parameter, LOC Dialing Enhancements, LOC DOLP Selector, LOC Resale/Unbundling, Local Service Provider-Networks, Local Call Area Screening, LOC Generic CPN

Volume 8 of 20

Data, ISDN, and Internet Services Part 1 of 3

1-Meg Modem Service, Datapath, Data Span, ISDN BRI, NI0 ISDN Base, NI0 NI-1 BRI, NI0 NI-1 BRI Enhanced Maintenance

Volume 9 of 20

Data, ISDN, and Internet Services Part 2 of 3

NI0 NI-1 Packet, NI0 NI-2/3 BRI, NI0 NI-2 BRI Services

Volume 10 of 20

Data, ISDN, and Internet Services Part 3 of 3

MISC ISDN Enhancements, NI0 NI98 Enhancements Ph1, NI0 NI98 Enhancements Ph2, PRI Translations, NI0 NI-1 PRI, NI0 NI-1 PRI Networking, NI0 NI-2 PRI, NI0 ISDN PRI Base, NI0 ISDN PRI CNAM, PRI Hotel/Motel, B-Channel Packet PRI, NI0 Circular Hunt-NA, NI0 E911 SCRNI-2, ISDN DWS, DMS-100 and Meridian 1 Options 11-81 datafill correlation, Call Treatments and Cause Values

Volume 11 of 20

Meridian Digital Centrex (MDC) Part 1 of 6

Meridian Digital Centrex, MDC Minimum

Volume 12 of 20

Meridian Digital Centrex (MDC) Part 2 of 6

MDC Minimum (continued), MDC MSAC, MDC Standard

Volume 13 of 20

Meridian Digital Centrex (MDC) Part 3 of 6

MDC Standard (continued), MDC CLASS on MDC, MDC MBG Minimum, MDC MBG Standard

Volume 14 of 20

Meridian Digital Centrex (MDC) Part 4 of 6

MDC MBG Standard (continued), MDC MBS Minimum, MDC MBS Standard, MDC PRO

Volume 15 of 20**Meridian Digital Centrex (MDC) Part 5 of 6**

MDC PRO (continued), MDC Tailored MDC 1, MDC Tailored MDC 2, MDC Tailored MDC 3, MDC Tailored MDC 4, MDC Tailored NARS, MDC Name/DN Blocking, MDC Per Line Feature Control, MDC Call Forward Indication, MDC to 10-digit Routing, MDC to Universal Routing

Volume 16 of 20**Meridian Digital Centrex (MDC) Part 6 of 6**

Automatic Call Distribution, ACD Base, CompuCALL Base, ACD Networking, ICM Call Manager Interface, ICM Call Center, ICM Network ICM, ICCM Call Queue Management, ICM Enhanced ICCM Functionality, CompuCALL Status Query, Appendixes

Volume 17 of 20**Residential Enhanced Services (RES) Part 1 of 3**

Residential Enhanced Services, RES Access Management, RES Advanced Custom Calling

Volume 18 of 20**Residential Enhanced Services (RES) Part 2 of 3**

RES Display Functionality and Privacy, RES Interface Functionality

Volume 19 of 20**Residential Enhanced Services (RES) Part 3 of 3**

RES Non-Display Services, RES Service Enablers, RES Signaling, Routing, and OAM, In-Session Activation, RES AutoRecall with Name, Malicious Call Tracking Logs, Appendixes

Volume 20 of 20**Emergency Services**

Emergency Number Services, GETS0001

1 Introduction to Base Services

Understanding Base Services translations

Base Services (BAS) incorporates automatic message accounting (AMA) functionalities and basic DMS SuperNode platform software. This section describes AMA translations.

AMA overview

AMA is a Digital Multiplex System (DMS) subsystem that generates call data on certain calls originated from the DMS. When a call is originated, certain attributes of the call, such as the originating directory number (DN), call type, and call duration, are recorded in DMS data store.

When the call terminates, the data is specifically formatted and then forwarded to a data management and storage system where it is stored. The data is eventually polled by an external data collector and forwarded to a data processing center for processing.

The AMA data system provides the means to bill subscribers for services used and to monitor the usage of specific subscriber lines. The main use for AMA is subscriber billing.

Billing

For billing purposes, AMA can provide records on an individual call basis of billable services used by subscribers. Through datafill, operating companies can define certain services as billable.

When a subscriber originates a call, a buffer area in DMS data store is opened and allocated to the call process. In this buffer area, the AMA subsystem records the subscriber's DN, the digits dialed, answer time, disconnect time, line and feature options assigned, and any other information needed for data processing.

Upon call termination, the AMA subsystem retrieves the AMA data from the buffer area, formats the data into a specific layout, and sends the data to the DMS data management and storage facility, the Device Independent

Recording Package (DIRP). DIRP then stores the AMA data on an external recording device, such as tape or disk.

The AMA data is eventually forwarded to a revenue accounting office (RAO), where a composite bill is generated for each subscriber. A composite bill reflects the charges incurred for services used.

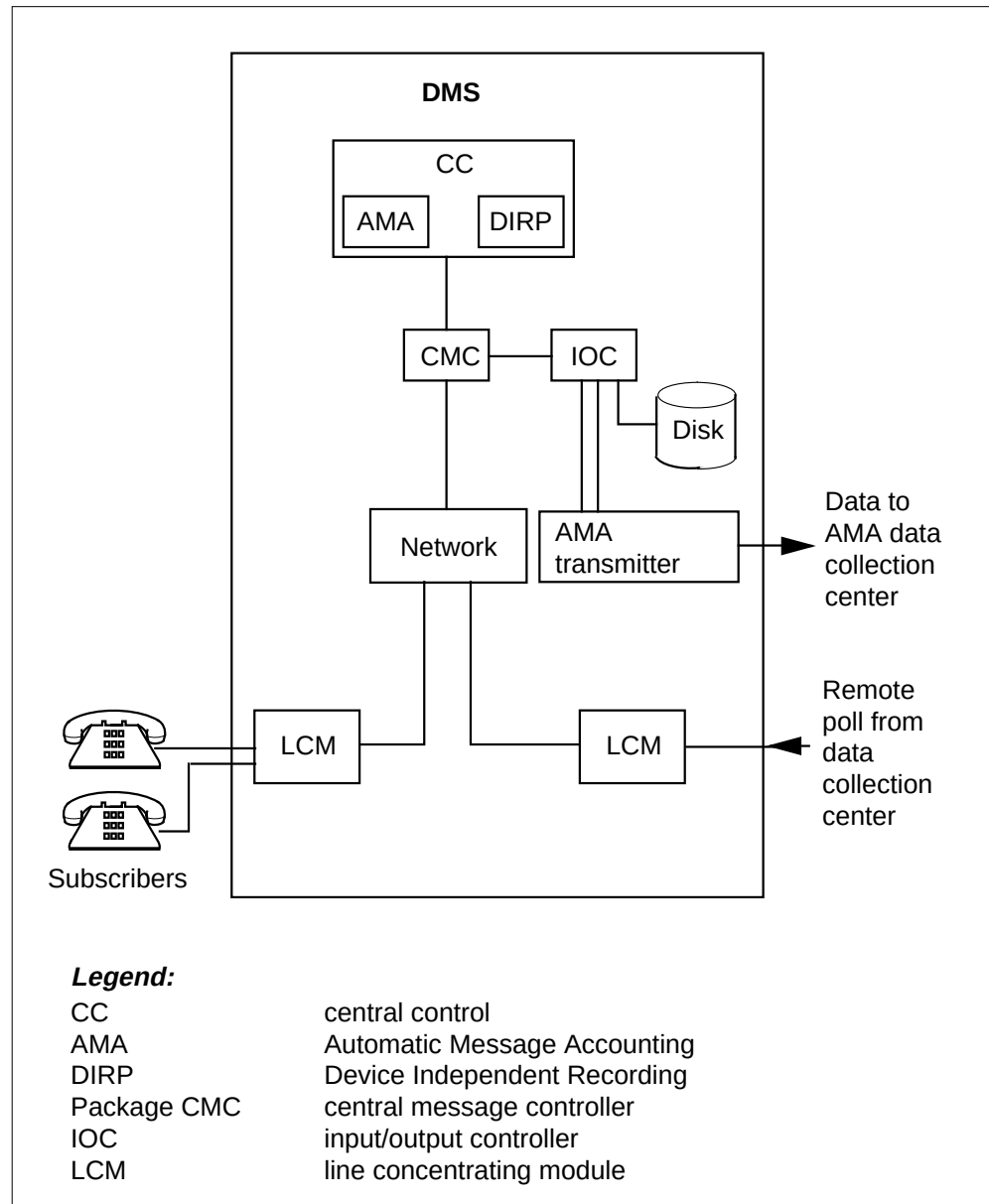
Usage and study information

Not all AMA records contain information about billable services. AMA records can also reflect usage information on specific subscriber lines. This information is useful for surveillance of subscribers by law enforcement officials or by operating companies in response to subscriber billing complaints.

AMA system architecture

The AMA subsystem includes the DMS software and hardware necessary to generate, store, and forward AMA data. The hardware and software includes the DMS central control (CC), the DIRP, the DMS data transmission facilities, and the software for local or centralized AMA recording.

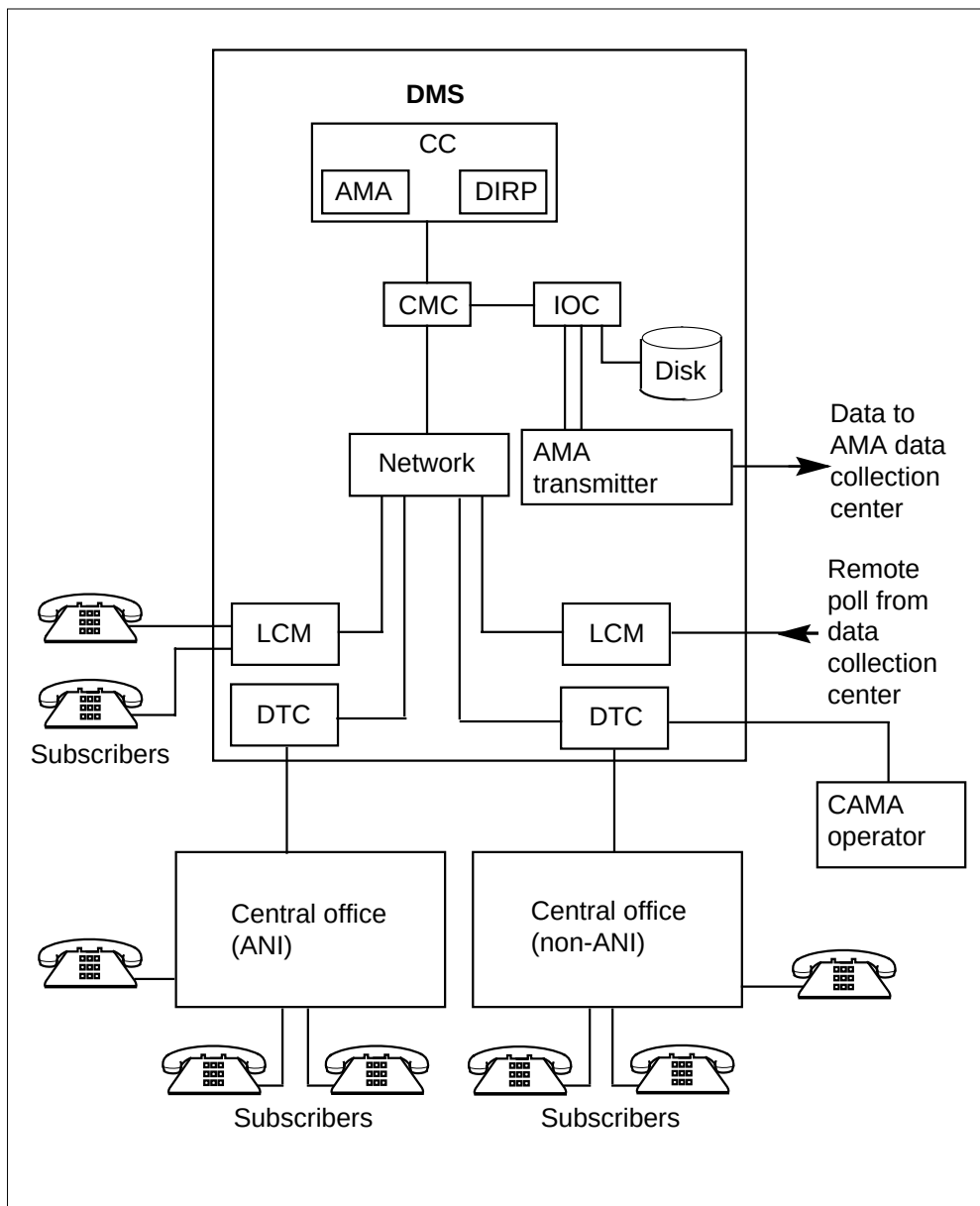
The DMS AMA system can be configured to record AMA data locally within a central office or at a central location serving several central offices. Local AMA (LAMA) recording is used for DMS switches equipped with their own AMA data storage and transmitting facilities. In the LAMA recording architecture, the DMS collects and records its own AMA data and transmits the collected AMA data to a downstream AMA processing center upon request. The following figure illustrates a typical LAMA system.

Figure 1-1 Local AMA system architecture

Centralized AMA (CAMA) recording is used when several central offices exist that are not equipped to record and forward AMA data. In the CAMA architecture, call information from a local switch not equipped for AMA recording is transferred to a central AMA recording switch through the automatic number identification (ANI) system.

For local switches that do not support ANI, an operator obtains the calling number and forwards it to the switch for AMA recording. The following figure illustrates a typical CAMA system.

Figure 1-2 Centralized AMA system architecture



AMA data

Automatic message accounting data consists of individual records that contain information on specific calls in the DMS. Each AMA record is a discrete element of an AMA file.

An AMA record contains complete information about a particular call or statistic. The format of each AMA record is determined by the following:

- call code: a four character call type descriptor. Three characters define the type of call or statistic being recorded. The fourth character is a sign character.
- AMA recording option activated/deactivated: an option to control the activation and scheduling of information not automatically recorded on the AMA device. This option is activated using the AMAOPTS data table.
- structure code: an identifier that defines a set of data fields that make up an AMA record and determines the ordering of the fields in that record.
- trunk/line number or customer-dialed account recording number (CDAR) number. The CDAR identifies the customer group.

The call code, the structure code, the AMA options activated in the AMAOPTS table, and the CDAR number determine the format for the AMA record entries. To format the AMA record based on the data stored in the recording unit for a call, the DMS:

- determines the call code based on the originating and terminating attributes of the call. These call attributes are stored in the CAMA recording unit.
- compares the call code with the recording options assigned in table AMAOPTS to determine if the record should be written immediately following the writing of the device entry into the output buffer. A log entry (AMAB117 report) is produced if the LOGAMA option in the AMAOPTS table is ON. The log report indicates that the formatting process has been completed successfully.
- determines the structure code for the call code using the information stored in the CAMA recording unit.
- determines if the trunk/line number or the CDAR numbers should be appended to the AMA record generated. This information is stored in the CAMA recording unit.

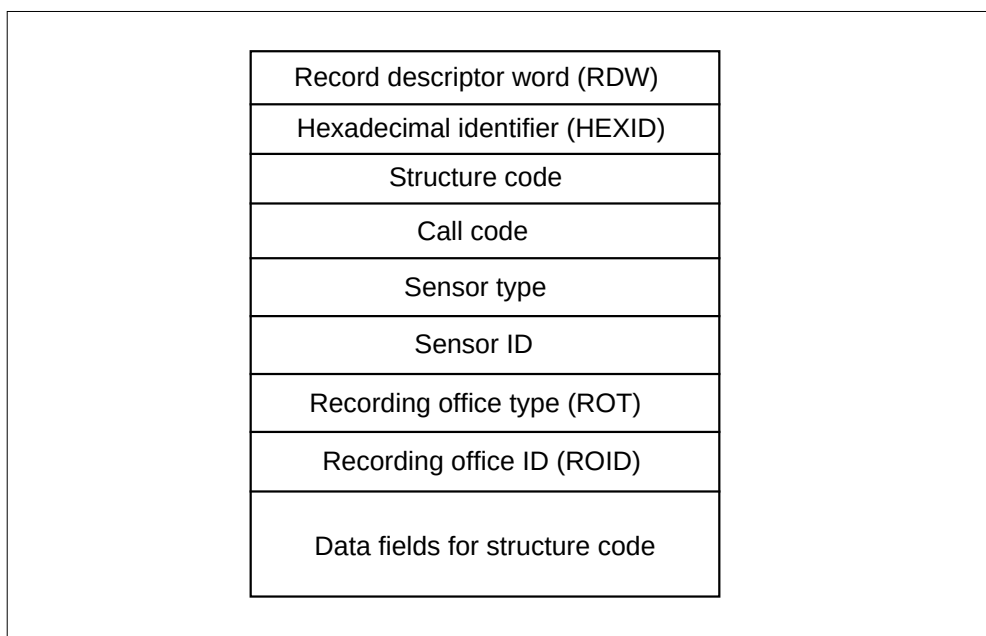
AMA record example

An example of an AMA record, as it might appear from an AMADUMP, is shown in the following figure.

Figure 1-3 AMADUMP AMA record

```
HEX ID=AA STRUCT CODE:00120C CALL TYPE: 001C SENSOR  
TYPE:036C SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:  
0000000C DATE: 060314C TIMING IND: 00100C STUDY IND:  
0200000C ANSWER: 0C SERV OBSERVED: 0C OPER ACTION: 0C SERV  
FEAT: 000C ORIG NPA:613C ORIG NO:4312345C CONN TIME:  
1136091C ELAPSED TIME: 001440000C WATS IND:0C WATS BAND  
IND:020C PRESENT DATE:60307C PRESENT TIME: 1704429C
```

A basic diagram representing an AMA record is shown in the following figure.

Figure 1-4 Bellcore AMA record with fields common to all AMA records

An AMA record contains:

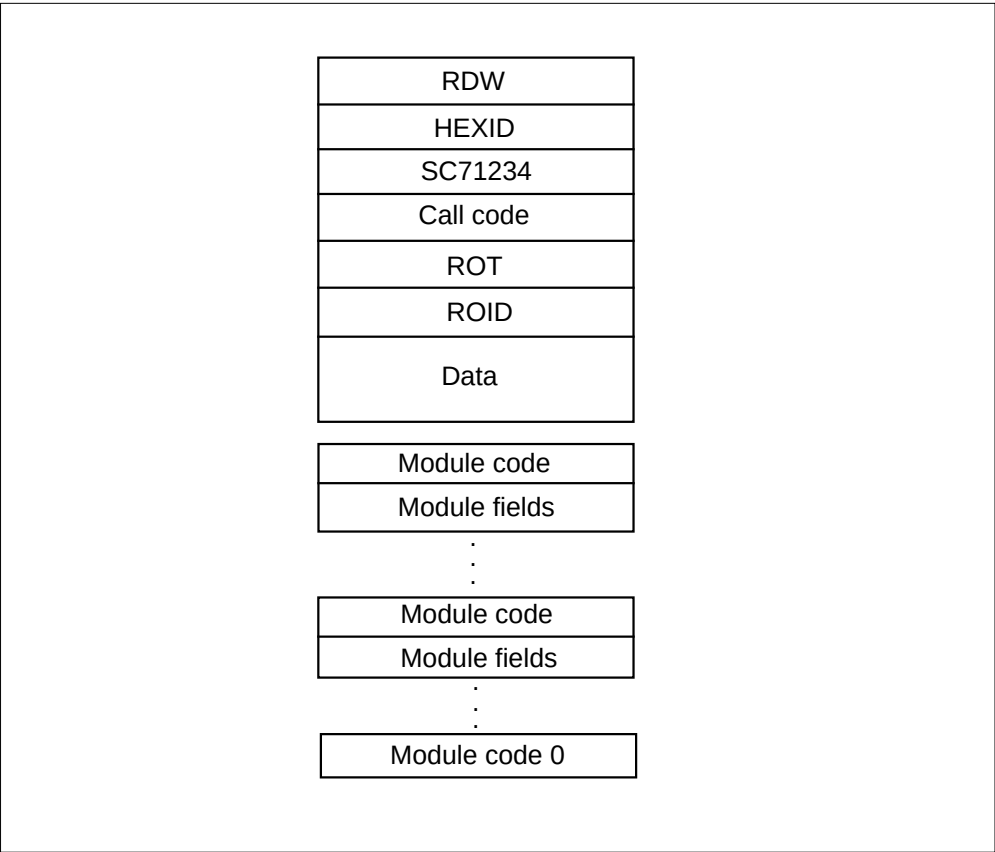
- record descriptor word (RDW)
- hexadecimal identifier (HEXID)
- structure code
- data fields that define the record

An AMA record can also have modules attached to it that contain additional data. An AMA record with additional modules contains

- module code
- module fields
- module code 0

An example AMA record with modules attached is shown in the following figure.

Figure 1-5 AMA record with modules attached



Record descriptor word The first four bytes of each record contain the RDW. The first two bytes of the RDW contain the length, in binary, of the entire record, including the RDW.

Hexadecimal identifier The HEXID follows the RDW. This identifier consists of two hexadecimal characters, AA, which indicate that no known errors exist in the record.

Structure codes The structure of a record (the set of data fields it contains) is identified uniquely by a six-character structure code. The structure code determines the data fields included and the ordering of the data in the record.

A unique structure is defined for each recognized call. The following conditions, along with the attributes of the call, help determine the appropriate structure code for a given call:

- answered/unanswered
- long duration
- trunk/line numbers
- customer-dialed account recording (CDAR)
- high runner

The first character of the structure code is an option indicator, which can have a value in the range of 0 to 9. The meaning of some of these values is shown in the following table.

Table 1-1 Meaning of a structure code's first character

Code	Meaning
0	The record has no appended fields.
2	The record has a CDAR number attached.
4	The record has a module attached.
6	The record has a module and a CDAR number attached.
8 and 9	These codes are reserved for future use.

The remaining characters identify a specific format. For information on structure and module codes and their associated formats, refer to *Bellcore Format Automatic Message Accounting Reference Guide*, 297-1001-830.

Call codes Call codes, or call type codes, identify the call type represented in an AMA record. A call code consists of a four-character call type descriptor. Three of the characters define the type of call or statistic being recorded, the fourth is a sign character. Each call code has associated with it one or more structure codes.

Call codes are described briefly in Appendix A of this document and in detail in *Bellcore Format Automatic Message Accounting Reference Guide*, 297-1001-830. Appendix B provides a call code to feature cross-reference table.

Preparing to datafill Base Services

The following section provides the preparations necessary for datafilling BAS. AMA functionalities are described.

AMADUMP utility

The AMADUMP utility is a resident utility for dumping AMA device contents. It is part of feature package NTX001AA and provides a display or hard copy printout of the contents of AMA files produced in a LAMA or a CAMA office.

The following AMADUMP subcommands are used to dump the contents of an AMA device:

- **DUMP:** dumps header, data, and call entries of a specified number of blocks. It is possible to specify a starting block.
- **HELP:** displays a detailed description of data fields for the desired structure codes.

AMA options

Several options are provided in table AMAOPTS so that an operating company can control the recording of certain types of calls and call data. In the following table are some of the recording options available and what each controls.

Table 1-2 AMAOPTS recording options (Sheet 1 of 2)

Option	Explanation
AUDIT	Resets internal AMA tracer records.
BCLONGCALL	Records long duration calls.
CALL_FWD	Records call forward activations and deactivations.
CDAR	Records customer dialed account codes.
CHG411	Records 411 directory assistance charged calls.
CHG555	Records seven-digit 555-1212 directory assistance charged calls.
COIN	Records local coin calls.
CMCICWK	Causes carrier connect time on a CMC to FGD carrier call to be the time of the billing wink from the FGD carrier.
CMCORIG	Records CMC originating calls.
CMCTERM	Records CMC terminating calls.

Table 1-2 AMAOPTS recording options (Sheet 2 of 2)

Option	Explanation
DA411	Records 411 directory assistance calls.
DA555	Records seven-digit 555-1212 directory assistance calls.
ENFIA_B_C	Records ENFIA B and C calls.
FREECALL	Records local calls to a free number.
HIGHREV	Records AMA records for high revenue calls only.
INWATS	Records INWATS calls.
LOGAMA	Generates AMAB log reports.
LOGOPT	Generates an option status log.
LOGTEST	Generates an AMAB200 log.
LUSORIG	Records line usage study originations.
LUSTERM	Records line usage study terminations.
OBSERVED	Records complaint observed line calls.
OCCTERM	Records terminating OCC calls.
OUTWATS	Records OUTWATS calls.
OCCOVFL	Records overflows to ATC trunks.
OVERFLOW	Records INWATS or line usage study (LUS) call overflows.
TIMECHANGE	Records time change.
TRACER	Generates AMA tracer records.
TWC	Records conference circuit usage time.
UNANS_LOCAL	Records unanswered local calls.
UNANS_TOLL	Records unanswered toll calls.

To use these options effectively for testing and study, the user can:

- start/stop an option at a specified date or time
- start/stop an option immediately
- schedule the action of an option at a specified interval

Note: Not all of these options can be set up on a periodic basis. For more information, refer to the data schema section of this document.

Recording options interactions

The DA411 and CHG411 options interact to generate AMA records. The DA555 and CHG555 AMA options also interact to generate either call code 006 or call code 033 AMA records, depending on the type of call being routed (NP, DD), the number dialed, and/or the option that has been turned on in table AMAOPTS. The following table shows how these recording options interact.

DA411 and CHG411

The following table shows the interactions and conditions that apply to the 411 recording options.

Table 1-3 DA411 and CHG411 AMA options

CHG411	DA411	RESULT
ON	ON	009 AMA record generated. Third digit of STUDY IND field equals 0.
ON	OFF	No AMA record generated
OFF	ON	009 AMA record generated. Third digit of STUDY IND field equals 2.
OFF	OFF	No AMA record generated

Note: The DA411 option sets the STUDY IND field in the AMA record generated.

DA555 and CHG555

The following table shows the interactions and conditions that apply to the 555 recording options.

Table 1-4 DA555 and CHG555 AMA options

CHG555	DA555	RESULT
ON	ON	033 AMA record generated. Third digit of STUDY IND field equals 0.
ON	OFF	No AMA record generated
OFF	ON	033 AMA record generated. Third digit of STUDY IND field equals 2.
OFF	OFF	No AMA record generated

Note: The DA555 option sets the STUDY IND field in the AMA record generated.

When both options are turned ON and 1-555-1212 is dialed and routed using DD translations, call code 033 is generated. However, when both options are ON and the user dials 1-555 plus four digits other than 1212, call code 033 is not generated. Call code 006 is generated instead.

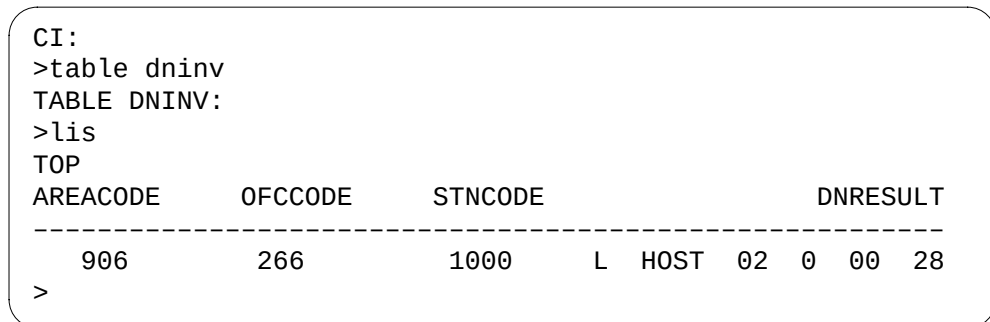
When both options are turned OFF and 1-555-1212 is dialed and routed using DD translations, no AMA record is generated. However, when both options are OFF and the user dials 1-555 plus four digits other than 1212, call code 006 is generated.

Notes on BCS33

For offices with BCS33 and up, table DN is replaced with table DNINV, table WRDN is replaced with table DNROUTE, and table THOUGRP is replaced with table TOFCNAME. These changes broaden the applicability of the software to include varied numbering plans. See the following three figures for an example of the new tables. For more information on the fields of these new tables, refer to the data schema section of this document.

Because of these changes, it is important to understand that if an office is using BCS33 and up and a user attempts to enter Tables DN, WRDN, or THOUGRP, the table name will not be recognized by the switch.

Figure 1-6 MAP display example for table DNINV



```
CI:
>table dninv
TABLE DNINV:
>lis
TOP
AREACODE      OFCCODE      STNCODE      DNRESULT
-----
    906        266        1000      L HOST 02 0 00 28
>
```

Figure 1-7 MAP display example for table DNROUTE

```

CI:
>table dnroute
TABLE DNROUTE:
>lis
TOP
AREACODE      OFCCODE      STNCODE      DNRESULT
-----
   201         675         6782         T OFRT 85
>

```

Figure 1-8 MAP display example for table TOFCNAME

```

CI:
>table tofcname
TABLE TOFCNAME:
>lis
TOP
AREACODE      OFCCODE
-----
   906         266
>

```

Notes on BCS34

For BCS34 and up, LCABILL and HOT are removed as fields in table LINEATTR and are placed as options in the options field. The following figure is an example of table LINEATTR with HOT and LCABILL.

Figure 1-9 MAP display example for table LINEATTR

```

CI:
>table lineattr
TABLE LINEATTR:
>lis
TOP
LAIDX  LCC  CHGCLSS  COST  SCRNCN  LTG  STS  PRTNM  LCA NAME
      ZEROMPOS  TRAFSNO
MRSA  SFC  LATANM MDI          IXNAME  DGCLNAME  FANIDIGS
      RESINF          OPTIONS
-----
  0      1FR      NONE      NT      FR01      0      613      PRT1      NLCA
      NONE      10
NIL  NILSFC  LATA1  0          NIL      NIL      00
      N          (HOT) (LCABILL) $
>

```

Note: Bold type of a table datafill example indicates fields or subfields that affect features or feature packages.

Notes on BCS35

For offices that serve two or more NPAs, new option **TERMNPA** in table **AMATKOPT** provides the ability to specify a trunk's terminating NPA, when a seven-digit or less office code is dialed. If a seven-digit or less office code is dialed, then the NPA datafilled in subfield **CONNGNPA** of table **AMATKOPT** is used for the terminating NPA field in the billing record. The following figure is an example of table **AMATKOPT** for offices that serve two or more NPAs. Refer to the data schema section of this document for a description on how to datafill table **AMATKOPT**.

Figure 1-10 MAP display example for table AMATKOPT

```

CI:
>table amatkopt
TABLE AMATKOPT:
>lis
TOP
      CLLI
                                OPTIONS
-----
      OLAMADCM
                                ( TERMNPA 819 ) $
>

```

CCS7 system tables

The CCS7 system is partitioned into layers that provide the flexibility to serve many applications. This chapter describes the tables used by the Base CCS7 operating software and those that are datafilled to configure the hardware for link peripheral processor (LPP)-based platforms.

The following equipment tables are included:

- PMLOADS
- LTCINV
- LIMINV
- LIMCDINV
- LIMPTINV
- SUSHELF
- LIUINV

The following message transfer part (MTP) tables are included:

- C7TIMER
- C7CNGSTN
- C7NETWRK
- C7ALIAS
- C7LKSET
- C7LINK
- C7RTESET

The following signaling connection control part (SCCP) tables are included:

- C7NETSSN
- C7LOCSSN
- C7RSSCRN
- C7RPLSSN
- C7GTTTYPE
- C7GTT

Functional groups for Base Services

The Base Services functional groups require the DMS SuperNode Platform—BASE0001, TEL00001, and BAS00003. The following paragraphs provide functional group names, ordering codes, and additional prerequisites for Base Services.

BAS AMA-Cook, BAS00001

BAS AMA Cook has no prerequisites.

BAS ANI, BAS00002

BAS ANI has no prerequisites.

BAS Generic, BAS00003

BAS Generic has no prerequisites.

BAS Generic-OAM, BAS00004

BAS Generic-OAM has no prerequisites.

BAS Logs, BAS00007

BAS Logs has no prerequisites.

BAS RSC-S, BAS00009

BAS RSC-S has no prerequisites.

BAS Remotes Generic, BAS00012

BAS Remotes Generic has no prerequisites.

BAS RSC-S Sync, BAS00015

To operate, BAS RSC-S Sync requires BAS Remotes Generic, BAS00012.

BAS SCM/SMS/SMU, BAS00016

BAS SCM/SMS/SMU has no prerequisites.

BAS ANI Enhanced, BAS00018

BAS ANI Enhanced has no prerequisites.

BAS International Remote Generic, BAS00026

BAS International Remote Generic has no prerequisites.

2 Datafilling BAS AMA Cook

The following chapter describes the BAS AMA Cook, BAS00001, functionality.

Automatic Message Accounting Teleprocessing System

Ordering codes

Functional group ordering code: BAS00001

Functionality ordering code: does not apply

Release applicability

BCS30 and later versions

Requirements

To operate, Automatic Message Accounting Teleprocessing System requires BAS Generic, BAS00003.

Description

The AMATPS allows an operating company to collect, record, and process Bellcore-formatted subscriber billing data automatically.

Software package NTX243AA implements the AMATPS in the DMS.

The AMATPS contains the following components:

- device independent recording package (DIRP)
- distributed processing peripheral (DPP)
- host office collector (HOC), also known as a collector

Refer to this document for additional information on the DPP.

Before the AMATPS was added to the DMS, the DMS central control (CC) formatted raw billing data (AMA data). The DMS CC formatted the data to create call billing records of Bellcore AMA format. The DMS CC dumped the billing records to tape at the DMS office. Operating company personnel manually transferred the billing records to the revenue accounting office (RAO). The RAO produced the bills for the subscribers.

Automatic Message Accounting Teleprocessing System (continued)

Manual transfer of AMA data is not necessary with software package NTX243AA. The AMATPS handles billing data by the following method:

1. The DIRP data management facility transfers data directly to a DPP.
2. The DPP stores, formats, and transmits the data. The DPP uses a BX.25 protocol to the HOC. The HOC is a computer that collects AMA data from a minimum of one central office in a specified area.

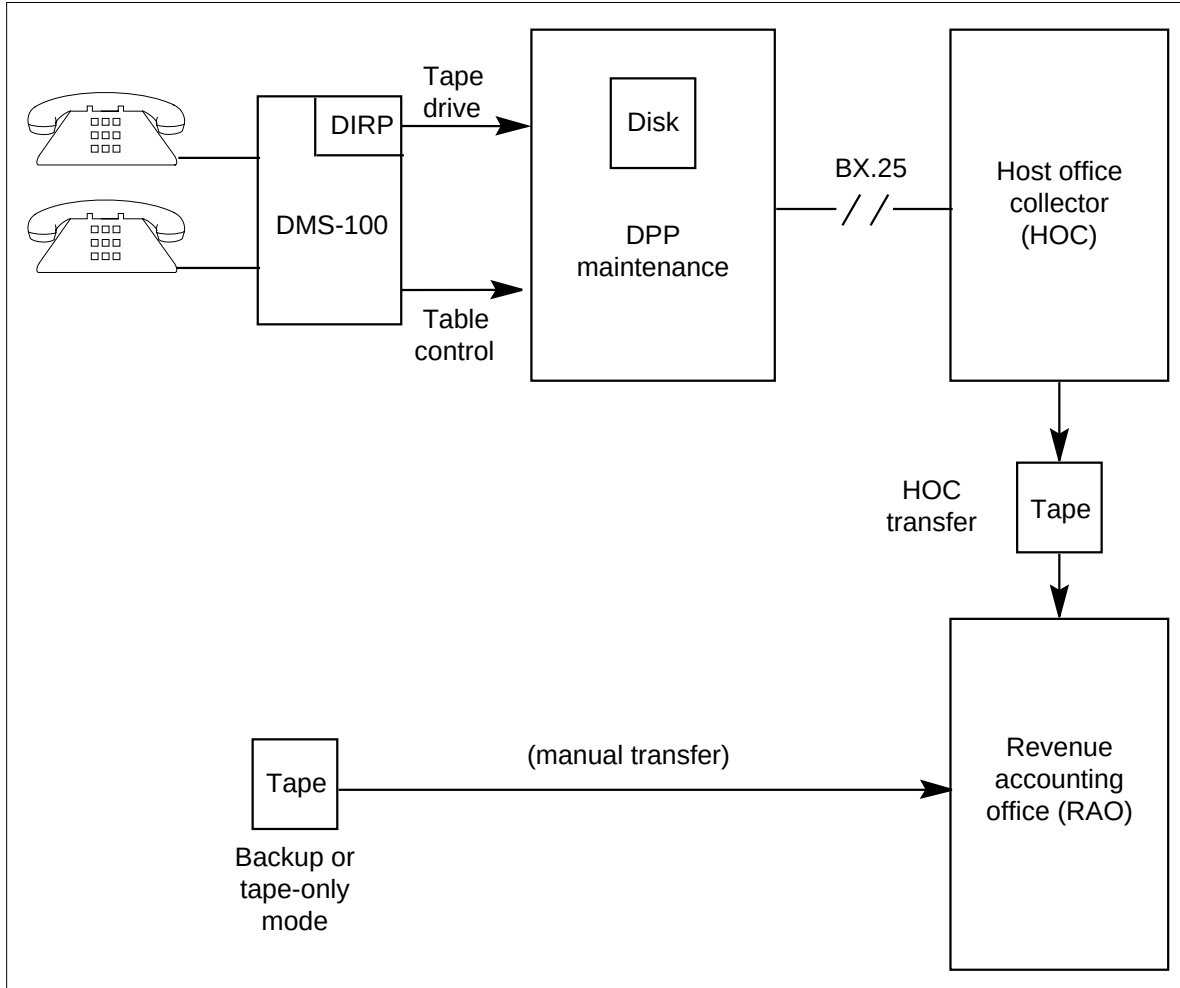
Note: Another name for the DPP is AMA transmitter (AMAT) because the DPP can transmit billing data directly to the HOC.

3. The HOC places the AMA data on tape. The HOC transfers the data to the RAO. The RAO uses the data to compute customer billing.

The NTX243AA implements the AMATPS system configuration. This configuration appears in the following figure. The tape-only mode serves as an emergency backup for the AMATPS. This mode was the primary method of AMA data management before the NTX243AA occurred.

Automatic Message Accounting Teleprocessing System (continued)

AMATPS system configuration



The DIRP data recording and management controls the flow of data from the DMS-100 to the DPP.

When the DPP receives data from DIRP, the DPP stores the data on an internal DPP disk. This procedure appears in the preceding figure. The DPP formats and sends the data over a data link to the HOC. The DPP uses a BX.25 protocol. The DPP offloads AMAT functions, like formatting, from the CC. This action saves central processing unit (CPU) resources.

Note: The DPP AMA formatter supports all call codes that the DMS-100 CC AMA formatter supports. For additional information on call codes, refer to *Bellcore Format Automatic Message Accounting Reference Guide*, 297-1001-830.

Automatic Message Accounting Teleprocessing System (continued)

Display DPP through IOD Level (AF0151)

The AF0151 changes the method and the display of DPP unit alarms. Before the development of AF0151, the DPP unit alarms appeared at the EXT and the IOD levels of the MAP. The system used scan points and datafill to generate alarms at the EXT level. The system used the DPP MMI links to generate alarms at the IOD level. The EXT level alarm display did not provide DPP unit alarms with correct exposure or value. The IOD level alarm display did not always function. When the MMI links were out of service, the system did not report unit alarms at the IOD level of the MAP.

The AF0151 responds to problems associated with the report of DPP unit alarms at the EXT and IOD levels. The system reports DPP unit alarms at the IOD level of the MAP display. The system uses scan points and datafill to produce the reports. This alarm display combines the reliability of scan point alarm detection with the visibility of the IOD level of the MAP. Scan point alarm detection is at the EXT MAP level

DPP Robustness Enhancements (AF0210)

The AF0210 provides three improvements associated with AMATPS:

- Additional buffer space is available to process response messages from the DPP level of the MAP. This increased buffer reduces the possibility of buffer overflow.
- AF0210 provides an improvement for the recovery of software processes. Recovery of software processes occurs when an AMATPS maintenance interface port returns to service from a busy state.
- The DPP MAP level menu in the AF0210 is different from the menu in earlier DPP display methods. The HXDPP, HTDPP, and RTDPP commands change from menu commands to non-menu commands. The CLK, VS, and LINKTEST commands change from non-menu commands to menu commands. The DPP MAP level has the DPRTST non-menu command added.

AMATPS (BR0514)

The BR0514 provides a maintenance interface between the DMS-100 and the DPP. BR0514 assists AMA formatting capabilities in the DPP.

The BR0514 allows the following areas of DPP maintenance:

- man-machine interface (MMI) commands
- customer data schema table control
- log reporting messages
- alarms

Automatic Message Accounting Teleprocessing System (continued)

User perspective

The AF0151 changes the IOD MAP level display. The DPP unit and port alarms appear at the IOD level. The DPP unit alarms appear next to the DPPU: field. The DPP port alarms appear next to the DPPP: field.

The AF0210 changes the DPP MAP level display. The document AF0210-DPP Robustness Enhancements describes these changes. Refer to the DPP Robustness Enhancement feature description in this document for additional information.

Operation

Software package NTX243AA uses the DMS-100 MAP, log, and alarm systems. The package uses these systems for input and output of maintenance information. Each of the DMS-100 maintenance systems contains the DPP unit.

Translations table flow

The AMA translations flow feature does not associate with the Automatic Message Accounting Teleprocessing System package.

Limits

The following limits apply to Automatic Message Accounting Teleprocessing System:

- The DPP supports only Bellcore AMA format.
- The DMS DIRP AMA files do not close manually.
- The magnetic tape drive (MTD) controllers allocated for AMA files must connect to the DPP unit data stream interface (DSI).
- Only one user can access the DPP MAP level at one time.
- The system writes AMA data from the DMS MTC cards to the DPP DSI circuits. You cannot demount the DPP DSI circuits. You cannot demount the DMS equivalent tape drive interface on the DMS side.
- You must specify the DPP DSI circuits as TAPE in field DEVTYPE of table DIRPPPOOL. See table DIRPPPOOL in the data schema section of this document for additional information.
- Do not use scheduled closes that field ROTACLOS in table DIRPSSYS allows. See table DIRPSSYS in the data schema section of this document for additional information.
- The baud rate must match the DPP unit maintenance interface port baud rate setting. Table TERMDEV for the AMATPS maintenance interface ports specifies the baud rate.

Automatic Message Accounting Teleprocessing System (continued)

- Table DPP associates scan points with a specified DPP. The number of DPPs in an office matches the number of tuples in table DPP. Each DPP must have one scan circuit. The scan circuit cannot be assigned in other parts of the system. Now an office can only contain one DPP.
- To function, the DPP requires DPP alarms. You must specify the fields that describe the location of the scan circuit. Specify these fields when you enter data for the DPP. You cannot add these entries later. To change the location, you must remove and reenter the tuple in table DPP.
- The 0X10AA Miscellaneous Scan Detector card is the only possible card code for scan circuits.
- You cannot use the 1X68BD MTC card. This card is not compatible with the DPP unit.

Interactions

The NTX243AA uses the required feature packages and DMS-100 DIRP.

Activation/deactivation by the end user

Automatic Message Accounting Teleprocessing System does not require activation or deactivation by the end user.

Billing

Primary tracer records

The DMS-100 can send a call assembly tracer record to the DPP according to the schedule in table AMAOPTS. When this event occurs, the DPP creates and writes a primary tracer record to disk. This record accompanies the AMA billing data.

The DPP inserts each primary tracer in the AMAT (DPP) data stream on the DPP disk. The DPP writes a billing record from the CC to disk. The DPP inserts the tracer. When the DPP inserts the primary tracer in the data stream, the DPP treats the primary tracer as any other AMA record. Primary tracer records use structure code 09042.

The primary tracer record contains counts of total DPP activity. The counts accumulate from record to record until the system resets the counts. The system resets the counts when the DPP generates a specified AMATPS primary tracer record more than one time. This event normally occurs one time each day, at midnight or after.

Automatic Message Accounting Teleprocessing System (continued)

The primary tracer contains the following data:

- call type
- date of tracer record creation
- time of tracer record creation
- AMA sequence number
- tracer type
- auditability flag
- count of call records that the DPP writes to the DPP disk
- count of call records the DPP sends to the HOC

An example of a primary tracer record the DPP generates for transmission to the HOC appears in the following figure. The DPP transmits this record with other AMA data.

Sample AMA record

AA09042C090C60717C1733210C000000C000000C32C0C00000696C00000000
C00000000C00000000C00000000C

Secondary tracer records

The DPP generates the AMATPS secondary tracer record. This action occurs when the DPP transmits any sequence of secondary data blocks to the HOC in a polling session. Secondary tracer records use AMA structure code 09043. Secondary tracer records contain the same type of information as the primary tracer record. Refer to NTX159AA for additional information on AMA tracer records.

Datafilling office parameters

Automatic Message Accounting Teleprocessing System does not affect office parameters.

Datafill sequence

The tables that require datafill to implement Automatic Message Accounting Teleprocessing System appear in the following table. The tables appear in the correct entry order.

Automatic Message Accounting Teleprocessing System (continued)

Sample datafill appears after each description of the tables. These sample tuples are the same as the tuples that activate feature package NTX243AA. The office configuration determines the datafill.

Datafill requirements for Automatic Message Accounting Teleprocessing System

Table	Purpose of table
CLLI	Common Language Location Identifiers. Identifies the common language location identification (CLLI) codes for each of the following: • announcement • tone • trunk group • test trunk • national milliwatt testlines • service circuit
TERMDEV	Terminal Devices. Two tuples are added to the Terminal Devices (TERMDEV) table. These tuples configure two terminal controller cards in the IOCs. These cards assist the DPP maintenance interface.
MTD	Magnetic Tape Drive. Two tuples are added to the Magnetic Tape Drive (MTD) table. These tables configure the two magnetic tape controller (MTC) cards in the IOCs as DSI ports. The AMA data transfer to the DPP through the DSI ports.
DPP	Distributed Processing Peripheral. The DMS-100 central control uses the Distributed Processing Peripheral (DPP) table. This table defines the following characteristics of the DPP data transmission device: • maintenance interface port identifiers • audit time interval • DPP download file name • scan point information to report DPP alarms
DIRPSSYS	DIRP Subsystem. The Device Independent Recording Package Subsystem (DIRPSSYS) table assists transfer of DIRP AMA data to the DPP through the two tape drive ports. Tables MTD and DIRPPOOL specify the two drive ports.
DIRPPOOL	DIRP Pool. The collection, or pool, of recording devices allocated to each subsystem appears in this table.

Datafilling table CLLI

The datafill for Automatic Message Accounting Teleprocessing System for table CLLI appears in the following table. The fields that apply directly to

Automatic Message Accounting Teleprocessing System (continued)

Automatic Message Accounting Teleprocessing System appear. See the data schema section of this document for a description of the other fields.

Datafilling table CLLI (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CLLI		alphanumeric	Common language location identifiers. Enter a maximum of 16 alphanumeric characters. These characters identify the far end of each announcement, tone, or trunk group. The following rules apply: • The first character must be alphabetical. • An underscore (_) is accepted as a valid character in the CLLI code. • Do not enter any special characters, like *, -, +, ?, /. • For good use, a CLLI code contain a maximum of 12 characters. Only the first 12 characters appear on the VDU terminal, MAP, or TTP. The whole CLLI appears in a LOG report.
ADNUM		0 to 8192	Administrative trunk group number. Enter a number from 0 to a number that is one less than the size of table CLLI. This number appears in table DATASIZE. The maximum size of table CLLI is 8192. The customer can assign a maximum of 51 administrative numbers. These numbers allow for future growth in the number of pseudo-CLLIs. See the data schema section of this document for additional information.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table CLLI (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
TRKGRSIZ		0 to 2047	Trunk group size. Enter a number from 0 to 2047. This number is equal to the maximum quantity of trunk members expected for assignment to the trunk group. The figure allocates store. The figure can be greater than the number of trunks that first function. See the data schema section of this document for additional information.
ADMININF		alphanumeric	Administrative information. Enter a maximum of 32 alphanumeric characters or underscores. The operating company uses this field to record administrative information. The switching unit does not use the information in the field. Note: Do not use special characters, like @, #, \$, %, ^, &, *, (,), +, =, /, ', ;, :, ?, }, {,. These characters can cause errors in the data of the field.

Datafill example for table CLLI

Sample datafill for table CLLI appears in the following example.

MAP example for table CLLI

CLLI	ADNUM	TRKGRSIZ	ADMININF
DUMPANDRESTORE	28	0	DUMP_AND_RESTORE
TRKLBPBK	24	0	TRUNK_LOOP_BACK
DMODEMC	2	4	NEW_MODEM_3X02CA_CLLI

Datafilling table TERMDEV

The datafill for Automatic Message Accounting Teleprocessing System for table TERMDEV appears in the following table. The fields that apply directly

Automatic Message Accounting Teleprocessing System (continued)

to Automatic Message Accounting Teleprocessing System appear. Refer to the data schema section of this document for a description of the other fields.

Datafilling table TERMDEV (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
TERMDDES		alphanumeric	Terminal name. Enter the name for each terminal device. The operating company defines this name. The name can be a maximum of eight alphanumeric characters. When you use the 1X67FA card, the name must be seven characters. You must assign all TTPs first. Assign the MAP and the TTPs that remain in numeric order. The MAP is TTP:00. When you assign TTPs, you can assign additional terminal devices, like printers and VDUs.
IOCNO		0 to 18	Input/output controller number. Enter the number (0 to 18) of the IOC that has the terminal device assigned. Refer to the IOC fixed assignments field for additional information. This field is in table MTD in the data schema section of this document.
CKTNO		0 to 35	Input/output controller circuit number. Enter the IOC circuit number, from 0 to 35, with the terminal device assigned. See the IOC fixed assignments field in table MTD in the data schema section of this document for additional information.
TERMTYPE		VT100	Terminal type. Enter VT100.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table TERMDEV (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
BAUDRT		B110, B134PT5, B150, B300, B600, B1200, B1800, B2000, or B2400	Baud rate. Enter the baud rate of the terminal device. The recommended baud rate is B2400. Use one of the following codes: • B110 • B134PT5 • B150 • B300 • B600 • B1200 • B1800 • B2000 • B2400 Note: The specified baud rate must match the DPP unit maintenance interface baud rate setting. The baud rate must not exceed 2400.
INTYP		EIA	Interface type. If the terminal device contains a data set or modem, enter Electronic Industries Association Interface (EIA).
EQPEC		1X67AA, 1X67AB, 1X67AC, 1X67BC, 1X67BD, 1X67CA, 1X67CB, or 1X67FA	Product engineering code. Enter the product engineering code of the terminal controller circuit pack. Enter one of the following codes: • 1X67AA • 1X67AB • 1X67AC • 1X67BC • 1X67BD • 1X67CA • 1X67CB • 1X67FA

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table TERMDEV (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
PRTY		NONE	Parity. Enter NONE.
GUAR		Y or N	Guaranteed device. Enter Y if a guaranteed device is present. A guaranteed device continues to run despite the call processing or maintenance load. Enter N (the default) if the device is not guaranteed.
MODEM		NONE	Modern type. Enter NONE.
COMCLASS		0 to 30, NONE, or ALL	Command class. Enter the command classes (0 to 30) allowed for the terminal device. Enter NONE if commands for the terminal are not allowed. Enter ALL if a restriction for commands for the terminal is not present. Note: A user logged in at the terminal can enter only the commands allowed on the terminal and for the login ID of the user.

Datafill example for table TERMDEV

Sample datafill for table TERMDEV appears in the following example.

Datafill for the activation of AMATPS requires the addition of two tuples to table TERMDEV (terminal devices). These tuples configure two terminal controller cards in the IOCs. These cards assist the DPP maintenance interface.

Automatic Message Accounting Teleprocessing System (continued)

MAP example for table TERMDEV

TERMD	ES	IOCNO	CKTNO	TERMTYPE	BAUDRT	INTYP	EQPEC	COMCLASS
PRTY	GUAR	MODEM						
DPP1LNK1	2	16	VT100	B2400	EIA	1X67BC		
NONE	N	NONE						
								ALL
DPP1LNK2	4	16	VT100	B2400	EIA	1X67BC		
NONE	N	NONE						
								ALL

Datafilling table MTD

The datafill for Automatic Message Accounting Teleprocessing System for table MTD appears in the following table. The fields that apply directly to Automatic Message Accounting Teleprocessing System appear. See the data schema section of this document for a description of the other fields.

Datafill for the activation of AMATPS requires the addition of two tuples to table MTD (magnetic tape drive). These tuples configure the two magnetic tape controller (MTC) cards in the IOCs as DSI ports. The AMA data transfers to the DPP through the DSI ports.

Datafilling table MTD

Field	Subfield or refinement	Entry	Explanation and action
MTDNO		0 to 15	Magnetic tape drive number. Enter the number (0 to 15) assigned to the MTD.
IOCNO		0 to 19	Input/output controller number. Enter the IOC number (0 to 19) to which the MTD is assigned.
IOCKTNO		0 to 35	Input/output controller circuit number. Enter the IOC circuit number (slot) (0 to 35) to which the MTD is assigned.
EQPEC		alphanumeric	Product engineering code. Enter the product engineering code of the MTC circuit pack.

Automatic Message Accounting Teleprocessing System (continued)

Datafill example for table MTD

Sample datafill for table MTD appears in the following example. DIRP requires the configuration of two MTDs on different IOCs. Sample tuples appear in the following figure.

MAP example for table MTD

MTDNO	IOCNO	IOCKTNO	EQPEC
1	2	0	1X68BC
2	4	4	1X68BC

Datailling table DPP

The datafill for Automatic Message Accounting Teleprocessing System for table DPP appears in the following table. The fields that apply directly to Automatic Message Accounting Teleprocessing System appear. Refer to the data schema section of this document for a description of the other fields.

Table DPP changes to define the scan point information. The system uses this information to report DPP alarms at the input/output device (IOD) level of the MAP.

Datafilling table DPP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DPPKEY		AMA	DPP index application. Enter AMA.
DPPTERM1		alphanumeric	DPP terminal port one. Enter an alphanumeric code that specifies the first terminal port to which the DPP connects. Table TERMDEV defines this port.
DPPTERM2		alphanumeric	DPP terminal port two. Enter an alphanumeric code that specifies the second terminal port. The DPP connects to this port. Table TERMDEV defines this port.
DPPDNLD		alphanumeric	DPP download file. Enter the name of a DPP download file.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table DPP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DPPAUDIT		alphanumeric	DPP audit time. Enter the period there is no activity in minutes that must occur on the maintenance interface links before an audit runs. The recommended audit interval time is between 3 and 5 m. The maximum audit interval time is 32 767 m.
SCTMTYPE		MTM or OAU	Scan circuit trunk module type. Enter MTM or OAU. The MTM or OAU are the only trunk modules that can contain a scan circuit.
SCTMNO		0 to 2047	Scan circuit trunk module number. Enter the trunk module numbers of the MTM or OAU that contains the DPP scan circuit. The trunk module numbers can range from 0 to 2047. The operating company supplies these numbers.
SCTMCTMO		0 to 29	Scan circuit trunk module circuit number. Enter the circuit number (0 to 29) of the DPP scan circuit on the MT or OAU.
SCCARD CD		0X10AA	Scan card code. Enter 0X10AA. This entry is the only valid card code that contains the scan circuit. This field is an administrative field.

Datafill example for table DPP

Sample datafill for table DPP appears in the following example.

Datafill for the activation of AMATPS requires the addition of a tuple to table DPP. This tuple identifies one DPP device and the download data to the DMS central control. Table DPP associates scan points with a specified DPP. Fields DPPTERM1 and DPPTERM2 must match the two keys entered earlier in table TERMDEV. The download file that field DPPDNLD specifies must be in the user directory during data entry. This requirement allows future downloads to succeed.

Automatic Message Accounting Teleprocessing System (continued)

MAP example for table DPP

DPPKEY MTYPE	DPPTERM1 SCTMNO	DPPTERM2 SCTMCTNO	DPPDNLD SCTMCTNO	DPPAUDIT SCCARD CD	SCT
AMA DPP1LNK1 0 4	DPP1LNK2	DPPA3D	3	OAU OX10AA	

Datafilling table DIRPSSYS

The datafill for Automatic Message Accounting Teleprocessing System for table DIRPSSYS appears in the following table. The fields that apply directly to Automatic Message Accounting Teleprocessing System appear. See the data schema section of this document for a description of the other fields.

Datafill for the activation of AMATPS requires the addition of a tuple to table DIRPSSYS (device independent recording package control). This tuple assists transfer of DIRP AMA data to the DPP through the two tape drive ports. Tables MTD and DIRPPool specify these drive ports.

Datafilling table DIRPSSYS (Sheet 1 of 7)

Field	Subfield or refinement	Entry	Explanation and action
SSYSNAME		alphanumeric	Subsystem name. Enter a maximum of four alphanumeric characters. These characters define the subsystem name. This field is the index in table DIRPSSYS.
READRITE		Y or N	Read after write. Enter Y for a read after a write for data written to device types DISK or TAPE (not TAPEX). The system reads back data written to make sure the device received the information correctly. The system reads back data before the device can proceed to the next I/O operation. Enter N if you do not require read after write. Note: If the entry in field SSYSNAME is DLOG, the entry in this field must be N. Logs do not require a read/write check.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table DIRPSSYS (Sheet 2 of 7)

Field	Subfield or refinement	Entry	Explanation and action
NUMFILES		1 to 4 or 1 to 2	Number of files. If the system records to tape, enter a value from one to four. This value specifies the number of subsystem files that must be open at a specified time. If the system records to disk, enter 1 or 2. A maximum of two files must be open at any time. See the data schema section of this document for additional information.
MINFILES		0 to 3	Minimum number of files. Enter a value from 0 to 3. This value specifies the minimum number of files that must be open at all times. The number entered must be a minimum of one less than the entry for NUMFILES. The system makes sure you cannot close down the files manually of a contributing subsystem. You can close down files manually if the following condition is present. The minimum number of files available to record data must be the value in this field.
POOLNAME		1 to 8 alphanumeric	Pool name. Enter from 1 to 8 alphanumeric characters. These characters define the name of the collection, or pool, of volumes available to a contributing subsystem. The entry here must be the same as the associated entry in table DIRPPPOOL. This field is the index in DIRPPPOOL. Subsystems cannot share pools. Only one subsystem can use a specified pool name.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table DIRPSSYS (Sheet 3 of 7)

Field	Subfield or refinement	Entry	Explanation and action
FILENAME		1 to 17 alphanumeric	File name. Enter from 1 to 17 alphanumeric characters. These characters identify the file name. This file name is placed on device type TAPE or TAPEX. Disks ignore these 17 characters and always generate a system file name. Note: If you use special characters, like a period, you must enter single quotes. These quotes enclose the complete string of characters. Enter \$ to have the system generate a filename. This filename includes a special letter identifier that indicates the following: • file status • time stamp • file sequence • contributing subsystem name

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table DIRPSSYS (Sheet 4 of 7)

Field	Subfield or refinement	Entry	Explanation and action
ALARM0-3		CR, MJ, MN, NA	File alarms 0-3. Fields ALARM0-ALARM3 appear together. These fields control alarm levels associated with the number of open files. Field NUMFILES specifies the open files. The following list describes each field and the function of the field: • ALARM0 sets the alarm level when files are not open. • ALARM1 sets the alarm level when NUMFILES is greater than 1 and only one file is open. • ALARM2 sets the alarm level when NUMFILES is greater than 2 and only two files are open. • ALARM3 sets the alarm level when NUMFILES is greater than 3 and only three files are open. In each alarm field, enter one of the following values: • CR (critical) • MJ (major) • MN (minor) • NA (no alarm)
RETPD		1 to 499	Retention period in days. Enter a value from 1 to 499. This value specifies the retention period in days. This value protects tape file security. If an attempt to delete a tape file occurs before the expiration date, the system prompts the user. This warning prevents the accidental destruction of data. When the expiration date passes, the system allows you to delete the file. Security prompts do not appear. The system deletes a file on disk only if the file begins with P. The system deletes the oldest file on the volume first.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table DIRPSSYS (Sheet 5 of 7)

Field	Subfield or refinement	Entry	Explanation and action
CRETPD		1 to 499	Retention period in days for copied-to files. Enter a value from 1 to 499. This value specifies the retention period in days for copied-to files. The default value is the value entered in the RETPD field.
PARLPOOL		see subfield	Parallel pool. Enter a valid parallel pool name. Default value is nil (\$).
PARCONC		Y or N	Parallel and normal recording occur at the same time. The system normally performs an optional parallel recording as backup after a physical recording. If one recording slows down, this recording causes the other recording to slow down. This condition occurs under high traffic. The system can complete these recordings at the same time and not serially. This condition improves throughput. Enter Y for concurrent recordings. You must enter field PARVOL. Use concurrent recording for normal operation. Enter N if the system must use serial recording.
MANDPALM		NA, MN, MJ or CR	Mandatory parallel alarm. This field supports contributing subsystems with the option to raise an audible alarm. This option is available when the parallel file is not in the AVAIL state. Enter one of four possible values: • NA (no alarm) • MN (minor alarm) • MJ (major alarm) • CR (critical alarm) Note: You can set this field to an alarm level. You must have technical support from Northern Telecom to change this field to an alarm level of less severity.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table DIRPSSYS (Sheet 6 of 7)

Field	Subfield or refinement	Entry	Explanation and action
FILEDATE		OPENED	File date. This field allows the system to redate the fields automatically, as required. This facility applies only to disk. The system cannot rename tape names safely. Refer to the data schema section of this document for additional information.
SHEDDAYS		Y or N	Scheduled rotation days. For each day of the week from Monday to Sunday, enter Y. Make this entry if a rotation must occur on that day. Enter N if a rotation must not occur on that day. Example: YNYYNN.
SHEDBASE		0 to 23	Scheduled rotation base. Enter a value from 0 to 23. This value indicates the hour of the day in which the first rotation occurs. You can schedule more than one rotation daily.
SHEDINCR		NOROTATE	Scheduled rotation increments. This field tracks the number of hours between scheduled rotations. The field uses the first rotation as a base. If a rotation is not scheduled, enter NOROTATE.
ROTACLOS		NONE	Rotate close. This field automatically closes the file when a scheduled or manual rotation is complete. Enter NONE to specify that the system must not automatically close files after rotation. See the data schema section of this document for additional information.
AUTOXFER		NONE	Automatic transfer. Enter NONE. This entry allows you to manipulate the files subsystem manually. See the data schema section of this document for additional information. Note: If SSYSNAME is DLOG, enter NOKEEP.

Automatic Message Accounting Teleprocessing System (continued)

Datafilling table DIRPSSYS (Sheet 7 of 7)

Field	Subfield or refinement	Entry	Explanation and action
SPACROTE		N	Space rotation. Enter N to indicate that DIRP does not use space rotation. See the data schema section of this document for additional information.
MAXDFSIZ		5 to 64	Maximum disk file size. Enter the maximum size in megabytes for DIRP disk files. The value of this entry ranges from 5 to 64. The value entered corresponds to the maximum size DIRP allows for files in the subsystem the tuple defines. Select a value that matches the capacity of the data tapes. The data tapes help process the data in the associated subsystem. See the data schema section of this document for additional information.
PRIORTIO		Y or N	Priority I/O files. Enter Y to indicate that files in the associated subsystem are marked high-priority. Only DIRP can delete high-priority files. Enter N to indicate the files are not marked as high-priority.

Note: Fields SHEDDAY, SHEDBASE, and SHEDINCR control the scheduled rotation. The scheduled rotation rotates the recording duty from the active file to the first standby file. This scheduled rotation stops recording in one file and starts recording in another file at a specified time. This process allows the interchange of data recording tasks. Field ROTACLOS specifies that the previous active field can be closed.

Datafill example for table DIRPSSYS

Sample datafill for table DIRPSSYST appears in the following example.

You must not use scheduled closes of DIRP files in field ROTACLOS. The DPP unit has two DSIs. The value for field NUMFILES is 2 and the value for field MINFILES is 1.

Automatic Message Accounting Teleprocessing System (continued)

MAP example for table DIRPSSYS

SSYSNAME	READRITE	NUMFILES	MINFILES	POOLNAME		
FILENAME	ALARM0	ALARM1				
ALARM2	ALARM3	RETPD	CRETPD	PARLPOOL	PARCONC	
MANDPALM	FILEDATE		SHEDDAYS			
SHEDBASE	SHEDINCR	ROTACLOS	AUTOXFER		SPACROTE	
MAXDFSIZ	PRIORTIO					

AMA		Y	2	1	AMAPool	
DMS100		CR	MJ			
NA	NA	30	30		\$	N
NA	OPENED	NNNNNNN				
0	NOROTATE	NONE	NONE			N
64	Y					

Datafilling table DIRPPool

The datafill for Automatic Message Accounting Teleprocessing System for table DIRPPool appears in the following table. The fields that apply directly to Automatic Message Accounting Teleprocessing System appear. See the data schema section of this document for a description of the other fields.

Datafill for the activation of AMATPS requires the addition of a tuple to table DIRPPool. This tuple opens the DIRP AMA data pool for the DPP device. Fields VOLUME0 and VOLUME1 must correspond to the keys in table MTD. These keys are entered as DPP DSI ports. Field DEVTYPE must be TAPE.

Datafilling table DIRPPool (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
POOLNO		0 to 63	Pool number. Enter a value (0 to 63) for the index number of the recording pool.
POOLNAME		alphanumeric	Pool name. Enter a maximum of eight alphanumeric characters to define the name of the pool. Table DIRPSSYS indexes in table DIRPPool by this name.
POOLTYPE		REGULAR or PARALLEL	Pool type. Enter REGULAR to specify that the pool must store regular recording volumes. Enter PARALLEL to specify that the pool will store parallel volumes.

Automatic Message Accounting Teleprocessing System (end)

Datafilling table DIRPPPOOL (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DEVTYPE		TAPE, TAPEX or DISK	Device type. Enter TAPE, TAPEX, or DISK to specify the recording device type for the pool.
VOLUME0-23		TO, T1, D000VOL1, D000AMA1	Volumes 0 through 23. Enter a maximum of eight alphanumeric characters to specify the volumes assigned in the pools. Correct entries are: T0, T1 for tape or D000VOL1, D000AMA1 for disk. Do not mix TAPE and DISK or TAPEX and DISK in one pool. Enter \$ to specify the volumes and create the tuples.

Datafill example for table DIRPPPOOL

Sample datafill for table DIRPPPOOL appears in the following example.

MAP example for table DIRPPPOOL

```

POOLNO POOLNAME  POOLTYPE DEVTYPE VOLUME0 VOLUME1 VOLUME2
VOLUME3 VOLUME4 VOLUME5 VOLUME6 VOLUME7 ...
-----
      0  AMAPOOL   REGULAR   TAPE      T1       T2
      $      $      $        $        $       $ ...

```

Tools for erifying translations

Automatic Message Accounting Teleprocessing System does not use tools for verifying translations.

SERVORD

Automatic Message Accounting Teleprocessing System does not use SERVORD.

New Software Delivery Data Transfer Control Mechanism

Ordering codes

Functional group ordering code: BASE0001

Release applicability

The New Software Delivery Data Transfer Control Mechanism does not affect release applicability.

Requirements

The New Software Delivery Data Transfer Control Mechanism does not have requirements.

Description

The New Software Delivery Data Transfer Control Mechanism introduces a new reformat system that depends on type versions.

Operation

The DMS reformat system provides tools to handle the format of data during a software upgrade. The software upgrade occurs between batch change supplement (BCS) releases for DMS data tables. These BCS releases changed from one release to the next release. The New Software Delivery Data Transfer Control Mechanism removes the current base reformat. The New Software Delivery Data Transfer Control Mechanism also removes the condition that the data transfer system depends on the BCS identifier. These actions provide each development release unit (DRU) with required tools. These tools reformat table data during software upgrades between DRU releases built on a common or different base.

The previous reformat system used table versions. This condition allowed the ability to identify different versions of a table in a BCS. This feature provides a reformat and data transfer system that uses type versions.

The new reformat system provides tools that applications can use. Application can use the tools to map a previous design of a type to the current design of the type. To perform this procedure, a new version is defined for the type when this specified type changes in structure. An equivalent type associates with the previous version number of the type is an equivalent type.

During a software episode, the reformat system on the restore side generates a mapping of the current version of a type. This mapping is to the equivalent type on the dump side. To generate the mapping, the information system must know the version number of the type. This action occurs during a software upgrade. The new reformat system does not limit the number of type versions

New Software Delivery Data Transfer Control Mechanism (continued)

associated with a type. Only one new version of any type can be present for each type for each DRU release. A type can increase in version only one time in a DRU release.

The data transfer systems are modified to be BCS identifier independent. The BCS number must maintains backward compatibility.

The primary differences between the previous (table version) reformat system and the new (type version) reformat system are as follows:

- The type version reformat system uses types that change. The previous reformat system uses on tables that change data schema.
- The reformat of the type occurs at the formatter/data dictionary level, and not the table control level.

Features of the new mechanism

This feature introduces versioning at the type level to control the reformat during software upgrades. This feature also includes the following features:

- defines the required access routines and tools to map one version of a type to another version of the same type
- makes sure compatibility with the previous table data transfer system
- makes sure compatibility with the previous reformat system
- addresses some limits from the previous reformat system
- provides a test tool
- supports inter-DRU release applications
- makes sure an increase in the out-of-sync window of a software delivery upgrade does not occur

Table VERSIONS

As part of this feature, table VERSIONS is created. Table VERSIONS stores all current type version information. The restore side uses this information to create reformat resources. These resources are required to obtain the correct equivalent type that the formatter and the type conversion aspect uses. The formatter uses the correct equivalent type to string-in a type. The type conversion aspect uses the correct equivalent type to reformat the type.

The external design of a tuple in table VERSIONS contains the following:

- the name of the type
- the current version of the type
- the version of the type on the dump side

New Software Delivery Data Transfer Control Mechanism (continued)

The version of the type on the dump side has meaning only when:

- the system transfers the dump side table VERSIONS to the restore side.
- the mapping is created. Table VERSIONS contains tuples for types that changed and required the type versions to increase.

Table VERSIONS is read-only. The standard table control procedures do not allow data modification orders (DMS). The data move write procedure and the standard table control write procedure update tuples during a data transfer. This action allows the system to map the current type versions to dump side type versions.

Table VERSIONS can increase in size. To address this issue to a limited degree, table VERSIONS transfer at the level before any other table during a software upgrade.

Translations table flow

The New Software Delivery Data Transfer Control Mechanism translations table appears in the following list:

- Table VERSIONS is a read-only table. Table VERSIONS stores the type versions defined on a specified load.

The New Software Delivery Data Transfer Control Mechanism translation process appears in the flowchart that follows.

Table flow for New Software Delivery Data Transfer Control Mechanism



The datafill content in the flowchart appears in the following table.

Datafill example for New Software Delivery Data Transfer Control Mechanism

Datafill table	Example data
VERSIONS	EXTENDED_TREATMENT 0 0 TABLE_OWNERSHIP 0 0 DATA_SELECTOR 0 0 OFFICE_PARM_NAME 0 0 VOLUME_TYPE 0 0 BANNER_LOGICAL_TUPLE 0 0 VAR_LTC_PSLINK_TC_TAB 1 0 LTC_LOGTUPLE 1 0
Note: Table VERSIONS is a read-only table.	

New Software Delivery Data Transfer Control Mechanism (continued)

Limits

The following limits apply to New Software Delivery Data Transfer Control Mechanism:

- The system reformats only tuples that have types that require the reformat procedure. This reformat is different from the previous system. In the previous system, all tuples in a table that had changes passed through the reformat procedure. Tuples that did not require reformat also passed through the procedure. The new reformat system does not impact the CPU as much as the previous reformat system.
- The type version table can increase. The time required for the data transfer of this table increases according to the number of type versions that increases.
- The type names cannot change without a definition of equivalent types from one release to the next.
- The system must store type version histories.
- Type aspects can only be defined for types that a change to prevent conversion problems affects.

Interactions

This feature interacts with the MOVEBCS Version Rewrite feature.

Activation/deactivation by the end user

The New Software Delivery Data Transfer Control Mechanism does not require activation or deactivation by the end user.

Billing

The New Software Delivery Data Transfer Control Mechanism does not affect billing.

Station Message Detail Recording

The New Software Delivery Data Transfer Control Mechanism does not affect Station Message Detail Recording.

Datafilling office parameters

The New Software Delivery Data Transfer Control Mechanism does not affect office parameters.

Datafill sequence

The New Software Delivery Data Transfer Control Mechanism does not affect datafill sequence.

New Software Delivery Data Transfer Control Mechanism (end)

Tools for verifying translations

The New Software Delivery Data Transfer Control Mechanism does not use tools to verify translations.

SERVORD

The New Software Delivery Data Transfer Control Mechanism does not use SERVORD.

3 Datafilling BAS Generic

The CCS7 system divides into layers that serve many applications. This chapter describes the tables that the Base CCS7 operating software use. This chapter also describes the datafill in tables that configure the hardware for link peripheral processor (LPP)-based platforms.

This chapter describes the following equipment tables:

- PMLOADS
- LTCINV
- LIMINV
- LIMCDINV
- LIMPTINV
- SUSHELF
- LIUINV

This chapter describes the following message transfer part (MTP) tables:

- C7TIMER
- C7CNGSTN
- C7NETWRK
- C7ALIAS
- C7LKSET
- C7LINK
- C7RTESET

This chapter describes the following signaling connection control part (SCCP) tables:

- C7NETSSN
- C7LOCSSN
- C7RSSCRN

3-2 Datafilling BAS Generic

- C7RPLSSN
- C7GTTTYPE
- C7GTT

1A EADAS/Network Management-U.S. only

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

The release applicability is BCS25 and later versions.

Requirements

The requirements for 1A Engineering and Administrative Data Acquisition System (EADAS) Network Management (NWM) to operate appear in the following list:

- EQA Local, EQA00001
- EQA Toll, EQA00002

Description

The EADAS Network Management (EADAS/NM) interface collects operational measurements (OM) data. The EADAS/NM collects OM data from the EADAS data collection centers for network administrators to monitor network performance.

The EADAS/NM is an AT&T central traffic analysis and control system. The EADAS/NM provides network managers with traffic measurements and control capabilities. This provision allows for near real-time control of predefined segments of the network.

Network Management refers to control of traffic in a network to prevent the spread of congestion through the network. As a result, immediate use of network resources occurs. To prevent congestion, alter or restrict the normal telephone traffic pattern between a switch and the offices that connect to the switch. The system uses a series of network management controls to alter or restrict the normal telephone traffic pattern between a switch the offices that connect to the switch.

The classes of Network Management controls appear in the following list:

- Automatic controls:
Detect internal overload conditions and alert switches of the congestion or respond to overload signals from other switches.
- Trunk group controls:

1A EADAS/Network Management-U.S. only (continued)

Limit the amount of traffic that specified trunk groups accept. Limit the amount of traffic offered to specified trunk group, or expand the number of available routes for a call.

- Code controls:

Restrict the number of calls made to a specified destination code.

- Route controls:

Modify an internal route list in the digital multiplex system (DMS)-100 switch.

- Line load controls:

Prioritize the handling of line originations.

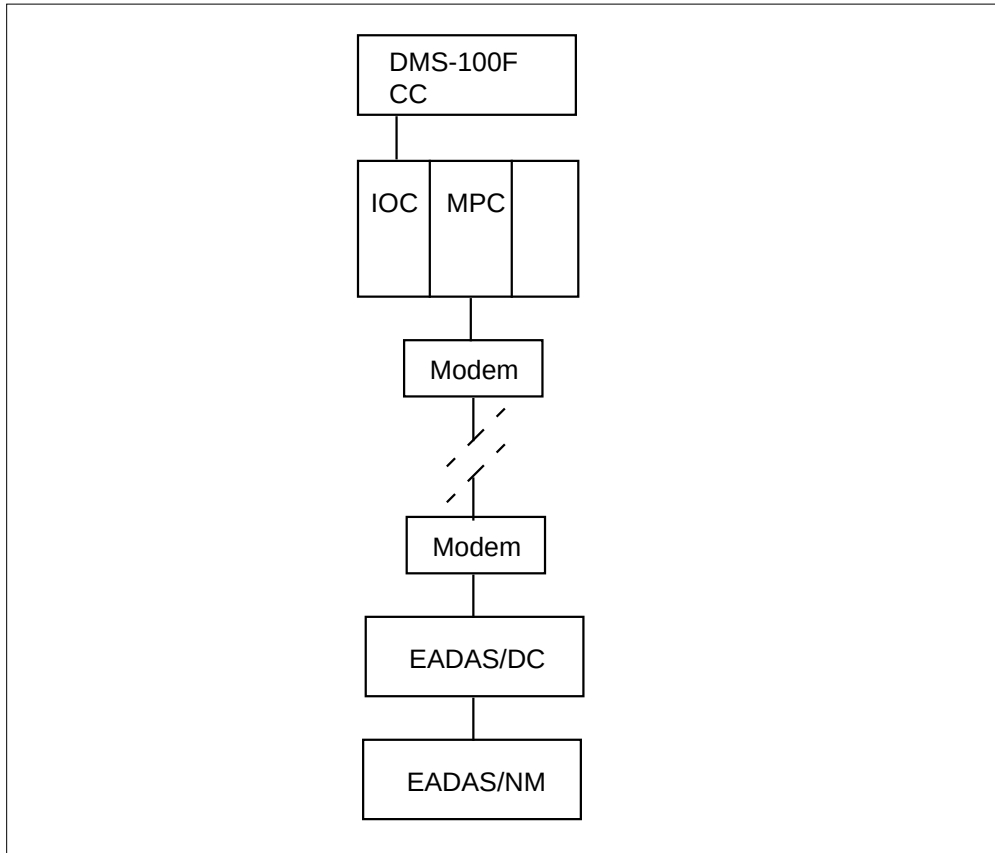
Operation

The EADAS/NM Interface connects to EADAS/NM software through the EADAS/DC Interface (NTX218AA). The EADAS/DC Interface provides the data link connection to EADAS/DC that EADAS/NM uses. The hardware connection can reside on the multiprotocol controller (MPC) circuit card, NT1X89AA. The hardware connection can reside on the enhanced multiprotocol controller cards, NT1X89BA/BB. The NT1X89BA/BB are on the IOC shelf of the DMS-100 switch.

A diagram of a data link established between a DMS-100 switch and an EADAS/DC center appears in the following figure.

Note: The NTX218AA is the EADAS/DC Interface. The NTX218AA must be online for EADAS/NM to operate.

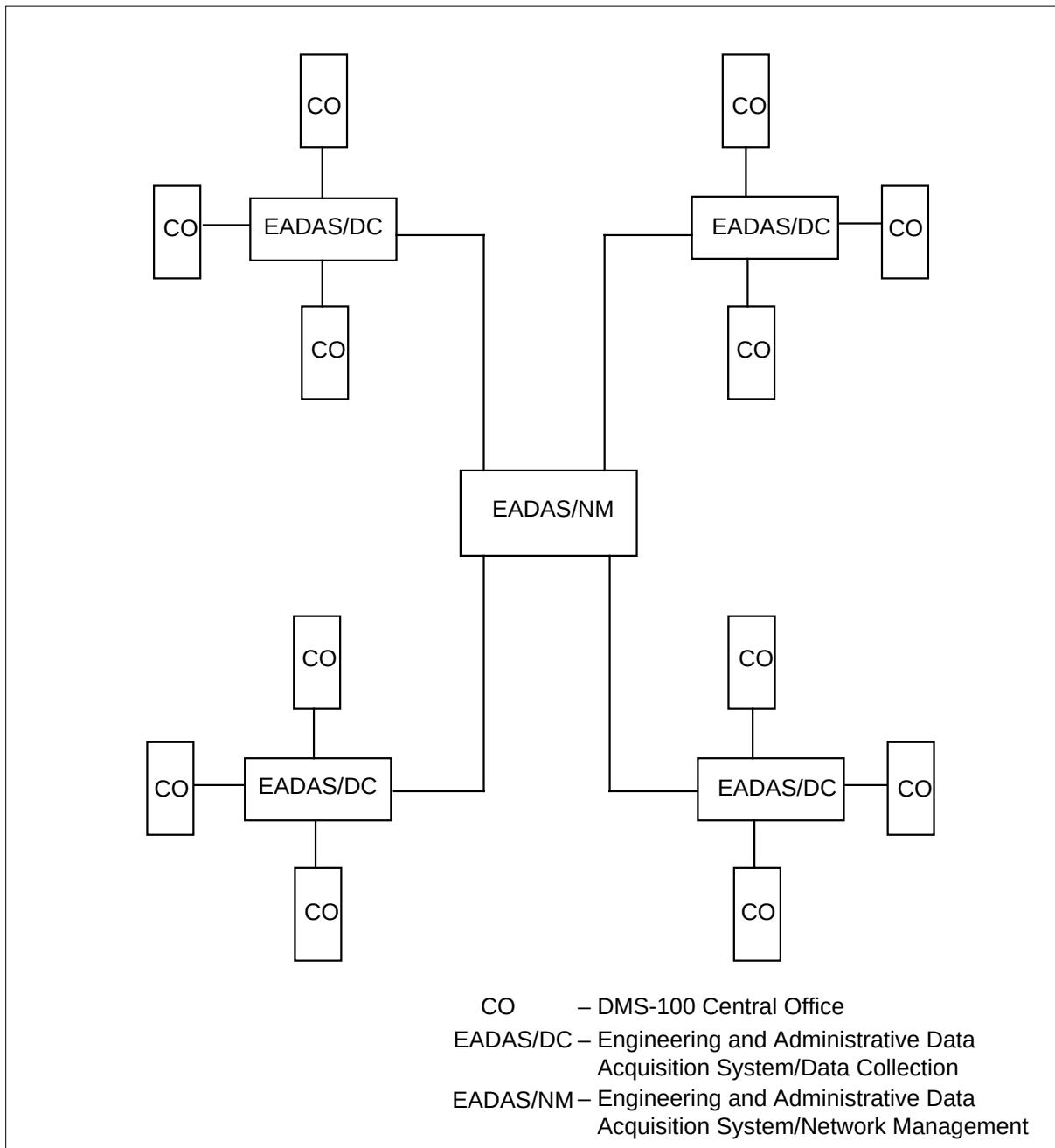
1A EADAS/Network Management-U.S. only (continued)

DMS-100F hardware interface to EADAS

A diagram of one possible configuration for DMS-100 Central Offices, EADAS/DC Centers, and EADAS/NM Centers appears in the following figure:

1A EADAS/Network Management-U.S. only (continued)

Sample EADAS network configuration



The data schema tables that implement the EADAS/NM interface appear in the following list:

- table EADNMPK
- table EADNMTG

1A EADAS/Network Management-U.S. only (continued)

- table EADNMTGP
- table OMACC

You can query or change tables EADNMPK, EADNMTGP and OMACC. Table EADNMTG contains current data. You only can query table EADNMTG.

Tables EADNMPK, EADNMTG, and EADNMTGP are engineering protected tables. Default at loadbuild causes data to enter EADNMPK, EADNMTG, and EADNMTGP. Normally, EADAS/NM through the EADAS data link can make requests to query or change tables EADNMPK or EADNMTGP. The DMS switch operating personnel do not need to modify these tables. In special conditions, operating personnel or Northern Telecom field support must query or change these tables. Special conditions occur when the query or change of these tables through the EADAS data link cannot occur. There are no data schema forms that associate with the tables because these tables do not require engineering.



CAUTION

Loss of data

An administrator and the EADAS/NM can change a table at the same time. As a result, the administrator and EADAS/NM can read erroneous data from the tables. Before the administrator performs table changes, the administrator must make sure EADAS/NM does not make changes at the same time.

Table OMACC is an operational measurement table. The operational measurement system collects and reports OMs. Registers that accumulate total measurements over a long period of time. At the end of the period, a report generates. Table OMACC records the period of time that these registers accumulate data for a specified class.

Implementation

You must complete the following steps to make the EADAS interface operational:

1. Check to make sure all DMS-100 entities are at BCS20 or later generic.
2. Make sure to meet all hardware and software requirements.

Refer to *Operational Measurements Reference Manual*.

1A EADAS/Network Management-U.S. only (continued)

3. Enter data in office parameter tables OFCVAR, OFCENG, and OFCOPT.

Note: Make sure EADAS_ENABLED in table OFCVAR is set to N (no). The EADAS_ENABLED parameter in table OFCVAR must be N until all of the different tables contain data. Set this parameter to Y (yes) when you are ready to send data for polling.

4. Use the OMSHOW command to make sure the establishment of the correct entries in table OMACC occurs. Make sure the first five entries in table OMACC appear in the following order:

EADAS30M	N	Halfhourly	000			
EADAS60M	N	Hourly	000			
EADAS24H	N	Daily	0	000	0	000
PREV5M	N	Halfhourly	000			
CURR5M	N	Halfhourly	000			

5. Issue a read command for file EADNMOM\$DATAFILL.

This file is on the office data tool tape. You must copy this file to a disk to make this file readily available. File EADNMOM\$DATAFILL automatically enters data in the PREV5M and CURR5M OM classes. Do not change the CURR5M and PREV5M classes from the entered data values when these classes contain the data values. The When field must remain auto, and the Enable field must remain N. Do not use the OMCLASS and OMACCTAB commands on CURR5M or PREV5M after the entrance of data.

6. The final step is to change EADAS_ENABLED in table OFCVAR to Y. The system is ready for polling in 60 s.

ATTENTION

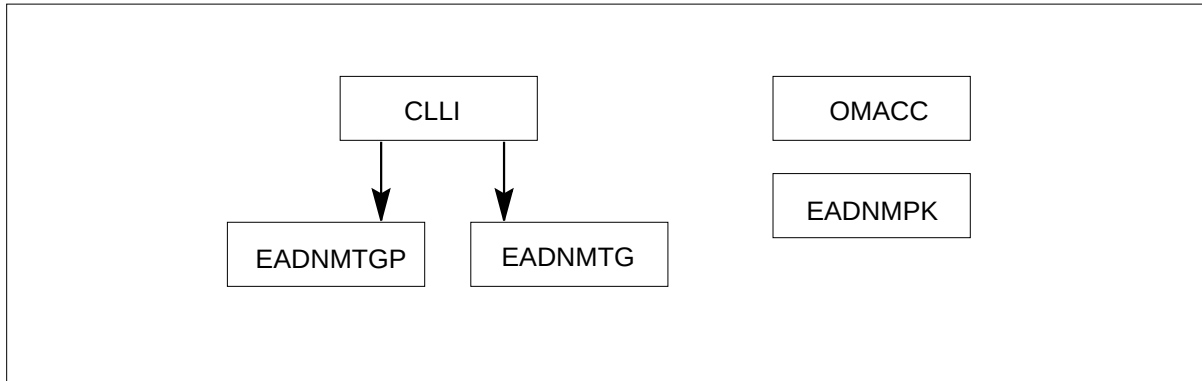
Always change the EADAS_ENABLED in table OFCVAR to N before you perform tests on the message protocol tone generator (MPC) card.

Translations table flow

A diagram of the 1A EADAS/NM translation process appears in the following flowchart.

1A EADAS/Network Management-U.S. only (continued)

Table flow for 1A EADAS/Network Management-U.S only



Limits

The limits that apply to 1A EADAS/NM appear in the following list:

- Signaling types

The EADAS/NM requires that each trunk group associate with a different signaling type. In the DMS-100, table TRKSGRP defines the signaling type. You can assign more than one subgroup to the trunk group. If this assignment occurs, the system removes information from subgroup 0 in the trunk group reference data audit.

- ENABLE field of table OMACC

The ENABLE field of table OMACC must be N for OM classes PREV5M and CURR5M to prevent OM system accumulation. The ENABLE field of table OMACC must be N. This N position allows the 5 m snapshot process to use the EADAS/NM classes.

- Machine activity

You can change the office parameter CPSTATUS_SWITCHABLE when ACTIVITY and ACTIVITY logs are inactive only.

- Table HNPACONT

If a numbering plan area (NPA) matches a Network Access Register (NAC) in an office, mark the NPA to AMBI (ambiguous) in table HNPACONT.

- Definition of internal tables to allow for VIA routes

Correctly define the DMS-100 switch translations and internal tables. The definitions allows the system to use the trunk groups in the network management trunk group schedule as VIAs in reroutes.

When you add a trunk group to the switch, specified tables must receive data correctly. These tables must receive data to allow EADAS/NM to

1A EADAS/Network Management-U.S. only (continued)

schedule the trunk group for data collection. These tables appear in the following list:

- CLI
- TRKGRP
- TRKSGRP
- TRKMEM

Interactions

The 1A EADAS/NM does not have actions between functions.

Activation/deactivation by the end user

The 1A EADAS/Network Management-U.S only does not require activation or deactivation by the end user.

Billing

The 1A EADAS/NM does not affect billing.

Station Message Detail Recording

The 1A EADAS/NM does not affect Station Message Detail Recording.

1A EADAS/Network Management-U.S. only (continued)

Datafilling office parameters

The office parameters the 1A EADAS/NM uses appear in the following table. Refer to *Office Parameters Reference Manual* for more information about office parameters.

Office parameters used by 1A EADAS Network Management (Sheet 1 of 5)

Table name	Parameter name	Description and action
OFCOPT	FIVMIN_SNAPSHOT_ENABLED	This parameter turns the 5 m snapshot process on and off. The system requires a restart to activate this parameter. The 5 m snapshot process samples the Active class of OM data in 5 m intervals. Enter Y to enable, N to disable. The default is N.
OFCENG	NUM_ENGR_NWM_TRKGRP_CTRL	This parameter defines the maximum number of trunk groups the new trunk group controls can control at the same time. This parameter must equal the maximum number of trunk groups with flexible reroute (FRR) feature controls. The new trunk group controls can control the FRR feature controls at the same time.

1A EADAS/Network Management-U.S. only (continued)**Office parameters used by 1A EADAS Network Management (Sheet 2 of 5)**

Table name	Parameter name	Description and action
	NUM_OF_RTEB_EXTBLKS	A local, toll, combined local/toll, or Traffic Operator Position System (TOPS) switching unit requires this parameter. This parameter specifies the number of extension blocks that the Flexible Reroute (FRR) feature requires. The FRR control is an extended NWM trunk group control. The FRR control allows the reroute of calls from an in-chain route to a VIA. This reroute occurs when the in-chain route overloads or fails. An FRR control involves two trunk groups. The first trunk group is the in-chain route. The FRR control applies to the in-chain route trunk group. The controlled trunk group is this trunk group. The system offers calls, that cannot carry over the first trunk group, to the second trunk group. The second trunk group is the VIA route. Calls offered to the VIA route are rerouted calls. The system uses an extension block as part of the process to reroute a call. The extension block remains attached to the rerouted calls while the rerouted call moves through the routing phase of call processing. Each rerouted call requires two extension blocks. These extension blocks remain attached to the call until the system takes down the call unit. The number of extension blocks to provide equals the following total. This total is 2 times the total number of rerouted calls in the setup state plus the calls in the talking state. If an extension block is not available for a call about to reroute, that call continues to advance. The call advance through the in-chain route list of the call. That call does not reroute to the VIA route list of the call.

1A EADAS/Network Management-U.S. only (continued)

Office parameters used by 1A EADAS Network Management (Sheet 3 of 5)

Table name	Parameter name	Description and action
		To verify that the system allocated enough recording units, use CI command OMSHOW EXT ACTIVE and read the following entry: <pre>EXTSEIZ EXTOVFL EXTUSAGE EXTH 52 RTEB_EXTENSION 0 0 0 0 0</pre> Measurement EXTHI records the maximum number of extension blocks in use at the same time during the current transfer period. Measurement EXTUSAGE sets to zero in software release BCS24 and deletes in BCS25. A nonzero value in EXTOVFL indicates under provisioning. Refer to OM GROUPS NWMFRRCT and NWMFRRTG for additional OMs that associate with this parameter.

1A EADAS/Network Management-U.S. only (continued)

Office parameters used by 1A EADAS Network Management (Sheet 4 of 5)

Table name	Parameter name	Description and action
	CC_ENGLEVEL_WARNING_THRESHOLD	This parameter associates with the CPSTATUS (call processing status) tool. The parameter specifies the level at which the switch is engineered to run. The CPSTATUS uses the value to determine if the switching unit runs above or below a level. This level is the engineered level of the switching unit. The value of this parameter is the percentage of call processing (CP) occupancy for which the switching unit is engineered. The default value for this value is 77. This value is the percentage for which plain ordinary telephone service (POTS) switching units are engineered. The range is 0 to 83%. The parameters CPSTATUS_ON in table OFCVAR and CPSTATUS_SWITCHABLE in table OFCENG are in association with this parameter. The value of this parameter is the percentage of CP occupancy for which the switching unit is engineered. The default value is 77, the percentage for which POTS switching units are engineered. The CPSTAT command can verify the value of this parameter. Over or under provisioning this value does not affect performance. The CPSTAT and CPSTATUS displays the ABOVE or BELOW codes. The codes depend on the value of this parameter and the CPOCC for the last minute.

1A EADAS/Network Management-U.S. only (continued)

Office parameters used by 1A EADAS Network Management (Sheet 5 of 5)

Table name	Parameter name	Description and action
	CPSTATUS_SWITCHABLE	This parameter associates with the CPSTATUS tool. This parameter specifies if CPSTATUS switches on and off in this switching unit. If the parameter CPSTATUS_ON in table OFCVAR cannot switch off, leave this parameter at the default value of N. If the parameter CPSTATUS_ON can change from Y to N, change the value of this parameter to Y. The recommended value for this parameter is the default value of N.
OFCVAR	CPSTATUS_ON	This parameter associates with the CPSTATUS tool. This parameter specifies if CPSTATUS is active or inactive. If this parameter is at the default value of Y, the CPSTATUS mechanism is active. The Network Management CPU field obtains data from CPSTATUS data. The MAP, CI, or OM form displays data that CPSTATUS collects. If this parameter is N, the CPSTATUS mechanism is inactive. The Network Management CPU field obtains data from MACHACT OM data. The CPSTATUS OMs, CPSTATUS, and CPSTAT display zeroed data.

Datafill sequence

A list of the tables that require datafill to implement 1A EADAS/Network Management-U.S only appears in the following table. The list of tables appears in the correct entry order.

Datafill requirements for 1A EADAS/Network Management-U.S only (Sheet 1 of 2)

Table	Purpose of table
EADNMPK	The EADAS Network Management Interface Packet Schedule. This table identifies how OM data routes to EADS/NM.
EADNMTG	The EADAS Network Management Interface Current Trunk Group Schedule. This table identifies trunk groups with OM data for EADS/NM.

1A EADAS/Network Management-U.S. only (continued)

Datafill requirements for 1A EADAS/Network Management-U.S only (Sheet 2 of 2)

Table	Purpose of table
EADNMTGP	The EADAS Network Management Interface Pending Trunk Group Schedule. This table identifies trunk groups with OM data for EADS/NM.
OMACC	Operational Measurements Accumulation Table. This table defines the time period for OMs.

Datafilling table EADNMPK

Table EADNMPK identifies how the OM data transmits to EADAS/NM in response to a poll or request. The Stored Program Controlled switching system (SPCS) updates the OM data in 5 m intervals. The system arranges the data to packets of related registers, numbered 1 through 25. The contents of each packet and the associated OM groups and registers appear in the following table.

(EADAS Network Management Interface Pending Trunk Group Schedule)

Packet register contents (Sheet 1 of 2)

Packet	Contents	OM Group	Registers
1	Delayed Readiness	RADR	RADLDLYP, RADTESTC
2	Overload	MACHCONG	MCU, MCMFCT, MCCPUCT
3	Call Direction	OFZ	INOUT, NIN, ORIGOUT, ORIGTRM, NORIG, INTRM
4	Fail Match / No Circuits	OFZ, TRMTRS, TRMTFR	TFRBUSY, TRSGNCT, OUTRMFL, TRMMFL
5	Critical Service Circuits	RCVR	RCVQOVFL, RCVTRU, RCVSBU, RCVMBU
6	Additional Ineffective Machine Attempts	TRMTCM, TRMTRS, OFZ2	TCMVACT, TCMUNDN, TCMBLDN, PSGM, PDLN, TERSSTO, TERRODR, TERSYFL
7	Network Management Control (NMC)	NWMFRRCT, CBK	CBKCNT, FRRATTCT, FRRFLCT
8 to 9	Unused		
10	Reserved		

1A EADAS/Network Management-U.S. only (continued)**Packet register contents (Sheet 2 of 2)**

Packet	Contents	OM Group	Registers
11	Machine Activity / CPU Status	BRSTAT, CPUSTAT	BRSCAP, BRSSCHED, BRSCORE, BRSMaint, BRSAUXCP, BRNETM, CPSFORE, CPSCPOCC, CPSMAINT, CPSBKG, CPSIDLE, CPSGTERM, CPSOM, CPSDNC
12	Common Channel Signaling Service Switching Point (CCS SSP) Counts	NSCACG	NSCATMPT, NSCBKVC, NSCBKSOC, NSCBKMCC, NSCBKSIC, NSCCOSVC, NSCCOTVC, NSCCONPN, NSCCOSCP, NSCCOMC, NSCCOSI
13 to 14	Unused		
15	High Probability Completion Data (GETS)	HPCBASIC	LINEATT, TRKATT, TERMLINE, TERMTRK, TERMNC
16	Inter-LATA Carrier (IC) Shared Trunk Group Data	EASHRTRK	STGOPEG, STGUSG, STGOVFL
17	Trunk Group	TRK	INCATOT, NATTMPT, NOVFLATB
18 to 19	Unused		
20	Trunk Group	TRK	INCATOT, NATTMPT, NOVFLATB
21	High Probability Completion Trunk Group Data (GETS)	HPCTRKGP	HPCATT, HPCOVFL, QUEOVFL, QUETMREX
22	Unused		
23	Inter-LATA Carrier (IC) Start Signal Timeouts	EACARR	EAWNKFL, EAACKFL
24	Code Controls	CBK, PRP	CBKCNT, CBKPASS, PRPCNT
25	Manual Reroute Controls	NWMFRRTG	FRRTGATT, FRRTGFL

1A EADAS/Network Management-U.S. only (continued)

Each EADNMPK tuple contains a packet index number (PKNUM). Each EADNMPK tuple contains the maximum number of register data allowed in the packet (MAXLEN).

The system fills twenty-five default tuples for EADNMPK in field PKNUM. The system fills one default tuple for each possible data packet.

Note: If reroute data (Packet 25) is not present in the switch, the packet scheduler receives a 0 for the Packet 25 size.

The size of a packet sent to EADAS/NM does not always equal the size of the other packet specified. The size of the other packet refers to the packet specified in the MAXLEN field of EADNMPK. Truncation occurs when the size of the packet is larger than the size of the packet specified in the field. When truncation occurs, transmission of the packet to EADAS/NM has not occurred. If the packet is smaller than the packet specified in MAXLEN, the smaller packet routes, without added data, to EADAS/NM.

Table EADNMPK does not accept the addition of packets beyond the number 25. Table EADNMPK does not allow the deletion of packets.

To schedule a packet for transmission, set the MAXLEN field for the packet to an integer greater than zero.

To prevent the transmission of a packet to EADAS/NM, set the value of MAXLEN for the packet to 0. Each default tuple in EADNMPK has the value 0 in field MAXLEN.

When the system issues CI command EADASHOW EADNM5M at the MAP display, the current values for each of the 25 packets appear.

The datafill for 1A EADAS Network Management for table EADNMPK appears in the following table. Only the fields that apply directly to 1A

1A EADAS/Network Management-U.S. only (continued)

EADAS/NM appear. Refer to the data schema section of this document for a description of the other fields.

Description of current packet values for table EADNMPK

Field	Subfield or refinement	Entry	Explanation and action
PKNUM		1 to 25	Packet number. Enter the number of the OM data packet on which you want to perform the following actions. You can activate transmission, deactivate transmission, or adjust size of truncation. There is no default for this field.
MAXLEN		0 to 32767	Maximum length. Enter the maximum number of 5 m register data that you want collected before truncation occurs. Enter 0 to disable and prevent transmission of the packet. Default is 0.

Datafill example for table EADNMPK

Sample data for table EADNMPK appears in the following example.

MAP example for table EADNMPK

PKNUM	MAXLEN
1	4

Datafilling table EADNMTG

Table EADNMTG is a list. The list determines the trunk groups in the DMS switch that report OM data. The trunk groups report data to EADAS/NM in packet 17 of the 5 m data.

The EADNMTG cannot change because the EADNMTG contains current data. You only can view the EADNMTG. You can add or delete trunk group names in table EADNMTGP. The system copies the contents of the trunk group names to EADNMTG each time you update the pending schedule.

The current schedule stores a maximum of 250 trunk group names. The pending schedule stores a maximum of 250 trunk group names. The EADNMTG is the current schedule. The EADNMTGP is the pending schedule. Each trunk group name requires one tuple.

The datafill for 1A EADAS Network Management for table EADNMTG appears in the following table. Only the fields that apply directly to 1A

1A EADAS/Network Management-U.S. only (continued)

EADAS/NM appear. See the data schema section of this document for a description of the other fields.

Datafilling table EADNMTG

Field	Subfield or refinement	Entry	Description and action
CLLI		alphanumeric	Common language location identifier. The EADNMTG is a read-only list of trunk groups. The CLLI codes of the trunk groups report the trunk groups to EADNMTG. Refer to table EADNMTGP for information on how to update the Network Management Trunk Group Schedule.

Datafill example for table EADNMTG

You cannot and do not need to enter data in EADNMTG. Values from identical table EADNMTGP transfer to EADNMTG at each update. A sample of table EADNMTG with the values transferred from EADNMTGP appears in the following example.

MAP example for table EADNMTG

CLLI
DRHMNC01IT00
RALGNC12IT12
RALHNC10IT22
CHHLNC02IT00

Datafilling table EADNMTGP

Table EADNMTGP contains a schedule of trunk groups that report OM data to EADAS/NM. You can modify this schedule and not interfere with the EADAS/NM reporting that can be in progress. This schedule is not like EADNMTG.

You can add or delete a trunk group name in EADNMTGP. The addition or deletion of a trunk group name in EADNMTGP causes the following action. A 30 s discrete sets to alert EADAS/NM. The EADAS/NM responds with a trunk group reference data audit. When DMS table control receives this audit, the system copies the contents of EADNMTGP to EADNMTG. The system replaces the old list.

1A EADAS/Network Management-U.S. only (continued)

The EADNMTGP stores a maximum of 250 trunk group names. You can add, delete, or change these names. The addition of new names occurs at the end of the table.

The datafill for 1A EADAS/NM for table EADNMTGP appears in the following table. Only the fields that apply directly to 1A EASAS Network Management appear. See the data schema section of this document for a description of the other fields.

Datafilling table EADNMTGP

Field	Subfield or refinement	Entry	Description and action
CLLI		alphanumeric (1 to 16 characters)	Common language location identifier. Enter the CLLI name for the trunk group on which you want to perform the following actions. You can add, delete, or change the trunk group in the Network Management Trunk Group Schedule. The CLLI must be a correct trunk group name. There is no default for this field.

Datafill example for table EADNMTGP

Sample data for table EADNMTGP appear in the following example. In this example, the user identifies four trunk groups. These trunk groups have OM data that must report to the EADAS/NM facility when the next 5 m audit occurs.

MAP example for table EADNMTGP

CLLI
DRHMNC01IT00
RALGNC12IT12
RALHNC10IT22
CHHLNC02IT00

If the trunk group names you add are not duplicates of those already in current schedule EADNMTG, the system performs the following actions. The system adds the trunk groups at the end of EADNMTGP. The system copies the trunk groups to EADNMTG.

A maximum of 250 trunk group names can be present in EADNMTG and EADNMTGP at one time.

1A EADAS/Network Management-U.S. only (continued)

Datafilling table OMACC

Table OMACC records the time that the accumulating registers accumulate data for a specified accumulating class of OMs.

Memory automatically allocates for 32 entries in table OMACC.

When a switch has EADAS/NM interface, two additional OM classes automatically add to table OMACC at loadbuild.

The two additional OM classes are PREV5M and CURR5M

These OM accumulating classes collect data to send to EADAS/NM.

Note: These additional entries must be in positions 4 and 5 of table OMACC. The system automatically adds the PREV5M and CURR5M classes to table OMACC. You must enter the data also in the WHEN subfields. If you do not enter the data manually in the WHEN subfields, the following event occurs. The PREV5M and CURR5M classes default to values that are not correct.

The data for 1A EADAS/NM for table OMACC appears in the following table. Only the fields that apply directly to 1A EADAS/NM appear. See the data schema section of this document for a description of the other fields.

Datafilling table OMACC (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
CLASS		alphanumeric	Class name. Contains the name of the Accumulating or History class OMs. These OMs require the establishment of accumulation periods. This field is a read-only field. Data automatically enters this field when the use of the OMCLASS command establishes a class.

1A EADAS/Network Management-U.S. only (continued)

Datafilling table OMACC (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description and action
ENABLED		Y or N	Enabled. Enter Y where the accumulating class is enabled. Enter Y where the accumulation of data during the specified period occurs. Enter N where the accumulating class is not enabled and accumulation does not occur.
WHEN		see description	When. This field contains the following subfields: REP, FROMDAYOFM, FROMDAYOFW, FROMTIME, TODAY OFM, TODAYOFW, TOTIME, STARTUP, SNAPSHOTS, and XFER. The entries in these subfields determine the times at which the accumulation of the OM measurements must occur. The entry in subfield REP determines the entries to occur in the other subfields. On form 2612, subfield REP appears followed by REFINEMENTS FOR REP. Enter the values for the subfields in the area of REFINEMENTS FOR REP that the entry in subfield REP determines. A blank column separates each value from the next in this field.

Datafill example for table OMACC

Sample data for table OMACC appears in the following example:

MAP example for table OMACC

CLASS	ENABLED	WHEN
EADAS30M	Y	HALFHOURLY C00
EADAS60M	Y	HOURLY C00
EADAS24H	Y	DAILY 0 C00 0 C00
PREV5M	N	AUTO
CURR5M	N	AUTO

The command OMCLASS defines an operating company class name and the accumulating register size (single or double). The operating company uses class names PREV5M and CURR5M.

The command OMACCTAB defines the measurements of the groups that the system must accumulate. Refer to *Basic Administration Procedures*.,

1A EADAS/Network Management-U.S. only (end)

297-1001-300 for more information on the OMACCTAB and OMCLASS commands.

Note: Do not use the OMCLASS, OMACCTAB, OMACCFLD, and OMACCGRP commands on CURR5M and PREV5M data after the entry of data. Do not change the data values entered in the tuples. The ENABLED field must remain N. The WHEN field must remain AUTO.

Tools for verifying translations

The 1A EADAS/NM does not use tools for verifying translations.

SERVORD

The 1A EADAS/NM does not use SERVORD.

3-Way Call Chaining

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: not applicable

Release applicability

BCS22 and up

Prerequisites

3-Way Call Chaining has no prerequisites.

Description

3-Way Call Chaining allows a non-controlling party in an existing three-way call to add another party to the call. A non-controlling party is a participant in a three-way call who has no control over which members are added to the call.

Using 3-Way Call Chaining, a non-controlling party can create a call chain by flashing the hookswitch and adding subsequent members to the conference using three-way calling, provided the station end user has the three-way calling feature assigned to the line. The chain continues since any noncontrolling parties can add new parties who in turn can add new parties, potentially creating a large chain of three-way conferences.

For example, suppose party A flashes and dials party B, who is situated on another private branch exchange (PBX) over a tie trunk. Party B can in turn flash and add a third party on some other switch, and so on. In effect, three-port conference circuits are chained together in a manner that is transparent to each switch involved.

3-Way Call Chaining changes the way three-way calling operates. Before the development of this feature, a conference circuit was requested as soon as the party flashed and was released if an access code was dialed in order to give control to a special feature. With 3-Way Call Chaining, a conference circuit is not seized until either an access code or the directory number (DN) for the three-way call is dialed.

Operation

Following are the steps for setting up 3-Way Call Chaining:

1. Party A goes off-hook, flashes the hookswitch, and dials the number of party B.
2. After party B answers, party A flashes the hookswitch and dials the number of party C.

3-Way Call Chaining (continued)

3. After party C answers, party A flashes the hookswitch again to connect all three parties to a three-way call.
4. Party B flashes the hookswitch and dials the number of party D.
5. After party D answers, party B flashes the hookswitch again to connect all four parties to the three-way call chain. Subsequent members of the call chain can perform the same actions as party B in order to add new members to the call.

Translations table flow

3-Way Call Chaining does not affect translations table flow.

Limitations and restrictions

The following limitations and restrictions apply to 3-Way Call Chaining:

- The maximum length of the chain is determined by the number of three-port conference circuits available in the office and the value of office parameter MAX_NO_OF_3_PORTS_IN_CHAIN in Table OFCENG

3-Way Call Chaining (continued)

(Engineered Office). The number of feature control blocks and feature data blocks also limit the size of the call chain.

- A controller cannot flash to add another party if the controller is already in a fully established conference. A flash is interpreted as a request to disconnect the add-on party from the conference.
- Stations involved in a three-way call chain cannot activate the following features:
 - Preset conference
 - Ring again and call back queuing
 - Message waiting and call request
 - Call pickup (CPU)
 - Directed call pickup (DCPU) and directed call pickup barge-in (DCBI)
 - TAFAS and call pickup
 - Calling number announcement and executive busy override
 - Call hold and malicious call hold
 - Call forward program
 - Call forward don't answer
 - Permanent hold
 - Speed call program
 - Direct inward system access (DISA)
 - Coin line/cod interactions
 - Make set busy
 - Cut through dialing
 - Meet me conference
 - Call waiting

Interactions

The following paragraphs describe the interactions between 3-Way Call Chaining and other functionalities.

- Stations with the CPU or DCPU feature can pick up calls that are three-way call chaining calls.
- Multiple call arrangement (MCA) and single call arrangement (SCA) multiple appearance directory number (MADN) stations can use 3-Way Call Chaining.

3-Way Call Chaining (end)

- A DISA number can become a member of a three-way call chain.
- Any MADN SCA member active in a three-way call chain can activate MADN hold if that call is in a stable talking state. The controller of the three-way call can activate MADN hold only if the call has advanced to a conference state.
- Stations involved in a three-way call chain can use simplified dialing to add additional members to the call.

Activation/deactivation by the end user

3-Way Call Chaining requires no activation or deactivation by the end user.

Billing

3-Way Call Chaining does not affect billing.

Station Message Detail Recording

3-Way Call Chaining does not affect Station Message Detail Recording.

Datafilling office parameters

The following table shows the office parameters used by 3-Way Call Chaining. For more information about office parameters, refer to the *Office Parameters Reference Manual*.

Office parameters used by 3-Way Call Chaining

Table name	Parameter name	Explanation and action
OFCENG	MAX_NO_OF_3_PORTS_ IN_CHAIN	Specifies maximum number of three way conference circuits that can be used in a three way calling chain. Minimum value is 2, maximum is 20, and default is 3.

Datafill sequence

3-Way Call Chaining does not affect datafill.

Translation verification tools

3-Way Call Chaining does not use translation verification tools.

SERVORD

3-Way Call Chaining does not use SERVORD.

Application processor base and file processor

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

CSP02 and later versions

Requirements

The Application processor base and file processor does not have requirements.

Description

Table APINV contains information about the specified processor. Enter AP or FP in this table. Table PMLOADS had an earlier entered loadname. Enter the loadname in this table

Operation

For each AP in table APINV, the system adds ten tuples to table APCDINV to describe each of the cards. For each FP, the system adds 12-tuples. The cards include the following:

- power converters
- CPU and reset terminal interface (RTIF) card
- memory cards
- bus terminators
- dual access buffer memory (DABM) cards
- small computer systems interface (SCSI) cards.

Translations table flow

Descriptions of the Application processor base and file processor translations tables appear in the following list:

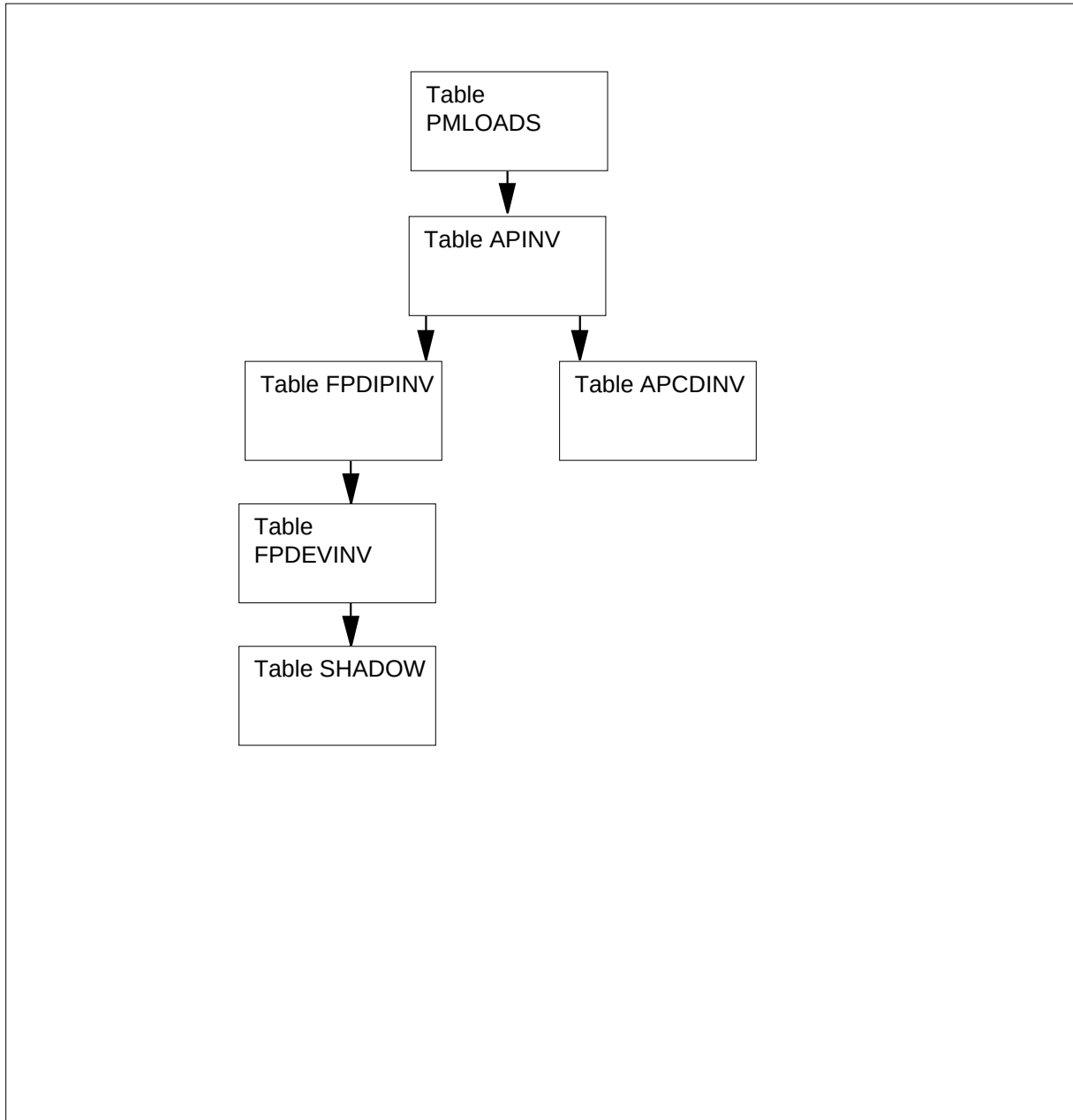
- Table PMLOADS stores the device location of the PM load files and the mapping between the load names and devices on which the loads reside.
- Table APINV identifies the processor as an AP or an FP.
- Table APCDINV describes the cards that the AP processor contains.
- Table FPDIPINV describes the SCSI device paddle boards (SDIP) and the bus to which the paddle boards attach.

Application processor base and file processor (continued)

- Table FPDEVINV identifies the FP, the type of SCSI device, the location, and hardware configuration.
- Table SHADOW identifies the shadowset, shadowset state, redundancy, master SCSI, master device, and device capacity information.

The Application processor base and file processor translation process appears in the the following flowchart.

Application processor base and file processor (continued)

Table flow for Application processor base and file processor

Application processor base and file processor (continued)

Datafill content used in the flowchart appears in the following table.

Datafill example for Application processor base and file processor

Datafill table	Example data
Processor	FP
Floor	1
Row	Y
Load	FPX35BL
PMLOADS	FPX35BL S01DIMAGE4
APINV	FP 0 FP0_R256 FPX35BL N 1 Y 6 0 NT9X81AA 1 R128 0 0 12 0) (15 0 1 12 0) (12 1 1 12 0) (15 1 0 12 1) \$ (12
APCDINV	FP 0 0 1 POWER NTDX15AA NIL NIL FP 0 0 4 POWER NTDX15AA NIL NIL FP 0 0 8 MEMORY NT9X14DB TERM NT9X21AB FP 0 0 9 MEMORY NT9X14DB NIL NIL FP 0 0 10 MEMORY NT9X14DB PORT NT9X88AA FP 0 0 11 MEMORY NT9X87AA PORT NT9X88AA FP 0 0 12 PORT NT9X86AA PORT NT9X62AA FP 0 0 13 CPU NT9X13LA TIF NT9X26CA FP 0 0 14 CPU NT9X13LA TIF NT9X26CA FP 0 0 15 PORT NT9X86AA PORT NT9X62AA FP 0 0 16 MEMORY NT9X87AA PORT NT9X88AA FP 0 0 17 MEMORY NT9X14DB PORT NT9X88AA FP 0 0 18 MEMORY NT9X14DB NIL NIL FP 0 0 19 MEMORY NT9X14DB TERM NT9X21AB
FPDIPINV	0 0 0 3 NT9X83AA 1 Y 9 (0 8 NT9X89BA) (1 9 NT9X89BA) \$
FPDEVINV	0 0 0 DK NT9X90AA 0 0 3 NT9X83AA 1 Y 9
SHADOW	FP 0 SS00 SCSIDK 0 3 \$

Application processor base and file processor (continued)

Limits

The following limits apply to the application processor base and file processor functionality group. These limits apply when entry of a device occurs in table FPDEVINV:

- The SCSI interface paddle boards (SIP) in slots 11R, 16R, 23R, and 28R correspond to SCSI bus 0, by default. The optional SIPs in slots 10R, 17R, 22R, and 29R correspond to SCSI bus 1.
- Enter the processor part of the FP in table APINV first.
- Enter the SDIPs to which the device attaches in table FPDIPINV.
- The power converters and the SIPs that correspond to the SCSI bus to which the device attaches must be entered in table APCDINV. If one of these cards are not entered, an error appears. This error indicates that a card was not entered and the device was not added to the table.

Before deletion of a device can occur from table FPDEVINV, the device must be in the offline state.

Interactions

The following functionality groups are required for table control of FP devices.

- Table Control for CM-based Application Processors—AL1113
- FP Central Maintenance Base—AL1167
- FP Local Control—AL1169.

Functionality group AL1113 enters data in an AP or FP. Functionality group AL1167 describes the FP maintenance software, and functionality group AL1169 enters SDIPs that attaches to a device.

Activation/deactivation by the end user

The Application processor base and file processor does not require activation or deactivation by the end user.

Billing

The Application processor base and file processor does not affect billing.

Station Message Detail Recording

The Application processor base and file processor does not affect Station Message Detail Recording.

Application processor base and file processor (continued)

Datafilling office parameters

The Application processor base and file processor does not affect office parameters.

Datafill sequence

Tables that require datafill to implement Application processor base and file processor appears in the following table. The tables appear in correct entry order.

Datafill requirements Application processor base and file processor

Table	Purpose of table
PMLOADS	Stores the information on the device location of every PM load file. This table also stores the mapping information between the load names and devices on which the loadfiles reside.
APINV	Identifies the type and instance of the APs and FPs on a DMS SuperNode switch.
APCDINV	Describes the RP cards.
FPDIPINV	Describes the SDIPs on an FP.
FPDEVINV	Describes the devices installed on a DMS SuperNode FP.
SHADOW	Describes the shadow sets configured on a DMS SuperNode FP.

Datafilling table PMLOADS

Table PMLOADS stores the device location of every PM load file. Table PMLOADS also stores the mapping between the load names and the devices on which the loads reside. Table PMLOADS permits autoloading to locate load files without the interruption of operating company personnel.

Table size

Table PMLOADS can have a maximum of 25 tuples.

Datafill sequence

Enter data in table PMLOADS before you enter data in table APINV and before table APCDINV.

Datafill for Application processor base and file processor for table PMLOADS appears in the following table. The fields that apply to Application processor

Application processor base and file processor (continued)

base and file processor appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table PMLOADS

Field	Subfield or refinement	Entry	Description
LOADNAME		XPM load name	Peripheral module load name. Enter a maximum of a 32-character XPM load name.
DEV		Device name	Device name. Enter the storage device that contains the PM load. This is a vector that is maximum of 16 characters in length.

Datafill example for table PMLOADS

Sample datafill for table PMLOADS appears in the following example.

MAP example for table PMLOADS

LOADNAME	DEV
FPX35BJ	S00DVOL2

Error messages for table PMLOADS

The following error messages apply to table PMLOADS.

Error messages for table PMLOADS (Sheet 1 of 2)

Error message	Description
Could not add node to DDM.	A software error occurs. The node is not added to the distribute data manager (DDM). Check the logs. If necessary, contact next level of support.
Could not allocate node < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.

Application processor base and file processor (continued)

Error messages for table PMLOADS (Sheet 2 of 2)

Error message	Description
Could not allocate ports < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Could not convert to the NNT node name.	A software error occurs. The node is not added to the node name type (NNT). Check the logs. If necessary, contact the next level of support.

Datafilling table APINV

Table APINV (AP inventory) contains information about AP and FP processors on a DMS SuperNode. Table APINV identifies the type and instance of a processor, and the location. Table APINV also contains link and software configuration data that the MAP facility and the Integrated Node maintenance (INM) software require.

Table size

Table APINV can have a maximum of 200 tuples.

Datafill sequence

Enter data in table APINV after table PMLOADS and before table APCDINV.

Datafill for Application processor base and file processor for table APINV appears in the following table. The fields that apply to Application processor base and file processor appear in this table. See the data schema section of this document for a description of this document.

Datafilling table APINV (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Description
SMNTYPE		AP or FP	Sync-matched node type Enter the type of processor as follows: - For the application processor, enter AP. - For the file processor, enter FP.
SMNO		0 to 99	Sync-matched node instance number. Enter a number from 0 to 99 to specify the instance of the processor.

Application processor base and file processor (continued)

Datafilling table APINV (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Description
FUNCTION		1 to 12	Sync-matched node function. Enter a string of 1 to 12 alphanumeric characters to specify the function of the processor on a MAP display.
LOADNAME		1 to 8	Default load file name. Enter a string of one to eight alphanumeric characters. Enter this loadname in table PMLOADS. This loadname must reside on a permanent device, not a tape device.
SELFLOAD		Y or N	Self-loading capability. Enter Y or N to specify if the processor has self-load ability.
FLOOR		0 to 99	Floor. Enter a number from 0 to 99 to specify the floor on which the cabinet contains the processor.
ROW		A to Z or AA to ZZ, excluding I, O, II and OO	Row. Enter one or two alphanumeric characters from A to Z, or AA to ZZ, to specify the row position of the cabinet that contains the processor. Do not enter alphanumeric characters I, O, II, and OO.
FRAME		0 to 99	Frame position. Enter a number from 0 to 99 to specify the frame position in the row that contains the processor.
SHELF		0 to 3	Device shelf. Enter a number from 0 to 3 to specify the shelf that contains the processor. The shelves number from top to bottom, and start with 0.
SHELFPEC		NT9X81AA	Shelf product engineering code (PEC). Enter NT9X81AA to specify the PEC of the processor shelf.
QUADRANT		0 or 1, or 2 or 3	Quadrant range Enter the quadrant range that contains the processor. The procedure is as follows: - For the first quadrant range, enter 0 or 1. - For the second quadrant range, enter 2 or 3.

Application processor base and file processor (continued)

Datafilling table APINV (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Description
LINKRATE		R64, R128, R256, or DS512	Link rate. Enter R64, R128, R256, or DS512 to specify the bandwidth on the fiber that connects the processor to the DMS-bus. The default value is R128.
LINKS		\$	SMN port configuration. This field is a vector of a maximum of four multiples of subfields TCTARDNO, TLINKNO, DNODENO, DCARDNO, and DLINKNO. Enter a dollar (\$) sign to indicate the end of the vector.
	TCARDNO	1 to 38	Terminating card number. Enter a number from 1 to 38 to specify the card of the terminating link on the node.
	TLINKNO	0 or 1	Terminating link number. Enter 0 or 1 to specify the terminating link on the node corresponding to the card (TCARDNO) on which the link terminates.
	DNODENO	0 or 1	DMS-bus node number. Enter 0 or 1 to specify the message switch (MS) node to which the link connects.
LINKS (cont)	DCARDNO	1 to 26	DMS-bus card number. Enter a number from 1 to 26 to specify the shelf location of the MS card. The MS card connects to this AP or FP.
	DLINKNO	0 to 7	DMS-bus link number. Enter a number from 0 to 7 to specify the link number of the MS card. The MS card connects to this AP or FP.

Datafill example for table APINV

Sample datafill for table APINV appears in the following example. In the example, the processor is an FP.

Application processor base and file processor (continued)

MAP example for table APINV

SMNTYPE	SMNO	FUNCTION	LOADNAME	SELFLOAD	
FLOOR	ROW	FRAME	SHELF	SHELFPEC	QUADRANT
LINKRATE	LINKS				
FP	0	FP0_R256	FPX35BL	N	
1	Y	6	0	NT9X81AA	1
R256	(12	0	0	12	0)
(12	1	1	12	1)	(15
					0
					1)
					\$
AP	4	AP4_R128	APX35BL	N	
1	D	4	0	NT9X81AA	1
R128	(12	0	0	15	1)
(12	1	1	16	1)	(15
					0
					1)
					\$

Error messages for table APINV

The following error messages apply to table APINV.

Error messages for table APINV (Sheet 1 of 9)

Error message	Description
Could not add node to DDM.	A software error occurs. The system did not add the node to the distribute data manager (DDM). Check the logs. If necessary, contact the next level of support.
Could not allocate node < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Could not allocate ports < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Could not convert to the NNT node name.	A software error occurs. The system did not add the node name type (NNT). Check the logs. If necessary, contact the next level of support.
Could not deallocate smn databases < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 2 of 9)

Error message	Description
Could not delete the mchid < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Could not register with MAP.	A software error occurs. The node is not added to MAP control. Check the logs. If necessary, contact the next level of support.
Could not register with System Recovery.	A software error occurs. The system did not add the node to system recovery. Check the logs. If necessary, contact the next level of support.
Data Inconsistency: Failed to allocate far end MCHID	A software error occurs. Check the logs. If necessary, contact the next level of support.
Data Inconsistency: Failed to allocate MCHID < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Data Inconsistency: Failed to convert to mtcid.	A software error occurs. Check the logs. If necessary, contact next level of support.
Data Inconsistency: Failed to define ILM far end link < >.	A software error occurs. Check the logs. If necessary, contact next level of support.
Data inconsistency: Failed to define ILM Link < >.	A software error occurs. Check the logs. If necessary contact next level of support.
Data Inconsistency: Failed to define ILM port < >.	A software error occurs. Check the logs. If necessary contact next level of support.
Data inconsistency: failed to delete node from system.	Additional error messages identifies the problem. Check the logs. If necessary, contact the next level of support.
Data Inconsistency: Failed to get ILM far port.	A software error occurs. Check the logs. If necessary, contact the next level of support.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 3 of 9)

Error message	Description
Data Inconsistency: Failed to get TC Tuple info.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Data inconsistency: failed to properly deallocate cards.	A software error occurs. The system cannot deallocate cards from the APCDINV table. Manually deallocate the cards from table APCDINV. If this procedure is not possible, check the logs. If necessary, contact the next level of support.
Data inconsistency: failed to properly deallocate links.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Data inconsistency: failed to properly deallocate node.	Additional error messages identifies the problem. Check the logs. If necessary, contact the next level of support.
Data inconsistency: failed to re-register with INM.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Data inconsistency: link does not exist.	The link entered is not present. Check the link entered. Enter the link or enter the link in table MSCDINV again. Enter link datafill again.
Data inconsistency: node does not exist.	The system deleted the node or the node was never present. Check the node entered. If necessary, enter the node again.
Data inconsistency: node name corrupted.	A software error occurs. Enter node name again and check the logs. If necessary, contact the next level of support.
Deregistration data inconsistency: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Each CPU must have a connection to each MS.	Each message switch must have two links to each CPU. Check the link configuration and correct or add links.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 4 of 9)

Error message	Description
Failed to add all the MCHID < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to allocate address: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to allocate default cards.	Additional error messages can identify the problem. Check the logs. If necessary, contact the next level of support.
Failed to allocate point code: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to convert to a MTC ID.	A software error occurs. The system did not add the node to the maintenance ID. Check the logs. If necessary, contact the next level of support.
Failed to create name to delete node from the DDM.	A software error occurs. The node remains in the DDM. Check the logs. If necessary, contact the next level of support.
Failed to create node name: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to create node names.	A software error occurs. The node remains in the DDM. Check the logs. If necessary contact the next level of support.
Failed to deallocate address: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to deallocate PC: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 5 of 9)

Error message	Description
Failed to delete far end Link ID	A software error occurs. The system failed to delete or free for use the link from the MS to the AP or FP. Check the logs. If necessary, contact the next level of support.
Failed to delete far end MCHid	A software error occurs. The system failed to delete or free for use the MS end of the connection to the AP or FP. Check the logs. If necessary, contact the next level of support.
Failed to delete far end Port ID	A software error occurs. The system failed to delete or free for use the port on the MS card. Check the logs. If necessary, contact the next level of support.
Failed to delete Link ID < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to delete Link ID	A software error occurs. The system failed to delete or free the AP/FP end of the connection to the MS. Check the logs. If necessary, contact the next level of support.
Failed to delete MCHid < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to delete node name: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to delete Port ID < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to delete port transport access < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 6 of 9)

Error message	Description
Failed to get port transport access < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to get signalling address.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failed to identify node to System Rex Controller.	A software error occurs. The system did not add the node to the routine exercise test (REx). Check the logs. If necessary, contact the next level of support.
Failed to remove from System Rex Controller.	A software error occurs. The node remains in the REx. Check the logs. If necessary, contact the next level of support.
Failed to remove node from DMS-bus.	A software error occurs. The node remains in the DMS-bus. Check the logs. If necessary, contact the next level of support.
Failed to validate the tc data < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Failure on adding to the DMS-bus.	A software error occurs. The system did not add the node to the DMS-bus. Check the logs. If necessary, contact the next level of support.
Illegal change: link rate cannot not be changed. Please delete and re-add.	The change entered is not allowed. To change the link rate, manually delete the node and enter the new information again.
Illegal change: Location (location, quadrant) is already occupied by another AP/FP.	The quadrant number entered is wrong. Quadrants are numbered 0 or 2. Enter the quadrant number again.
Illegal change: nodes may not be relocated on a shelf. Please delete and re-add.	The change entered is not allowed. To change the node position on the shelf, delete the tuple. Enter the tuple again for the new position.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 7 of 9)

Error message	Description
Illegal change: quadrant location cannot be changed. Please delete and re-add.	The change entered is not allowed. To change the quadrant, delete the tuple enter again for the new quadrant.
Illegal change: shelf types may not be changed. Please delete and re-add.	The change entered is not allowed. To change the shelf type, delete the tuple and enter again for the new shelf type.
Illegal change: Sync-matched nodes requires 4 links to the DMS-bus.	The change entered is not allowed. The sync-matched nodes require 4 links to the DMS-bus. Check the link configuration. If necessary, enter the change again.
Inconsistency: Failed to deallocate all resources from node.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Inconsistency: Illegal quadrant input.	The quadrant number entered is wrong. Quadrants have two numbers, 0 or 2. Enter the quadrant number again.
Inconsistent information in database.	A software error occurs. Check the logs. If necessary, contact the next level of support.
INM registration failed: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
INM update failed: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Invalid shelf configuration.	The shelf number entered is wrong. Shelves range in number from 0 to 3. Enter the shelf number again.
Invalid shelf PEC.	The shelf PEC entered is not correct. The NT9X81AA and NT9X06AA are supported shelf PECs. Enter the shelf PEC again.
Invalid sync-matched node class.	The sync-matched node class entered is wrong. Supported classes are AP or FP. Enter the class again.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 8 of 9)

Error message	Description
Link datafill is not consistent with the NT9X06AA shelf configuration.	The NT9X06AA shelf cannot support the link entered. Check the node and link configuration. If necessary, enter the link again.
Link datafill is not consistent with the NT9X81AA shelf configuration for the quadrant.	The NT9X81AA shelf cannot support the link entered. Check the node and link configuration. If necessary, enter the link again.
Link rate specified not supported	The line rate entered is not supported. Enter a supported rate.
Load file <file_name> is not equipped in table PMLOADS.	Entry of the <file_name> does not occur in table PMLOADS. Check the file name entered and enter the file name again. Enter the file name in table PMLOADS and enter the datafill again.
Location (location, quadrant) is already occupied by another AP/FP.	The quadrant number entered wrong. Quadrants have two numbers, 0 or 2. Enter the quadrant number again.
Logical links must terminate on same card/port on MS.	The two MSs have different connections. Check the MS link configuration and make the necessary changes.
Not a valid node < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
No valid ports on node < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Problems deallocating default cards.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Sync-matched nodes require 4 links to the DMS-bus.	The change entered is not allowed. The sync-matched nodes require four links to the DMS-bus. Check the link configuration. If necessary, enter the change again.

Application processor base and file processor (continued)

Error messages for table APINV (Sheet 9 of 9)

Error message	Description
Unable to add/change node to/in INMDMITB: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
Unable to delete node from INMDMITB: < >.	A software error occurs. Check the logs. If necessary, contact the next level of support.
WARNING: Data not updated in local node database.	A software error occurs. Bring the node to service. If the node is in service, check the logs. If necessary, contact the next level of support.
WARNING: No buffers available to update data in local node.	A software error occurs. Check the logs. If necessary, contact the next level of support.
WARNING: The loadfile is not registered correctly in table PMLOADS.	Entry of the loadfile does not occur in table PMLOADS. Check the tuple entered and enter again or enter the loadfile in table PMLOADS. Enter the tuple again.

Datafilling table APCDINV

Table APCDINV (AP card inventory) describes every card that an AP or FP contains. This condition does not include the cards that are mass storage devices.

When an entry occurs in table APINV, the system adds default tuples to this table. When a new entry occurs in table APINV for an AP, the system adds 10 tuples to table APCDINV. The system adds one tuple for each of the two slots that contain the following:

- power converters
- a CPU card in the front and an RTIF paddle board in the back
- a port card in the front and a port card in the back
- mandatory memory cards
- bus terminators.

The system deletes every AP tuple when the system deletes the main tuple for the AP from table APINV.

Application processor base and file processor (continued)

When a new entry occurs in table APINV for an FP, the system adds 12 tuples to table APCDINV. The system adds one for each of the two slots that contain the following:

- power converters
- a CPU card in the front and an RTIF paddle board in the back
- a port card in the front and a port card in the back
- mandatory memory cards
- bus terminators
- a Data buffer memory (DABM) card in the front and a SCSI paddle board in the back

The system deletes all FP tuples when the system deletes the main FP tuple from table APINV.

Table size

Table APCDINV can have a maximum of 2800 tuples.

Datafill sequence

Enter data in table APCDINV after you enter data in tables PMLOADS and APINV.

Datafill for Application processor base and file processor for table APCDINV appears in the following table. The fields that apply to Application processor base and file processor appear in this example. See the data schema section of this document for a description of other fields.

Datafilling table APCDINV (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
SMNTYPE		AP or FP	Sync-matched node type. Enter the type of processor as follows: • For the AP, enter AP. • For the FP, enter FP.
SMNO		0 to 99	Sync-matched node instance number. Enter a number from 0 to 99 to specify the instance of the processor.

Application processor base and file processor (continued)

Datafilling table APCDINV (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description
SHELF		0 to 3	Device shelf. Enter a number from 0 to 3 to specify the shelf that contains the RP. The shelves number from top to bottom, beginning with 0.
SLOT		1 to 38	System slot. Enter a number from 1 to 38 to specify the slot that contains the card.
FRONTCRD		CPU, PORT, MEMORY, POWER or NIL	Front card. Enter CPU, PORT, MEMORY, POWER, or NIL, to specify the type of card in the front card slot.
FRONTPEC		NT9X13LA, NTX86AA, NT9X14DA, NT9X14DB, NT9X87AA, NT9X91AA, or NIL	Front PEC. This field defines the PEC of the card in the front card slot. If the entry in field FRONTCRD is CPU, enter NT9X13LA. If the entry in field FRONTCRD is PORT, enter NTX86AA. If the entry in field FRONTCRD is MEMORY, enter NT9X14DA, NT9X14DB, or NT9X87AA. If the entry in field FRONTCRD is POWER, enter NT9X91AA or NTDX15AA. If the entry in field FRONTCRD is NIL, enter NIL.
BACKCRD		PORT, TERM, TIF, or NIL	Back card. Enter PORT, TERM, TIF, or NIL, to specify the type of card in the front card slot.
BACKPEC		NT9X62AA or NT9X88AA, NT9X21AB, NT9X26AA, NT9X26BA, or NT9X26CA, or NIL	Back product equipment code. This field defines the PEC of the card in the back card slot. If the entry in field BACKCRD is PORT, enter NT9X62AA or NT9X88AA. If the entry in field BACKCRD is TERM, enter NT9X21AB. If the entry in field BACKCRD is TIF, enter NT9X26AA, NT9X26BA, or NT9X26CA. If the entry in field BACKCRD is NIL, enter NIL.

Application processor base and file processor (continued)

Datafill example for table APCDINV

Sample datafill for table APCDINV appears in the following table.

Sample datafill for the application processor base and file processor functionality group in table APCDINV appears in the following example. The processor is an FP. The slots contain the following cards:

- 1 and 4 are power converters
- 8 and 19 are bus terminators
- 9 and 18 are memory cards
- 10 and 17 are SIPs
- 11 and 16 are DABM cards
- 12 and 15 are port cards
- 13 and 14 are the CPU in the front and the RTIF in the back.

MAP example for table APCDINV

SMNTYPE	SMNO	SHELF	SLOT	FRONTCRD	FRONTPEC	BACKCRD	BACKPEC
AP	0	0	1	POWER	NTDX15AA	NIL	NIL
AP	0	0	4	POWER	NTDX15AA	NIL	NIL
AP	0	0	8	MEMORY	NT9X14DB	TERM	NT9X21AB
AP	0	0	9	MEMORY	NT9X14DB	NIL	NIL
AP	0	0	10	MEMORY	NT9X14DB	PORT	NT9X88AA
AP	0	0	11	MEMORY	NT9X87AA	PORT	NT9X88AA
AP	0	0	12	PORT	NT9X86AA	PORT	NT9X62AA
AP	0	0	13	CPU	NT9X13LA	TIF	NT9X26AB
AP	0	0	14	CPU	NT9X13LA	TIF	NT9X26AB
AP	0	0	15	PORT	NT9X86AA	PORT	NT9X62AA
AP	0	0	16	MEMORY	NT9X87AA	PORT	NT9X88AA
AP	0	0	17	MEMORY	NT9X14DB	PORT	NT9X88AA
AP	0	0	18	MEMORY	NT9X14DB	NIL	NIL
AP	0	0	19	MEMORY	NT9X14DB	NIL	NIL

In the example, the processor is an AP

Application processor base and file processor (continued)

MAP example for table APCDINV

SMNTYPE	SMNO	SHELF	SLOT	FRONTCRD	FRONTPEC	BACKCRD	BACKPEC
AP	4	0	1	POWER	NTDX15AA	NIL	NIL
AP	4	0	4	POWER	NTDX15AA	NIL	NIL
AP	4	0	8	MEMORY	NT9X14DB	TERM	NT9X21AB
AP	4	0	9	MEMORY	NT9X14DB	NIL	NIL
AP	4	0	10	MEMORY	NT9X14DB	NIL	NIL
AP	4	0	11	MEMORY	NT9X14DB	NIL	NIL
AP	4	0	12	PORT	NT9X86AA	PORT	NT9X62AA
AP	4	0	13	CPU	NT9X13LA	TIF	NT9X26CA
AP	4	0	14	CPU	NT9X13LA	TIF	NT9X26CA
AP	4	0	15	PORT	NT9X86AA	PORT	NT9X62AA
AP	4	0	16	MEMORY	NT9X14DB	NIL	NIL
AP	4	0	17	MEMORY	NT9X14DB	NIL	NIL
AP	4	0	18	MEMORY	NT9X14DB	NIL	NIL
AP	4	0	19	MEMORY	NT9X14DB	TERM	NT9X21AB

Error messages for table APCDINV

The following error messages apply to table APCDINV.

Error messages for table APCDINV (Sheet 1 of 4)

Error message	Description
DABM PECs cannot be entered on an Application Processor.	The DABM is available for FPs. The DABM does not apply to APs. Check the processor entered and enter the process again.
Data inconsistency: Invalid back PEC.	The back slot entered supports certain card types. Check the slot number entered. Enter the slot number again or select another slot.
Data inconsistency: Invalid front PEC.	The front slot entered supports certain card types. Check the slot number entered. Enter the slot number again or select another slot.
Data Inconsistency: Invalid shelf PEC.	The shelf number entered is not correct. Shelf numbers are 0 to 3. Enter shelf number again.

Application processor base and file processor (continued)

Error messages for table APCDINV (Sheet 2 of 4)

Error message	Description
Data Inconsistency: node does not exist.	The code entered for addition to an AP or FP is not entered in table APINV. Check that the code is correct. Enter the code again or enter the code in table APINV and try again.
DDM index not found: < >.	A software error that involves the DDM occurs. Check the logs. If a problem occurs, contact the next level of support.
Error: Only power converters can be configured in this location.	The slot entered supports power converter cards. Check the slot number entered. Enter the slot number again or select another slot.
Inconsistency: Failed to allocate card database.	A software error occurs. If the logs direct you to enter again, check the logs. If the message repeats or the logs do not direct you to enter again, contact the next level of support.
Difference or error: Failed to delete card data.	Entry of the card that you must delete occurred. The removal of some of the card resources did not occur. Check the logs. If a problem occurs, contact the next level of support.
Inconsistency: not correct card operation.	The operation or type of change entered is not allowed for the card. Correct operations are add, change, or delete. Check the operation entered and enter the operation again.
Inconsistency: PEC deleted.	The PEC code entered is not supported. Enter another PEC code.
Inconsistency: PEC deleted and is no longer valid.	The PEC code entered is not supported. Enter another PEC code.
Illegal: Cannot delete a non-optional card.	The operation entered can remove a card required for correct operation. Check the card entered. Enter the card again or remove another card.

Application processor base and file processor (continued)

Error messages for table APCDINV (Sheet 3 of 4)

Error message	Description
Illegal: Cannot delete last DRAM card on this plane.	The operation entered can remove the last DRAM card on the plane. For correct operation, at least one DRAM card must be on the plane. Check the card entered. Enter the card again or remove another card.
Illegal: Cannot delete the last memory card on this plane.	The operation entered can remove the last memory card on the plane. For correct operation at least one memory card must be on the plane. Check the card entered. Enter the card again or remove another card.
Illegal change: Back cardtype is a default card and cannot be changed.	The back slot entered only supports certain card types. Check the slot number entered. Enter the slot again or select another slot.
Illegal change: Front cardtype is a default card and cannot be changed.	The front slot entered only supports certain card types. Check the slot number entered. Enter the slot again, or select another slot.
Illegal slot configuration for actual card location.	The slot entered only supports certain card types. Check the slot number entered and enter again. Enter the slot again or select another slot.
Inconsistency: Failed to update card database.	A software error occurs. If logs direct you to enter again, check the logs. The message can repeat or logs do not direct you to enter again. In this event, contact the next level of support.
Inconsistency: No card data.	Entry of the card selected in this table did not occur. Check the card selected. Enter the card again, or enter the card in this table and repeat the operation.
Invalid class.	The class entered is not supported. Enter AP or FP.

Application processor base and file processor (continued)

Error messages for table APCDINV (Sheet 4 of 4)

Error message	Description
Invalid back PEC provided.	The back slot entered only supports certain card types. Check the slot number entered. Enter the slot number again or select another slot.
Invalid front PEC provided.	The front slot entered supports certain card types. Check the slot number entered. Enter the slot again, or select another slot.
Not a valid card < >.	The slot entered only supports certain card types. Check the slot number entered. Enter the slot again, or select another slot.
SIP PECs can not be datafilled on an Application Processor.	The card entered is available for FPs. The card does not apply to APs. Check the processor entered and enter again.
Slot already occupied by another card.	Another card is specified for the slot entered. Check the slot number entered. Enter the slot number again, or remove the other card and enter the slot number again.
WARNING: Data not updated in local node database.	A software error occurs. Bring the node to service. If the node is in service, check the logs. If necessary, contact the next level of support.
WARNING: No buffers available to update data in local node.	A software error occurs. Check the logs. If necessary, contact the next level of support.

Datafilling table FPDIPINV

Table FPDIPINV (FP device interface paddle board inventory) describes each SDIP on a DMS SuperNode FP. Table FPDIPINV identifies the FPs, and the SCSI bus to which the SDIPs attach. Table FPDIPINV identifies the SDIP identities, locations, and hardware configurations.

Application processor base and file processor (continued)

Adding a tuple to table FPDIPINV

The FP file maintenance software verifies each new entry to table FPDIPINV before the system adds a tuple to the table. The verification confirms the following:

- the processor is entered in table APINV
- the shelf and quadrant are not already equipped with an SDIP
- the SDIP number of the specified SCSI bus is not a duplicate
- the SDIPs are in adjacent slots in one quadrant
- the SDIPs are in specific slots in the quadrant
- the slot numbers are different for the SDIPs
- the controller (CTRL) numbers are different for the SDIPs
- the SIP that associates with the SCSI bus of the SDIP is entered in table APCDINV

The SIPs that are in slots 11R, 16R, 23R, and 28R correspond to SCSI bus 0. These slots are nearest to the CPU card. The system enters these slots by default when entry of an FP occurs in table APINV. The optional SIPs in slots 10R, 17R, 22R, and 29R correspond to SCSI bus 1.

Addition of a tuple that does not meet the above rules can continue to occur. Warning messages appear and the FP device cannot operate.

Modifying a tuple in table FPDIPINV

The SDIP PEC can change.

Deleting a tuple from table FPDIPINV

Deletion of the attached device must occur before the deletion of an SDIP.

Table size

Table FPDIPINV can have a maximum of 1600 tuples.

Datafill sequence

Enter data in table FPDIPINV after tables PMLOADS, APINV, and APCDINV.

Datafill for Application processor base and file processor for table FPDIPINV appears in the following table. The fields that apply to Application processor

Application processor base and file processor (continued)

base and file processor appear in this table. See the data schema section of this document for a description of other fields.

Datafilling table FPDIPINV (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
FPNO		0 to 99	FP instance number. Enter a number from 0 to 99 to specify the FP.
SCSIBUS		0 or 1	SCSI bus number. Enter 0 or 1 to specify the bus on the FP to which the device attaches.
SDIPNO		0 to 5	SDIP number. Enter a number from 0 to 5 to specify the SDIP pairs on the SCSI bus.
SHELF		0 to 3	Device shelf. Enter a number from 0 to 3 to specify the shelf that contains the device. The shelves are numbered from top to bottom, and start with 0.
SHELFPEC		NT9X83AA	Shelf PEC. Enter NT9X83AA to specify the PEC for the device shelf.
FLOOR		0 to 99	Floor. Enter a number from 0 to 99 to specify the floor. The floor is where the frame contains the device.
ROW		one or two alphanumeric characters from A to Z, or AA to ZZ, not from I, O, II, and OO,	Row. Enter one or two alphanumeric characters from A to Z, or AA to ZZ, to specify the row position of the frame that contains the device. Do not enter alphanumeric characters I, O, II, and OO.
FRAME		0 to 99	Frame position. Enter a number from 0 to 99 to specify the frame position in the row that contains the device.
DIPIDS		\$	Device interface paddle board identification. This field is a vector of a maximum of two multiples of subfields CTRLNO, SLOTNO, and DIPPEC. See the appropriate subfields for definitions. Enter \$ to signify the end of the vector.
	CTRLNO	0 or 1	Controller number. Enter 0 or 1 to specify the SCSI bus controller to which the SDIP attaches.

Application processor base and file processor (continued)

Datafilling table FPDIPINV (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description
DIPIDS (cont)	SLOTNO	1 to 38	Slot number. Enter a number from 1 to 38 to specify the slot that contains the SDIP. The SDIPs must be in adjacent slot numbers. Correct slot numbers are: (8,9), (14,15), (20, 21), (26,27).
	DIPPEC	NT9X89AA or NT9X89BA	SDIP PEC. Enter NT9X89AA or NT9X89BA to specify the PEC of the SDIP.

Data example for table FPDIPINV

Sample datafill for table FPDIPINV appears in the following table. The SDIP is on SCSI bus 0 on shelf 2. Controller 0 is in slot 8. Controller 1 is in slot 9.

MAP example for table FPDIPINV

FPNO	SCSIBUS	SDIPNO	SHELF	SHELFPEC
FLOOR	ROW	FRAME		
DIPIDS				
0	0	0	3	NT9X83AA
1	A	3		
(0 8 NT9X89AA)	(1 9 NT9X89AA)		\$	

Error messages for table FPDIPINV

The following error messages apply to table FPDIPINV.

Error messages for table FPDIPINV (Sheet 1 of 2)

Error message	Description
FPDIPINV ERROR: SDIPs not added. Invalid FP node.	The system rejects an attempt to add an SDIP without the entry of an FP node in table APINV. Enter the FP node in table APINV.
FPDIPINV WARNING: No SCSI bus paddle board are entered in table APCDINV.	The system accepts the request to enter data in the SDIP. The SDIP is not operational until entry of the missing hardware in table APCDINV occurs.
FPDIPINV ERROR: Invalid SDIP PEC.	The SDIP PEC is not correct.

Application processor base and file processor (continued)

Error messages for table FPDIPINV (Sheet 2 of 2)

Error message	Description
FPDIPINV ERROR: Field changes valid only to SDIPs PECs.	Only the PEC can change. The deletion of the tuple and addition of a new tuple cause field changes.
FPDIPINV ERROR: Shelf and quadrant already equipped.	Entry of shelf and quadrant occur with another SDIP.
FPDIPINV ERROR: Shelf and quadrant already equipped with AP.	The shelf and quadrant are equipped in table APINV.
FPDIPINV ERROR: Unexpected error. Check logs.	Software error. Check logs for explanation.
FPDIPINV ERROR: Could not read SDIP data.	Data system cannot read because of software error.
FPDIPINV ERROR: 2 sets of DIP identifiers (DIPIDS) must be defined.	Each device must have two SDIPs. Enter the second SDIP.
FPDIPINV ERROR: Valid SLOTNO are: (8,9), (14, 15), (20, 21), (26, 27)	Entry of a wrong number occurred in field SLOTNO.
FPDIPINV ERROR: Both SLOTNOs must belong to the same quadrant.	Each quadrant must have two SDIPs.
FPDIPINV ERROR: SLOTNO must be different for each SDIP.	The number entered in field SLOTNO was allocated to another SDIP.
FPDIPINV ERROR: CTRLNO must be different for each SDIP.	The number entered in field CTRLNO was allocated to another SDIP.
FPDIPINV ERROR: SDIPs not added. Could not write SDIPs data.	The system rejects the add operation because of a software error.
FPDIPINV ERROR: SDIPs not added. Could not allocate store for data.	The system rejects the add operation because of a software error.
FPDIPINV ERROR: SDIPs not deleted. Delete device first in table FPDEVINV.	The system must delete the device in table FPDEVINV.
FPDIPINV ERROR: SDIPs not deleted. Could not delete SDIPs data.	FPDIPINV ERROR. Do not delete SDIPs. The system did not delete SDIPs data.

Application processor base and file processor (continued)

Datafilling table FPDEVINV

Table FPDEVINV (FP device inventory) describes all devices installed on a DMS SuperNode FP. The description identifies the information required to identify a particular device:

- the FP
- the type of SCSI device
- the location,
- the hardware configuration.

Adding a tuple to table FPDEVINV

The FP file maintenance software verifies each new entry to table FPDEVINV before the system adds a tuple to the table. The verification confirms the following:

- the processor is entered in table APINV
- the shelf and quadrant is not equipped with a device
- the device PEC agrees with the device type
- the MAP identifier on the specified SCSI bus is not a duplicate
- the associated SDIPs are entered in table FPDIPINV
- the SCSI identifier on the specified SCSI bus is not a duplicate

The system can add a tuple that does not satisfy the preceding rules. Warning messages appear and the FP device cannot operate.

Modifying a tuple in table FPDEVINV

The PEC device can change.

Deleting a tuple from table FPDEVINV

The device must be offline before deletion.

Table size

Table FPDEVINV can have a maximum of 6400 tuples.

Datafill sequence

Enter data in table FPDEVINV after tables PMLOADS, APINV, APCDINV, and FPDIPINV.

Application processor base and file processor (continued)

Datafill for table FPDEVINV appears in the following table. The fields that apply to table FPDIPINV appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table FPDEVINV (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
FPNO		0 to 99	FP instance number. Enter a number from 0 to 99 to specify the FP.
SCSIBUS		0 or 1	SCSI bus number. Enter a 0 or 1 to specify the bus on the FP to which the device attaches.
DEVNO		0 to 5	Device instance number. Enter a number from 0 to 5 to specify the instance of the device type.
DEVTYPE		DK or CT	Device drive type. Enter the type of device drive, as follows: • For disk, enter DK. • For tape, enter CT.
DEVPEC		NT9X90AA, NT9X90AB, or NT9X90BA	Device drive PEC. Enter NT9X90AA (600-Mbyte disk), NT9X90AB (2.1-Gbyte disk), or NT9X90BA (1.3-Gbyte DAT) to specify the PEC of the device.
SCSIID		0 to 5	SCSI identifier. Enter a number from 0 to 5 to specify the SCSI bus identifier.
QUADNO		0 to 3	Quadrant number. Enter a number from 0 to 3 to specify the quadrant that contains the device.
SHELF		0 to 3	Device shelf. Enter a number from 0 to 3 to specify the shelf that contains the device. The shelves are numbered from top to bottom, can start with 0.
SHELFPEC		NT9X83AA	Shelf PEC. Enter NT9X83AA to specify the PEC for the device shelf.
FLOOR		0 to 99	Floor. Enter a number from 0 to 99 to specify the floor. The floor is where the frame contains the device.

Application processor base and file processor (continued)

Datafilling table FPDEVINV (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description
ROW		one or two alphanumeric characters from A to Z, or AA to ZZ, excluding I, O, II, and OO	Row. Enter one or two alphanumeric characters from A to Z, or AA to ZZ. Enter these characters to specify the row position of the frame that contains the device. Do not enter alphanumeric characters I, O, II, and OO,
FRAME		0 to 99	Frame position. Enter a number from 0 to 99 to specify the frame position in the row that contains the device.

Datafill example for table FPDEVINV

Sample datafill for table FPDEVINV appears in the following table. The file processor instance attaches to SCSI bus 0 on shelf 2.

MAP example for table FPDEVINV

FPNO	SCSIBUS	DEVNO	DEVTYPE	DEVPEC
SCSIID	QUADNO	SHELF	SHELFPEC	FLOOR
ROW	FRAME			
0	0	0	DK	NT9X90AA
0		0	3	NT9X83AA
A	3			1

Error messages for table FPDEVINV

The following error messages apply to table FPDEVINV.

Error messages for table FPDEVINV (Sheet 1 of 3)

Error message	Description
FPDEVINV ERROR: Device not added. Invalid FP node.	The system can reject an attempt to add a device without entry of an FP node in table APINV. First enter the FP node in table APINV.
FPDEVINV ERROR: No device paddle boards are datafilled in table FPDIPINV.	The system can reject an attempt to add a device without entry of the paddle board in table FPDIPINV. First enter the paddle board in table FPDIPINV.

Application processor base and file processor (continued)

Error messages for table FPDEVINV (Sheet 2 of 3)

Error message	Description
FPDEVINV WARNING: No SCSI bus paddle boards are datafilled in table APCDINV.	The system accepts the request to enter data to the device. The device is not operational until the missing hardware is entered in table APCDINV.
FPDEVINV ERROR: No device power converter is datafilled in table APCDINV.	The system rejects an attempt to add a device without entry of the associated power converter. First enter the power converter in table APCDINV. Note that the removal of the power converter from the table following the entry of the device can result in the generation of a SWERR.
FPDEVINV ERROR: Invalid device PEC.	The device PEC is not correct
FPDEVINV ERROR: Invalid site name.	The entry in field SITE is not correct.
FPDEVINV ERROR: Field changes valid only to device PECs.	Only the PEC can change. Deletion of the tuple and addition of a new tuple cause field changes.
FPDEVINV ERROR: Shelf and quadrant already equipped.	Shelf and quadrant are entered with another device.
FPDEVINV ERROR: Duplicate SCSI id on SCSI bus.	Each device must have a different SCSI ID.
FPDEVINV ERROR: Unexpected error. Check logs.	Software error. Check logs for explanation.
FPDEVINV ERROR: Could not read device data.	Data cannot be read because of a software error.
FPDEVINV ERROR: Device not added. Could not allocate store for data.	Software error causes the system to reject the add operation.
FPDEVINV ERROR: Device not added. Could not write device data.	Software error causes the system to reject the add operation.
FPDIPINV ERROR: Device not deleted. It must be offlined first.	First delete the device in table FPDEVINV.
FPDIPINV ERROR: Device not deleted. Could not write device data.	Software error causes the system to reject the delete operation.

Application processor base and file processor (continued)

Error messages for table FPDEVINV (Sheet 3 of 3)

Error message	Description
FPDIPINV ERROR: No confirmation of offline status received from FP.	Device must be offline before you can delete the device.
FPDIPINV ERROR: Device not deleted. Could not confirm offline status data.	The links to the FP are down. There is no communication to the FP to check status.

Datafilling table SHADOW

Table SHADOW defines each shadow set on a DMS SuperNode. Table SHADOW identifies:

- the file processor (FP) node
- the set name of the shadow
- the location of its permanent device
- locations of its members.

Note: Table Shadow replaces the following shadow utility (SHADOWUT) commands: DEFINESET, DELETEDSET, ADDMEMBER, and DELMEMBER

Table size

Table SHADOW can have a maximum of 1200 tuples.

Datafill sequence

Enter Tables APINV and FPDEVINV before table SHADOW.

Datafill for Application processor base and file processor for table SHADOW appear in the following table. The fields that apply to Application processor base and file processor appear in this table. See the data schema section in this document for a description of other fields.

Datafilling table SHADOW (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
NODETYPE		FP	Node type. Enter FP.
NODENO		0 to 99	Node number. Enter a number from 0 to 99 to specify the instance of the file processor (FP) node.

Application processor base and file processor (continued)

Datafilling table SHADOW (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description
SETNAME		alphanumeric string of a maximum of eight characters	Set name. Enter an alphanumeric string with a maximum of eight characters. The value ALL is not acceptable.
DEVTYPE		SCSIDK	Device type. Enter SCSIDK.
PERMSCSI	SCSIBUS DEVNO	0 or 1, or 0 to 5	Permanent SCSI. This field contains two entries: SCSIBUS and DEVNO. Enter 0 or 1 to specify the SCSI bus number. Enter a number from 0 to 5 to specify the device number.
MEMSCSI	SCSIBUS DEVNO	0 or 1, or 0 to 5, and \$	Member SCSI. This field contains two entries: SCSIBUS and DEVNO. Enter 0 or 1 to specify the SCSI bus number. Enter a number from 0 to 5 to specify the device number. Enter each of the shadow set members. Terminate the MEMSCSI prompt with a \$.

Datafill example for table SHADOW

Sample datafill for table SHADOW appears in the following example.

MAP example for table SHADOW

NODETYPE	NODENO	SETNAME	DEVTYPE	MEMBERS
FP	1	SS00	SCSIDK 0 3	\$
FP	5	SS00	SCSIDK 0 0	(0 2)\$

Application processor base and file processor (continued)

Error messages for table SHADOW

The following error messages apply to table SHADOW.

Error messages for table SHADOW (Sheet 1 of 3)

Error message	Description
Given node is unequipped. Try datafilling it first.	Entry of the FP did not occur. Determine the correct node or complete the FP datafill. Try the procedure again.
Given node is OffL. Operation will be communicated to it later.	The node is offline. Action is not a requirement.
Given node is NA and not OffL. Operation will be communicated to it later.	The node is not accessible (NA). Action is not a requirement.
The setname is not unique on the given node. Try renaming.	The shadow set name is already in use. Use a different shadow set name.
The specified, device type is not shadowed on the given node.	The device type is not shadowed. Use another device type.
Perm must remain unchanged. Try changing only the other members.	The permanent shadow set member cannot change. Use another member.
A member is duplicated. Try listing each member just once.	The shadow set member enumerates two times. Use another member.
A member disk is unequipped. Try datafilling it first.	The device is not entered. Use another device or complete the device datafill.
A member is datafilled as other than a disk. Only disks can be shadowed.	The device is not a disk. Determine the correct device number. Try the procedure again.
A member already belongs to a different, shadow set.	The member is part of another shadow set. Choose another member. Try the procedure again.
A member is not OffL. Retry after offlineing it.	The shadow set member is not offline. Offline the shadow set member before you proceed.

Application processor base and file processor (continued)

Error messages for table SHADOW (Sheet 2 of 3)

Error message	Description
Messaging to or from the given node is faulty. Try later.	The FP or the FP software cannot receive messages. Wait for the message link to return to service. Try the procedure again. Check for SWERs.
Given node's mtce entity (INM) did not respond to a query on its status.	A software error occurs. Check the SWERs to determine the fault. Try the procedure again.
Software has encountered an error. Check for SWERs.	A software error occurs. Check the SWERs to determine the fault.
Software was unable to allocate data store. Try later.	Data store memory cannot be allocated. Try the procedure later.
Devices or shadow sets are undergoing maintenance on given node. Try later.	The devices or shadow sets are in a maintenance state. Wait for the devices or shadow maintenance action to finish. Try the procedure again.
Given node type is not supported.	The system does not support node type FP. Enter node type FP.
The given key is invalid.	The system does not support the key. Use another key.
The given index is invalid. The physical store might be corrupted.	The index is not correct. Contact the next level of support.
A semaphore operation has failed. Check for SWERs and TRAPs, and try later.	The semaphore fails. Check the SWERs or TRAPs to determine the fault. Try the procedure again.
Software was unable to deallocate data store. Try later.	Deallocation of the data store memory cannot occur. Try the procedure later.
Data store was free when expected to be in use. Try later.	The data store memory state was without a plan. Try the procedure later.
Device type must remain unchanged. Try changing only the members.	Changes to the device type cannot occur. Change the shadow set member.

Application processor base and file processor (continued)

Error messages for table SHADOW (Sheet 3 of 3)

Error message	Description
Software error: internal, device name was invalid. Check logs.	A software error occurs. Determine the correct device number. Contact the next level of support.
Software error: message version is incompatible.	A software error occurs. Contact the next level of support.
Given node number is invalid. Correct it and retry.	The file processor (FP) node number is not correct. Determine the correct node number. Try the procedure again.
Mailbox could not be allocated. Try later.	Mailbox was not available. Try the procedure later.
Could not get mail-transport address (MTA). Try later.	Mail transport address was not available. Try the procedure later.
Master might get deleted, thus corrupting the shadow set and databases on it!	The system can delete the master shadow set member. Do not proceed. If you must delete the master, contact the next level of support.
Software error: conversion between node number and DDM index failed.	A software error occurs. Contact the next level of support.
The node that was supposed to house the shadow set is unaware of it.	The FP does not recognize the shadow set. Contact the next level of support.
Could not access data store due to an ongoing dump. Try later.	The system dumps data store memory contents. Wait for the dump to finish. Try the procedure again.
The master has not yet been determined by consulting member disks. Beware!	A master shadow set member cannot be present. Do not make a datafill change before you return the set to service. This procedure can affect shadow set recovery. Contact the next level of support.
The setname is reserved. Try renaming.	Use a different shadow set name. The value ALL is not acceptable.

Tools for verifying translations

Application processor base and file processor do not use translation verification tools.

Application processor base and file processor (end)

SERVORD

The Application processor base and file processor does not use SERVORD.

BAS ABBT LCDCUT

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: BAS00049

Release applicability

DMS100C03 and up

Prerequisites

BAS ABBT LCDCUT has no prerequisites.

Description

The BAS Automatic Board-to-Board Testing (ABBT) Line Concentrating Device Cutover (LCDCUT) functionality performs cutover and testing procedures during the installation of new lines. Cutover is the process of transferring the end user of an existing switch to a new DMS switch. Cutover is needed when the demand exceeds the capacity of the existing switch, or to offer new technology resulting in new or enhanced features to the end users. The functionality also provides a database to store and retrieve information about the lines to be board-to-board tested (BBT) and cutoff relays to be operated.

The BAS ABBT LCDCUT functionality is part of the Automatic Line Testing (ALT) subsystem and comprises the following four features:

- Hooking BBT into ALT
- Cutting Lines under ALT
- BBT Database
- BBT under ALT

Operation

The BAS ABBT LCDCUT functionality uses several features to create maintenance and administration position (MAP) interfaces of the BBT and LCDCUT subsystems under ALT. Three new MAP levels have been added to the ALT subsystem:

- ALTBBT (for board-to-board testing)
- LCDCUT (for cutting over lines)
- BBTSUPDB (for single-line testing and directory number mapping)

BAS ABBT LCDCUT (continued)

The following example shows the ALT MAP display with the three new MAP levels.

MAP display example for ALT subsystem

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.

ALT

0 Quit_
2 Post_
3 ALTInfo_
4
5
6
7 Sdiag_
8 Diag_
9 LIT_
10 Bal_
11 CktTst_
12 BBT_
13 BBTSUPDB_
14 LCDCUT_
15
16
17
18

TESTID: Status:

 Order:
 No. of lines:
 Old Office:
 BBTOUT:

PASS FAIL N/A TOTAL

New DN: Old DN:
NEW LEN: Cut State:
BBT Status: BBT Test Result:

TEAM0

Time 11:15

Because information about both a TESTID and a single line can be displayed simultaneously, the ALT MAP display is different from other digital multiplex system (DMS) MAP displays. The display area is divided into two sections; the top half is the TESTID area, which contains information about a posted TESTID, and the bottom half is the POST area, which contains information about the line posted.

The TESTID display area shows the following information:

- either a TESTID or a single line, or both
- the global status of the TESTID
- the order of whether the set of lines defined for the TESTID is based on their directory numbers (DN) or line equipment numbers (LEN)
- the number of lines in the database for a specified TESTID
- the type of old office

BAS ABBT LCDCUT (continued)

- the information about the BBTOUT trunk
- the number of lines that have passed or failed their tests, the number of lines for which the tests were not applicable, and the total number of lines for which tests were conducted

The POST display area shows the following information:

- the new DN, old DN, and new LEN
- the state of the cut off or hold relay corresponding to the posted line
- the BBT status
- the BBT results

Hooking BBT into ALT

The Hooking BBT into ALT feature incorporates the ABBT under the ALT subsystem. The facilities provided by ALT, which are now available to the ABBT, are listed below:

- Scheduling—the new ALTBBT facilitates scheduling of tests. The end user may define a test and run it at a later date.
- Maintenance counts for failures and passes—the details of the test statistics are available to the end user. Information about the number of lines that passed or failed the test is provided.
- Log generation—failure and trouble logs are generated during the test. A summary log giving the test statistics can also be generated. These logs replace the software error (SWERR) reports previously used to indicate problems.
- MAP driven—the end user can easily enter the test information at the MAP level, replacing the command line driven software
- Retest of failed lines—the results of the test can be used to detect the faults in the lines. The end user can then correct the faults and rerun the test. Only the faulty lines are tested, replacing the tedious process of creating another file with the faulty lines that need to be tested and running the test again.

A new MAP level, ALTBBT, is added to the ALT subsystem and a database is used. This level can be accessed through the ALT MAP level.

ALTBBT menu commands

This section explains the various commands that are provided at the ALTBBT MAP level to facilitate ABBT testing. The function of each command is similar to that provided by other ALT sublevels. The following figure shows the ALTBBT MAP level display.

BAS ABBT LCDCUT (continued)**MAP display example for ALTBBT**

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.

ALTBBT

0 Quit_

2 Post_

3

4 Start_

5 Stop

6 Remove

7 Define_

8 Submit

9

10

11 DefMAN

12

13 DefSCHD_

14

15 Status_

16

17

18

TESTID: LNMTCJOHN Status: Stopped

Order: BY LEN

No. of lines: 14000

Old Office: SxS N

BBTOUT: MF 4 WK 2

	PASS	FAIL	N/A	TOTAL
	12963	235	559	13757

	Year	Month	Day	Time	Duration
Start	1993	Apr	12	04:00	24:00
Stop	1993	Apr	13	04:00	

TEAM0

Time 10:42

QUIT The QUIT command allows the end user to quit from the ALTBBT sublevel.

Note: The database allocated for a TESTID is not deallocated when the end user quits from this level. But, a QUIT from the main ALT MAP level deallocates the database allocated for a manual TESTID.

POST The POST command posts a scheduled TESTID. If the testid_name is not specified, then the test information for all existing BBT tests is displayed. Otherwise, the display area is updated with the information about the TESTID whose name has been specified. The following figure shows an example of the display area for a POST command without parameters.

BAS ABBT LCDCUT (continued)**MAP example of POST command without parameters**

TESTID	FROM	TO	Status
JOHN	613-316-4122	613-516-9999	ACTIVE
BBTST	HOST 0 0 10 00	HOST 0 1 00 00	INACTIVE
MARYBBT	613-544-2999	613-860-2345	STOPPED
LNMTCTST	613-866-2555	613-915-9999	ACTIVE
JANETST	HOST 1 0 0 00	HOST 2 0 2 00	ACTIVE

START The START command sets the posted scheduled ALTB BT test so that it is ready to run at the next scheduled time. For a manual test, the test is started immediately. The database for a BBT test is allocated when this command is entered for the first time after defining a BBT test.

The parameters for the START command specify where to start the test, the log output format (FULL or SUMMARY), and the VERIFY option, which displays the list of skipped lines for end user verification. The VERIFY option is valid only for the first time the START command is given for the TESTID.

STOP The STOP command stops a test and changes the status of the TESTID accordingly. If the status of the test is INACTIVE, it is changed to STOPPED. If the status is currently ACTIVE, it is changed to INACTIVE. Entering the STOP command again changes the status to STOPPED.

REMOVE The REMOVE command has two uses:

- It removes data associated with the posted TESTID from the database and table ALTSCHED (Automatic Line Testing Schedule).
- It terminates a BBT LCDCUT session. When the REMOVE command with the optional parameter ALL is entered, it specifies that the end user intends to terminate the BBT LCDCUT session. The system prompts for a YES or NO confirmation.

The termination of a BBT LCDCUT session is accomplished by removing all previously defined TESTIDs from table ALTSCHED, and by deallocating the memory used for the BBT database.

DEFINE The DEFINE command is used to enter information regarding the range of lines to be tested, the type of test, the scheduling time, the test order, and the BBT test set number for a TESTID. The parameters for this command are DEFINE DN or LEN and STARTTIME and STOPTIME. DEFINE DN or LEN indicates the range of lines to be tested in the DN or LEN format. STARTTIME and STOPTIME specify the date and time at which the BBT test

BAS ABBT LCDCUT (continued)

is to be started or stopped. Unlike ALT tests, BBT tests are not cyclic. The end user may post the TESTID and reschedule it if desired. This can be done as long as the test is not removed using the REMOVE command.

SUBMIT The SUBMIT command submits the defined test data for the posted scheduled TESTID into memory. When a SUBMIT command is successfully executed, table ALTSCHED is updated to include the new scheduled test. The test will not start at the scheduled time until the START command is given.

DEFMAN The DEFMAN command is used to define a manual test session. When this command is entered, ALT automatically assigns a TESTID to the test that corresponds to the current ALT sublevel. For example, the DEFMAN command entered at the ALTBBT level of MAP device number 7 is assigned a TESTID of MANUAL07.

The BBT database for the manual TESTID remains allocated only until the end user quits from the main ALT MAP level or until a REMOVE command is entered. The manual test (if present) is automatically posted whenever the ALTBBT sublevel is entered.

DEFSCHD The define schedule command is used to assign a TESTID to the scheduled BBT test.

STATUS The STATUS command displays information regarding an ALTBBT session, provided the status of the TESTID is stopped, active, or inactive. This command is equivalent to the BBT SHOW command.

The STATUS command, without option ALL, presents the information regarding a specific ALTBBT test session. If option ALL is used, the information regarding all the ALTBBT sessions is displayed. The following figure shows an example for the STATUS command with 'MYTESTID' as the parameter.

BAS ABBT LCDCUT (continued)**STATUS command with MYTESTID as the parameter**

```

TESTID: MYTESTID Test type: Class State: Active
Order:By-LEN
  From line    To line      Last line tested  no. lines
HOST 10 0 1 1  HOST 10 1 19 1  HOST 10 0 5 9    123

BBT test set used:
  1. BBTOUT: circuit 0 on TM8 3 11
      SD: group number 5 on MTM 6 10
      SC:group number 6 on MTM 1 20
      MTA: Horizontal 11, Horizontal grp 159

```

Cutting lines under ALT

The Cutting Lines under ALT feature integrates the LCDCUT program into the ALT subsystem. The LCDCUT program replaces the previous program called LMCUT and improves its functionality in two ways:

- The LCDCUT program is resident in memory.
- The LCDCUT program has a more user-friendly man-machine interface (MMI).

The LCDCUT program provides a means to cut into service blocks of lines on line concentrating modules (LCM) by groups of DN's or LEN's when commissioning a new office or adding lines. Operations are permitted on the following line concentrating devices (LCD):

- line modules (LM)
- line concentrating modules (LCM)
- international LCMs (ILCM)
- enhanced LCMs with Integrated Services Digital Network (ISDN) (LCME)
- small remote units (SRU)

LCDCUT is used to cut over or transfer in-service (InSv) lines from an existing switch to a DMS-100 switch. Before a new DMS switch is brought into service, subscriber lines, tip and ring, terminate on both the old and new switches. A cutoff (CO) relay is held in the operated state for each LEN on the switch to isolate the DMS switch, while ABBT procedures are performed to verify the subscribers' lines prior to cutover to the new DMS switch. LCDCUT ensures that only the old office provides service to the subscribers until cutover to the DMS switch is complete. ABBT ensures there is no service impact to the subscribers of either the old or new switch.

BAS ABBT LCDCUT (continued)

The LCDCUT program works with party lines and multi-line hunt groups. It also allows operation of the CO relay for single lines. Although LCDCUT is used primarily to cut over lines prior to ABBT, it also can be used to cut over lines independently of ABBT. The results of the LCDCUT command executions are output in ALT logs.

Power requirements

Operating all the CO relays in an LCM at the same time requires power that the LCM power converter cannot supply. Therefore, the CO relay can operate only a maximum of 32 lines per physical drawer and a maximum of 125 lines per LCM at a time. If these limitations are exceeded, the power converter may trip and cause outages to the InSv lines in the LCM. The LCDCUT program maintains CO relay counters to ensure these limitations are not exceeded. This limitation can be eliminated by connecting an external power supply to an LCM. The CO relay operation can then increase from 125 to 640 lines, depending on the amount of additional external power supplied to the LCM.

If the LCM drawer contains world line cards (WLC), the above restrictions do not apply because the power required to operate the CO relays on WLCs is much less than other line cards.

Each physical drawer is equipped with a HOLD relay. Operating the HOLD relay cuts off the entire physical drawer in that LCM. Power requirements to operate a HOLD relay on a drawer are much less than that required to operate all the CO relays for that drawer.

LCDCUT MAP level

The LCDCUT MAP level includes commands to operate, release, and query the CO relay for a single line or group of lines. It also contains commands to operate and release the HOLD relay for a physical drawer, and to operate the auxiliary power supply for an LCM.

The LCDCUT program uses the BBT database that is accessible by all three MAP levels. The lines to be cut off are defined under a TESTID from the ALTBBT MAP level. The LCDCUT program retrieves the lines to be cut from the BBT database. The MAP commands for the BBT database are under the BBTSUPDB (BBT Support Database) sublevel. See the heading "BBT database" for more information about the BBTSUPDB sublevel.

The end user enters the LCDCUT program by selecting the LCDCUT command from the ALT MAP level. The commands used at the LCDCUT MAP level are described in the following sections.

POST The POST command is used to post a predefined BBT TESTID. This command updates the TESTID fields on the MAP screen.

BAS ABBT LCDCUT (continued)

POSTLN The POSTLN command posts a single line from a predefined BBT TESTID. Either the DN or LEN of the line can be specified. The TESTID has to be posted prior to posting a single line from a set of lines defined in that TESTID. The single line screen fields are updated as a result of this command. The range of values are D, L, C, or U, where D posts a line specified by DN, L posts a line specified by LEN, C posts the first line for which a CO relay has been operated, and U posts the first line for which a CO relay has been released.

NEXT The NEXT command is used to post the next line from a set of lines created by the POSTLN or the MANCUT commands. Before executing this command, a POSTLN C/U or MANCUT command must be executed.

CORELAY The CORELAY command performs operations on the CO relays of the lines specified. The values OPERATE, RELEASE, and QUERY specify what action to take on the specified lines. The values OPERATE and RELEASE are followed by an L or T, where L indicates the posted single line and T indicates the lines of the posted TESTID.

If the posted TESTID (T) is specified, the end user may specify the log format using the command FULL, to generate the detailed ALT309 log, or the command SUMMARY, which generates the ALT308 summary log.

HOLDREL The HOLDREL command performs the OPERATE, RELEASE, and QUERY actions on the HOLD relay of a specified physical drawer. The QUERY action prompts for the drawer number; if not specified, all drawers in the LCD are assumed. The ALT306 log is generated when the HOLDREL command is executed.

CUTOFF The CUTOFF command operates and releases the CO relay for all LENs in a drawer. If the HOLD relay has been operated on that drawer, the CO relays are automatically released, but the connection remains. The CUTOFF command prompts for the drawer number; if not specified, all drawers in the LCD are assumed. The ALT307 log is generated when the CUTOFF command is executed.

AUXPWR The AUXPWR command allows the ADD or REMOVE actions for the auxiliary power supply to the LCM. The parameters are optional; if an ADD or REMOVE action is not specified, the LCMs that already have an auxiliary power supply are displayed.

CUTOVER The CUTOVER command releases the HOLD relay on a drawer. It also releases all the CO relays on the lines in the drawer. The HOLD relay counter, which contains the number of HOLD relays operated per LCM, is decremented for every HOLD relay successfully released. The CUTOVER

BAS ABBT LCDCUT (continued)

command prompts for the drawer number; if not specified, all drawers in the LCD are assumed. The ALT307 log is generated when the CUTOVER command is executed.

MANCUT The MANCUT command is used to perform CO relay operations without defining a TESTID from the ALTB BT MAP level. The test order can be defined by DN or by LEN. The command syntax includes parameters START and END to specify the start or end line for the range. The parameter NEW-OFFICE START specifies the new office start DN or LEN. An optional parameter, NEW-OFFICE END, specifies the new office end DN or LEN. A manual TESTID is created, for example, MANUAL14, and the first valid line in the specified range of lines is posted on the MAP screen. The CORELAY command can be used then to perform operations on the posted line.

Cutting lines with LCDCUT

The LCDCUT program can be used on a block of lines defined under a TESTID for ABBT procedures, on a single line that lies within the range specified for a TESTID, or on a range of lines defined outside of the BBT test environment. The command sequence to operate all the CO relays for lines associated with a BBT TESTID and print the results in a summary log is as follows:

>POST LCDEXAMPLE

>CORELAY OPERATE T SUMMARY PRINT

The following figure shows the LCDCUT MAP level display for cutting lines under a BBT TESTID. The TESTID, LCDEXAMPLE, has been defined for BBT testing from the ALTB BT MAP level.

BAS ABBT LCDCUT (continued)**MAP display example for LCDCUT sublevel**

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
NoSync	.	ITOC	.	1RCC	.	.	.	.	.

LCDCUT

0 Quit_
2 Post_
3
4 POSTLN_
5 Next
6
7 C0relay_
8
9 H0LDrel_
10
11 CutOff_
12
13
14 AuxPwr_
15
16 CutOver
17 ManCut_
18

TESTID: LCDEXAMPLE Status: Stopped
Order: By-DN
No. of lines: 565
Old Office: XBAR N
BBTOUT: MF 7 XD 7

PASS	FAIL	N/A	TOTAL
23	5	3	31

New DN: Old DN:
NEW LEN: Cut State:
BBT Status: BBT Test Result:

LEN	DN	Result
HOST 1 0 10 5	6138251000	Operated
HOST 1 0 10 6	6138292348	Operated
HOST 1 0 10 7	6138297571	Failed
More...		

TEAM2

Time 15:25 > C0relay OPERATE T SUMMARY PRINT

BBT database

The BBT database feature provides a database to store and retrieve information about lines to be BBT tested and cutoff relays to be operated. This database is accessible from both the BBT and LCDCUT software. The BBT database feature provides for a MAP sublevel, BBTSUPDB, under ALT. The following section describes how to create, deallocate, and access the database.

Database creation

From the BBT sublevel under the ALT MAP level, use the DEFMAN (define manual test) or DEFSCHD (define scheduled test) commands to define a manual or scheduled BBT session. In a manual BBT session the system automatically generates a TESTID. In a scheduled BBT system the end user defines the TESTID. The set of lines to be BBT tested can be specified as either a DN or LEN.

By using the DEFINE command, the end user can specify several sets of lines to be cut over. The DEFINE command also indicates the type of BBT test to be conducted on the specified set of lines. There are four types of BBT tests: BASIC, CLASS, START, and ALL.

BAS ABBT LCDCUT (continued)

BASIC The BASIC test performs continuity tests and absence of tip and ring lead reversals. The BASIC test is performed first, regardless of the test type specified in the DEFINE command line.

CLASS The CLASS test performs a BASIC test plus a class of service test. A class of service test identifies the class of the line under test in the old office and expects it to be the same in the DMS switch.

START The START test performs a BASIC test plus the START assignment (loop or ground) of the line.

ALL The ALL test first performs a BASIC test. If the BASIC test is passed, a CLASS test is performed. If the CLASS test is passed, a START test is performed.

Once the set of lines is specified against a TESTID, a START command must be issued to create the database for all the lines, out of the set of lines specified, for which the datafilling is appropriate for conducting a BBT session.

Database deallocation

In a manual BBT session, the TESTID is deassigned once the end user quits the ALT session. In a scheduled BBT test, the end user can remove a TESTID by using the REMOVE command in the BBT menu.

Database access

The database can be accessed internally through the BBT, LCDCUT, or BBTSUPDB MAP levels.

The BBTSUPDB MAP level includes commands to post a predefined TESTID, post a single line or a set of lines, run a specified BBT test on the lines posted, and generate reports. The commands for the BBTSUPDB MAP level are described below.

POST The POST command posts a predefined TESTID. The command updates the TESTID fields on the MAP screen.

POSTLN The POSTLN command posts a single line from a predefined BBT TESTID. Either the DN or LEN of the line can be specified. The TESTID has to be posted prior to posting a single line from a set of lines defined in that TESTID. The single line screen fields are updated as a result of this command. The range of values are D, L, F, or U, where D posts a line specified by DN, L posts a line specified by LEN, F indicates that a set of BBT failed lines be created, and U causes a set of untested lines to be created.

BAS ABBT LCDCUT (continued)

RUNTST The RUNTST command runs a specified BBT test on the single line posted by the POSTLN command. The RUNTST test types are described under the heading "Database creation." The suspension conditions for this command are SCAN and RELAY. SCAN suspends a single line test each time a scan point is monitored. RELAY suspends testing each time a relay is operated or released in the ABBT test unit. Test process suspension and resumption allows the end user to stop the test and resume it after correcting faults.

NEXT The NEXT command posts the next line in the set of lines created by the POSTLN command.

GENREP The GENREP command generates reports regarding the posted TESTID lines in one of the following formats:

- FULL - shows the status of every line in the database or a TESTID defined with multiple ranges by DNs
- SUMMARY - shows a summary of the TESTID defined

MAPDN The MAPDN command maps an old office DN to a line in the new office.

CONTINUE The CONTINUE command continues execution subsequent to the suspension of a single-line test.

The following figure shows an example of the display area of BBTSUPDB when the end user issues the POST command.

BAS ABBT LCDCUT (continued)**MAP example of the BBTSUPDB using the POST command**

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.

BBTSUPDB
0 Quit_
2 Post_
3
4 POSTLN_
5 NEXT
6
7 GenRep_
8
9
10
11
12 MapDN
13
14 RunTST_
15 Continue
16
17
18

TESTID: MYTESTID

Status: Stopped
Order: by LEN
No. of lines: 560
Old Office: SxS N
BBTOUT: MF 4 WK 2

	PASS	FAIL	N/A	TOTAL
	123	45	6	174

New DN:
NEW LEN:
BBT Status:

Old DN:
Cut State:
BBT Test Result:

TEAM0

Time 11:15

BBT under ALT

The BBT under ALT feature preserves the main BBT functionality of detecting cutover wiring- and line-assignment errors on subscriber lines, but adds the following capabilities to the BBT functionality:

- accommodating the future addition of support for new peripheral modules, line cards, additional old office types, and new features
- accommodating the addition of different BBT support hardware
- adding real-time test-status reporting for single-line testing

BAS ABBT LCDCUT (continued)

Preconditions

The following conditions must be met before performing ABBT:

- DMS-100 line circuits must be in the cutoff state.

Note: DMS-100 line circuits are put into the cutoff state by using the ALT LCDCUT functionality and by inserting ground straps in the drawers of the DMS-100 switch.

- All old- and new-office testing must be suspended to prevent metallic test access (MTA) contention.
- DMS-100 peripherals and line cards must be InSv and awaiting cutover.
- Cross-connection jumpers must be installed at the main distribution frame (MDF).
- ABBT hardware must be functioning properly.

Environment

ABBT performs as an application of the ALT subsystem. ABBT is activated by the ALTTSTER process of the ALT subsystem. ALTTSTER receives test requests from either ALTCLI or ALTDIVR, which are both processes in ALT.

Tests can be either scheduled in advance or requested for manual testing. When the requested time for a scheduled test arrives, the test is automatically activated. The lines to be tested are passed to ABBT by ALTTSTER one at a time. Each line is fully tested and the test result is returned to ALTTSTER before the next line is passed to ABBT for testing. This process is repeated until all of the lines scheduled for testing have been processed.

Manual testing permits debugging of a single line in detail. As a part of this single-line test mode, the BBT status field is updated to report the progress of the test on the line. This status is passed by ABBT to the ALTTSTER process for display at the MAP terminal.

Translations table flow

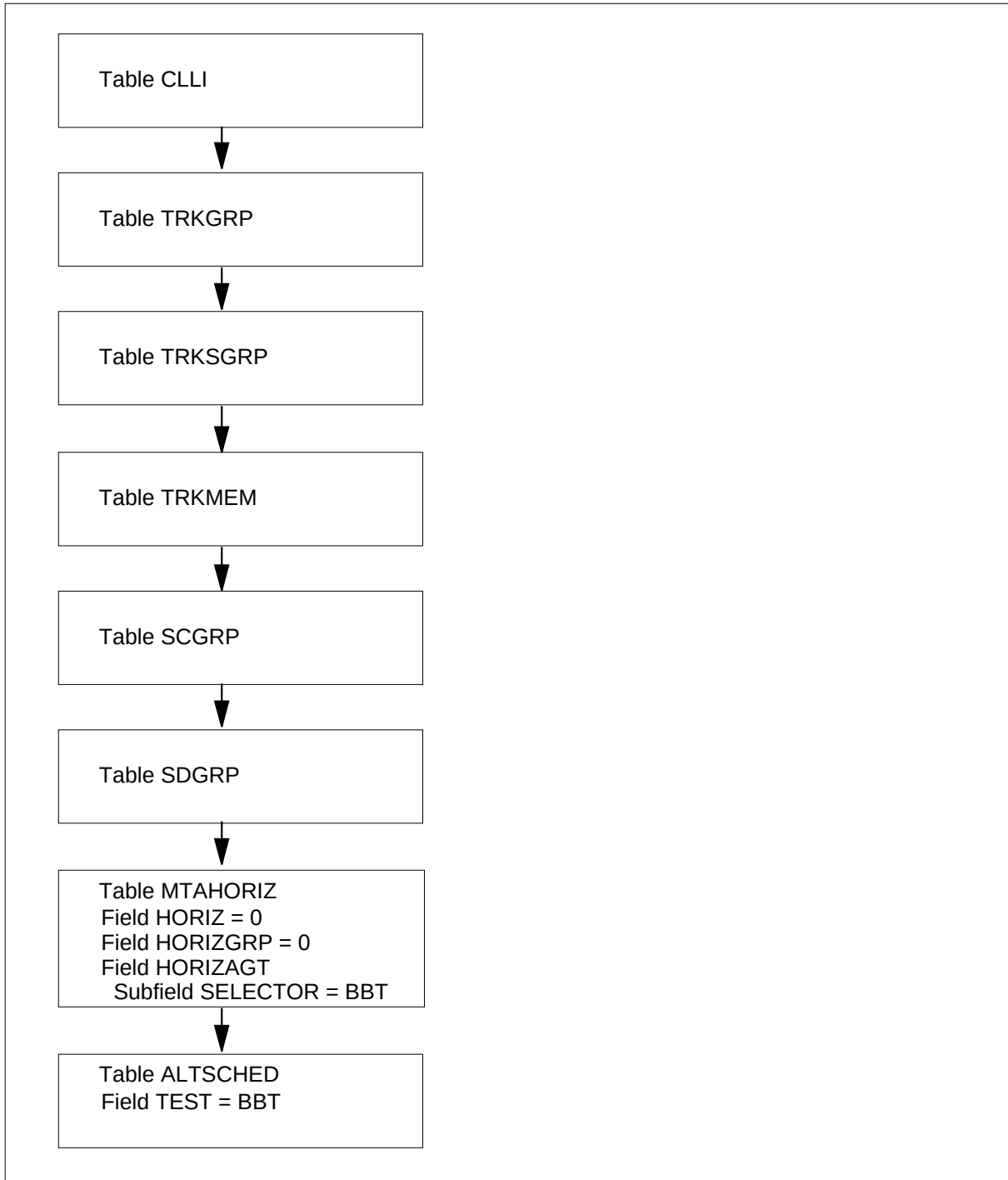
The BAS ABBT LCDCUT translations tables are described in the following list. Tables CLLI, TRKGRP, TRKSGRP, TRKMEM have new tuples added to present the BBTOUT trunk information. The BBTOUT trunk connects the BBT test unit to the old office.

- Table CLLI (Common Language Location Identifier) provides codes that uniquely identify the far end of each announcement, tone, or trunk group.
- Table TRKGRP (Trunk Group) contains customer-defined data associated with each trunk group that exists in the switching unit.

BAS ABBT LCDCUT (continued)

- Table TRKSGRP (Trunk Subgroup) lists the supplementary information for each subgroup that is assigned to one of the trunk groups listed in table TRKGRP.
- Table TRKMEM (Trunk Member) lists the data for each trunk specified in tables TRKGRP and TRKSGRP.
- Table SCGRP (Scan Group) lists the product engineering code (PEC) and the physical location at the host or remote switch units for the scan groups that are reserved for use as scan points for line features. A new tuple is added to present the new scan (SC) points available to the BBT test unit.
- Table SDGRP (Signal Distributor Group) lists the PEC and the physical location at the host or remote switching units for the signal distributor (SD) groups that are reserved for use as SD points for line features. A new tuple is added to present the new signal distributor (SD) points available to the BBT test unit.
- Table MTAHORIZ (Metallic Test Access Horizontal Connection) lists the assignment of horizontal agents, line test units (LTU), metallic (or multi-line) test units (MTU), operator verification, metallic jacks (MJACK), incoming test access trunks, extended metallic test access and short circuits to a horizontal connection and horizontal group of metallic test access minibars (MTAM). Table MTAHORIZ also provides information about the ABBT test set and the old office.
- Table ALTSCHED (Automatic Line Testing Schedule) contains the defined schedules for ALT procedures. ALT allows the testing of a number of subscriber lines without manual intervention once the tests are defined and started. Table ALTSCHED also allows scheduling for ABBT.

The BAS ABBT LCDCUT translation process is shown in the flowchart that follows.

BAS ABBT LCDCUT (continued)**Table flow for BAS ABBT LCDCUT**

BAS ABBT LCDCUT (continued)

The following table lists the datafill content used in the flowchart.

Datafill example for BAS ABBT LCDCUT

Datafill table	Example data
CLLI	BBTOUT 21 10 OUTPUTSING_TRUNK_FOR_ABBT
TRKGRP	BBTOUT TO 0 NPDGP NCRT NIL LIDL 7 N (CHGNUM) \$
TRKSGRP	BBTOUT 0 2X83AA STD OG MF WK 7 0 NO NO N N N 70 UNEQ
TRKMEM	BBTOUT 0 0 TM8 0 0
SCGRP	0 MTM 4 0 0X10AA
SDGRP	0 MTM 4 2 2X57AA
MTAHORIZ	3 159 BBT 0 BBTOUT 0 8 0 0 A 12 DMS Y 7 YES 24 4 (6 3) \$
ALTSCHED	KNTEST N BBT START BY_DN 6213000 6213002 6215000 2 1994 9 9 9 9 CMAP17 N FULL

Limitations and restrictions

This section explains the limitations and restrictions for each feature in the BAS ABBT LCDCUT functionality.

BBT under ALT

The following limitations and restrictions apply to the BBT under ALT feature:

- The stream concept does not apply to ABBT. Multiple BBTs are facilitated by having many TESTIDs.
- Test unit restrictions present in the old BBT, which is being replaced by ABBT, also apply to ABBT. For example, ABBT does not support ISDN lines.
- Party test cannot be performed on step-by-step (SxS) and NX1D switch offices.
- Start test cannot be performed on #5 crossbar switch (XBAR) offices.
- The STATUS command is valid only on already defined and started TESTIDs.
- The OVERRIDE command is not applicable to ALTBBT tests.
- The verify option in the START command is applicable only for the first time after defining the BBT test. Subsequent entry of the START command for the same TESTID is not valid.

BAS ABBT LCDCUT (continued)

- The end user must associate a test set with a TESTID.
- There is no dynamic allocation of test sets to the range of lines in a TESTID.
- The test order cannot be set by LENS when new office DNs differ from old office DNs.
- The test order cannot be set by LEN when optimized outpulsing is used.
- Extension tests, as presently defined in other ALT applications, are not applicable to ALTBTT.
- The BBT tests are run at the scheduled time. They are not cyclic in nature, unlike ALT tests.
- Only one ABBT can be executed at a time for a given remote concentrator SLC-96 (RCS) or remote carrier urban (RCU) module or group of these modules that share the same MTA vertical.

LCDCUT

The following limitations and restrictions apply to LCDCUT:

- To prevent power consumption problems, the number of lines with their CO relays activated by LCDCUT commands is monitored. No more than 32 lines per physical drawer and 125 lines per LCM can be activated at the same time unless auxiliary power is supplied.
- Use only LCDCUT commands to operate the CO relays. Commands outside the LCDCUT program, which activate and do not subsequently release the CO relays, should not be used while cutover is in progress. This is because CO relay activations are not monitored outside the LCDCUT program; therefore, the number of lines that have their CO relays activated may exceed the limit.
- Before entering the LCDCUT program, all CO relays should be in the released state. If a line has its CO relay operated before entering the LCDCUT program, this line is not accounted for in the total count of CO relays that can be operated at the same time.

BBT database

The following limitations and restrictions apply to the BBT database:

- Do not datafill new lines in the interval between the issue of the start command and the beginning of the BBT session. If new lines are defined

BAS ABBT LCDCUT (continued)

in this interval, the new line is not tested because there is no entry corresponding to this record in the database.

- Do not delete the datafill of a line scheduled to be tested. Deleting the datafill for a line causes the database record to exist, but no test to be performed on this line.
- Do not change the datafill for the card code or line type. Changing the card code causes the BBT software to skip the line and, therefore, the line is not tested. Changing the line type datafill shows the line as not having an entry in the database, so the line is not tested.

Interactions

The following paragraphs describe the interactions between BAS ABBT LCDCUT and other functionalities. The BAS ABBT LCDCUT functionality makes the BBT program a part of the ALT subsystem, so there are numerous interactions with the existing ALT subsystem.

BBT and BBT database interactions

The LCDCUT program and the ALTTSTER processes, which create test processes for ALT, use the database created in BAS ABBT LCDCUT. The database is used to store and retrieve information about lines to be BBT tested and CO relays to be operated.

ALTTSTER passes lines, in the form of messages, one at a time to ABBT for testing. Once the passed line has been tested, ABBT passes the status of the test under ABBT test result, in the form of a message, back to ALTTSTER. This process is repeated until all of the lines in the requested test have been processed.

The ALT scheduler (ALTSCHED) schedules the BBT tests, while the display process (ALTDISP) handles the display of the ALTBBT MAP sublevel.

LCDCUT interactions

LCDCUT has interactions with other functionalities that also activate and release CO relays. These CO relay operations are not taken into account by the LCDCUT CO relay counters. Therefore, the CO relay counters are not updated to reflect any of these CO relay operations to limit the number of lines that can have their CO relays operated at one time (32 lines per physical drawer

BAS ABBT LCDCUT (continued)

and 125 lines per LCM). These interactions impact the LCDCUT program as follows:

- ALT should not be run while the LCDCUT cutover is in progress because ALT activates and releases the CO relays.
- The LCO command at the Line Test Position (LTP) level of the MAP display should not be used while LCDCUT cutover is in progress since this command operates and releases the CO relays.
- Although the silent switchman (SSMAN) test operates and releases the CO relays, it is not considered a problem to execute SSMAN tests while LCDCUT cutover is in progress due to the transitory nature of the SSMAN test.
- Although the cutoff on disconnect (COD) feature operates and releases the CO relays, it is not considered a problem to execute COD functions while LCDCUT cutover is in progress due to the transitory nature of the COD feature.

Activation/deactivation by the end user

BAS ABBT LCDCUT requires no activation or deactivation by the end user.

Billing

BAS ABBT LCDCUT does not affect billing.

Station Message Detail Recording

BAS ABBT LCDCUT does not affect Station Message Detail Recording.

Datafilling office parameters

BAS ABBT LCDCUT does not affect office parameters.

Datafill sequence

The following table list the tables that require datafill to implement BAS ABBT LCDCUT. The table are listed in the order in which they are to be datafilled.

Datafill tables required for BAS ABBT LCDCUT (Sheet 1 of 2)

Table	Purpose of table
CLLI	Common Language Location Identifier. This table provides codes that uniquely identify the far end of each announcement, tone, or trunk group.
TRKGRP	Trunk Group. This table contains customer-defined data associated with each trunk group that exists in the switching unit.

BAS ABBT LCDCUT (continued)**Datafill tables required for BAS ABBT LCDCUT (Sheet 2 of 2)**

Table	Purpose of table
TRKSGRP	Trunk Subgroup. This table lists the supplementary information for each subgroup that is assigned to one of the trunk groups listed in table TRKGRP.
TRKMEM	Trunk Member. This table lists the data for each trunk specified in tables TRKGRP and TRKSGRP.
SCGRP	Scan Group. This table lists the PEC and the physical location at the host or remote switch units for the scan groups that are reserved for use as scan points for line features.
SDGRP	Signal Distributor Group. This table lists the PEC and the physical location at the host or remote switching units for the signal distributor (SD) groups that are reserved for use as SD points for line features.
MTAHORIZ	Metallic Test Access Horizontal Connection. This table lists the assignment of horizontal agents, LTUs, MTUs, operator verification, metallic jacks (MJACK), incoming test access trunks, extended metallic test access and short circuits to a horizontal connection and horizontal group of metallic test access minibars (MTAM). Table MTAHORIZ also provides information about the ABBT hardware and the old office.
ALTSCHED	Automatic Line Testing Schedule. This table contains the defined schedules for ALT procedures. ALT allows the testing of a number of subscriber lines without manual intervention once the tests are defined and started. Table ALTSCHED also accomodates scheduling for ABBT.

Datafilling table MTAHORIZ

The following table shows the datafill specific to BAS ABBT LCDCUT for table MTAHORIZ. This table contains tuples defining the MTA horizontal connections for each BBT test unit. The table control of this table is extended

BAS ABBT LCDCUT (continued)

to accept more information about a BBT test set and the old office. Only those fields that apply directly to BAS ABBT LCDCUT are shown.

Datafilling table MTAHORIZ (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
HORIZ		0 to 127	MTA horizontal. This field specifies the MTA horizontal connection to which the BBT test unit is connected.
HORIZGRP		0 to 159	MTA horizontal group. This field specifies the horizontal group number that identifies the horizontal and its horizontal agent (BBT test unit) as a unique tuple.
HORIZAGT		see subfields	Horizontal agent. This field comprises several subfields that depend on the value of SELECTOR used.
	SELECTOR	B, BBT, E, J, L, LA, MJ, NT1, S, and T	Selector. This subfield specifies the format of the data for different horizontal agents. In case of a BBT test unit, the selector value must be BBT.
	BBTNR	0 to 7	BBT number. This is the ABBT set number.
	CLLI_NAME	alphanumeric	Common language location identifier. This subfield specifies the CLLI name of the BBT outgoing trunk.
	EXTRKNM	0 to 9999	External trunk number. This subfield specifies the external trunk number assigned in table TRKMEM to the BBT outgoing trunk.
	PREDIAL_DELAY	0 to 300	Predial delay. This subfield specifies the time in hundreds of milliseconds between sending an off-hook by the DMS switch on the no-test trunk to the old office and outpulsing of digits on that trunk. For example, an input of 2 gives a delay of 200 ms.
	SDMEM	0 to 511	Signal distribution member. This subfield specifies the group number associated with the primary SD circuit of an NT2X57 card connected to this BBT test unit previously datafilled in table SDGRP.

BAS ABBT LCDCUT (continued)

Datafilling table MTAHORIZ (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	SCMEM	0 to 511	Scan detector member. This subfield specifies the group number associated with the primary SC circuit of a NT0X10 card connected to this BBT test unit previously datafilled in table SCGRP.
	DISC_RELAY	A, K	Disc relay. This subfield specifies the relay in the NT5X73AB BBT test unit which, when operated, disconnects the BBT test unit from the old office. The default is the A relay.
	DISC_TIME	1 to 300	Disc time. This subfield specifies the time in 100-ms increments required for the old office to properly release once a disconnect signal has been received from the DMS switch.
	OFFICE TYPE	SxS, XBAR, ESS, DMS, and OTHER	Office type. This subfield specifies the information required by the BBT software to communicate with the old office. The old offices are categorized as SxS, XBAR, ESS, DMS, and OTHER.
	OPTIMIZE_OUTPUTS-ING	Y or N	Optimized outpulsing. This subfield specifies if the old office uses optimized outpulsing. This subfield is displayed only for SxS offices.
	DIGSOUT	0 to 18	Digit number. This subfield specifies the number of digits that must be outpulsed by the DMS switch to connect to a line in the old office.
	AT_HOST	YES or NO	At host. This subfield specifies if the ABBT test unit is located at the host site.
	RELAY_DELAY	0 to 100	Relay delay. This subfield specifies the time in 100-ms increments for a signal output from an SD point of the host DMS switch to travel to the BBT test unit located at a remote site and operate a relay in the BBT test unit. For example, an input of 2 specifies a delay of 200 ms. The prompt appears only if the BBT test unit is located at a remote site (AT_HOST=NO).

BAS ABBT LCDCUT (continued)**Datafilling table MTAHORIZ (Sheet 3 of 3)**

Field	Subfield or refinement	Entry	Explanation and action
MTAGRP	SCAN_DELAY	0 to 10	Scan delay. This subfield specifies the time in 100-ms increments for a signal generated by an ABBT test unit located at a remote site to travel to a SCAN point of the host DMS switch and be read. For example, an input of 2 specifies a delay of 200 ms. The prompt appears only if the ABBT test unit is located at a remote site (AT_HOST=NO).
	VERT	0 to 639	Vertical. This subfield is the starting vertical number on the MTA driver.
	NBRVERTS	0 to 640	Number verticals. This subfield is the number of verticals for the MTA driver.
		see subfields	Metallic test access group. This field consists of a list of MTA drivers that multiple to the test equipment and is a vector of up to 32 multiples of subfields METAMEM and HORIZ. If less than 32 multiples are required, end the list with a \$ (dollar sign).
	MTAMEM	0 to 511	Metallic test access minibar driver member. This subfield specifies the minibar (MTAM) driver member number to which the horizontal connection is connected.
	HORIZ	0 to 127	MTA horizontal. This read-only subfield specifies the MTA horizontal connection to which the BBT test unit is connected. Enter 0 (zero) to satisfy table control. Any entry outside the range indicated for this field is invalid.

Datafill example for table MTAHORIZ

The following example shows sample datafill for table MTAHORIZ.

BAS ABBT LCDCUT (continued)**MAP display example for table MTAHORIZ**

HORIZ	HORIZGRP	HORIZAGT										MTAGRP
3	159	BBT	0	BBTOUT	0	8	0	0	A	12		
		DMS	Y	7	YES	24	4	(	6	3	)	\$

Datafilling table ALTSCHED

The following table shows the datafill specific to BAS ABBT LCDCUT for table ALTSCHED. This table contains the information for a scheduled test. Only those fields that apply directly to BAS ABBT LCDCUT are shown.

Datafilling table ALTSCHED (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
ALTTSTID		alphanumeric (6 to 12 characters)	Automatic line test identifier. This field identifies a unique test. The first character must be alphabetic and the first six characters cannot be MANUAL.
TESTDEF		see subfield	Test definition. This field consists of subfield EXTTST and refinements PRMTSTID and PRIMDEF which define the automatic line testing (ALT) test boundary conditions.
	EXTTST	Y or N	Extension test. The entry in this field indicates whether this test is an extension of the times that a previously defined test can run. Y (yes) indicates that the test is an extension and uses datafill refinement PRMTSTID. N (no) indicates that the test is not an extension and uses datafill refinement PRIMDEF. BAS ABBT LCDCUT indicates N.
	PRIMDEF	see subfields	Primary definition. This field consists of subfields TEST, LINETYPE, STARTLEN, and ENDLEN. Subfield PRIMDEF is used when EXTTST=N. Subfield TEST is used for BAS ABBT LCDCUT.

BAS ABBT LCDCUT (continued)

Datafilling table ALTSCHED (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	TEST	BAL, BBT, CKTTST, DIAG, LIT, or SDIAG	Test type. This subfield specifies the ALT test type. The test type BBT is added and is used as a table control selector for board-to-board testing.
	TEST_TYPE	BASIC, START, CLASS, or ALL	Test type. This subfield specifies the type of test to be run on the lines of the TESTID. The options are: BASIC to test for continuity, absence of tip and ring lead reversals; START to perform a BASIC test plus the START assignment on the line; CLASS to perform a BASIC test plus a class of service test; and ALL to perform all three tests providing each test is successfully completed before proceeding to the next test.
	TEST_ORDER	BY_DN or BY_LEN	Test order. This subfield defines the list of lines to be tested by DN or LEN.
	STARTLINE	numeric	This subfield defines the first line in the block of lines to begin testing. For example, the start DN of a range of DNs to be tested in the new office.
	ENDLINE	numeric	This subfield is the end DN of the range of DNs to be tested in the new office. The test restarts after this end line has been tested.
	STARTLINE_OLD_OFFICE	numeric	This subfield is the starting DN of a range of DNs to be tested in the old office. This DN is incremented by one each time a DN in the new office is tested. This continues until the range specified for new start DN and new end DN is reached.
	BBT_SET_NUMBER	numeric	This subfield is the number of the ABBT test unit performing the types of tests to be specified.
	BBT_TEST_TIME	alphanumeric	This subfield contains the vectors STARTIME and STOPTIME. Each vector consists of the year, month, day, hour, and minute.
	YEAR	1993 to 9999	Year to start or stop test. This subfield specifies the year to start or stop the test.
	MONTH	1 to12	Month to start or stop test. This subfield specifies the month to start or stop the test.

BAS ABBT LCDCUT (continued)**Datafilling table ALTSCHED (Sheet 3 of 3)**

Field	Subfield or refinement	Entry	Explanation and action
	DAY	1 to 31	Day to start or stop test. This subfield specifies the date when the test should start or stop.
	HOUR	00 to 23	Hour to start or stop test. This field specifies the hour of the day when the test should start or stop.
	MINUTE	00 to 59	Minute to start or stop test. This field specifies the minute of the hour when the test should start or stop.
USERID		alphanumeric (1 to 16 characters)	User identification. This field specifies the ID of the user who defined or last modified the table. The user ID, last used to update the tuple on the ACTIVE side remains in this field, not the user on the INACTIVE side. The default value is X.
STARTED		N or Y	Started. This field specifies whether the scheduler is allowed to start the test at the next time slot.
LOGFORM		SUMMARY or FULL	Log format. This field specifies which type of ALT logs to print at the completion of testing. Enter FULL for the long format of the logs. Enter SUMMARY for the short format of the logs.

Datafill example for table ALTSCHED

The following example shows sample datafill for table ALTSCHED.

MAP display example for table ALTSCHED

ALTTSTID					TESTDEF			
USERID		STARTED		LOGFORM				
KNTEST	N	BBT	START	BY_DN	6213000	6213002	6215000	2
1994	9	9	9	9				
CMAP17			N	FULL				

Translation verification tools

BAS ABBT LCDCUT does not use translation verification tools.

BAS ABBT LCDCUT (end)

SERVORD

BAS ABBT LCDCUT does not use SERVORD.

BAS Enhanced Permanent Signal

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: BAS00041

Release applicability

DMS100C03 and later versions

Requirements

The BAS Enhanced Permanent Signal does not have requirements.

Description

The BAS Enhanced Permanent Signal (EPS) allows the DMS switch to identify the conditions that cause a permanent signal condition. These conditions can be a ring-to-ground line fault, a hazardous voltage or a receiver off-hook (ROH) condition. The DMS switch generates a log message that corresponds to the type of fault condition. The generation of logs depends on the results of the diagnostics that switch the performs on the defective line.

Operation

Background

When a telephone is off-hook the DMS switch does not receive the total number of dialed digits in a specified time period. A partial dial condition is present. If the switch does not receive digits in a specified time period, the line is in a permanent signal condition. When one of these conditions is present, the DMS switch transmits messages and howler tones across the subscriber line. If the line remains off-hook, the line is in the lock-out state. The DMS switch performs a lock-out procedure to limit the switching resources required to continue support of the off-hook line. Lock-out state is another name for permanent lockout (PLO).

During a permanent signal or partial dial condition, the switch issues line logs. The system issues line logs after the switch transmits messages and howler tones. The system does not issue a line log if the subscriber hangs up after the subscriber the messages or howler tones.

The switch analyzes PLO lines for hazardous conditions. Hazardous conditions are unsafe voltage or leakage resistance on the line cards in the DMS switch.

BAS Enhanced Permanent Signal (continued)

Feature implementation

The BAS Enhanced Permanent Signal incorporates ring-to-ground line fault detection with identification of ROH line and hazardous voltage conditions. The system generates a log message.

If a subscriber has an off-hook telephone, a permanent signal or partial dial condition can result. The DMS switch requests a switch line card diagnostic test *after* the switch transmits permanent signal messages and tones. The DMS switch submits the line. The provisioned test head, that uses current DMS switch line card diagnostics, tests the line. The switch generates a log message that identifies the line fault condition. The fault conditions are permanent signal, hazardous voltage or ring-to-ground fault. The diagnostic results determine the type of log message the switch must produce.

The measurement levels that determine the line fault condition that occurs appear in the following table.

Measurement levels for line fault conditions table

Line fault condition	Measurement level
Permanent signal	< +60V dc or > -60V dc, and < 20V rms, and > 750 ohms ring/ground
Hazardous voltage	+60V dc or £ 60V dc, or 20V rms, or £ 220 ohms tip/ground or ring/ground
Ring-to-ground fault	< +60V dc or > -60V dc, and < 20V rms, and £ 750 ohms ring/ground

A periodic audit runs the line hazard test on the defective line. A defective line is a line with ring-to-ground faults and hazardous voltage conditions. The audit checks if the fault condition clears. If the line is free of fault, the line returns to service. If the fault condition remains, the switch performs diagnostic tests to determine the cause of the fault. The number of defective lines determines the time interval between audits. See the following table.

Line hazard interval audit (Sheet 1 of 2)

Number of defective lines	Length of interval (in minutes)
5	5
30	30

BAS Enhanced Permanent Signal (continued)**Line hazard interval audit (Sheet 2 of 2)**

Number of defective lines	Length of interval (in minutes)
100	120
>100	1440

After the switch analyzes the results of the diagnostic test, the DMS switch vectors to one of the processes. The processes appear in the following table.

Line fault detection processing table (Sheet 1 of 2)

Line fault condition	Line fault detection processes
Hazardous voltage	When the DMS switch detects a hazardous voltage condition, the switch performs the following actions: • operates the line card cut-off relay • places the line in a hazardous (HAZ) line state • generates a major alarm. The alarm HZD appears under the DMS switch maintenance level of the MAP terminal position. • generates a line 132 log message • increases the LINEHAZ Operational measurement (OM) group - HAZDET register • tests the line again to check if the hazardous voltage condition clears. The switch checks the line every 5 min. The interval can be longer if the number of lines with the hazardous voltage condition is greater. When the hazardous voltage condition clears, the cut-off relay deactivates. Deactivation allows the line card to return to operation. The line returns to IDLe state. • generates a line 133 log message • increases the HAZCLR register

BAS Enhanced Permanent Signal (continued)

Line fault detection processing table (Sheet 2 of 2)

Line fault condition	Line fault detection processes
Permanent signal	When the DMS switch detects a permanent signal (ROH) condition, the switch performs the following actions: • generates a permanent signal log message • places the line in a PLO state • returns the line to an IDLe state when ROH clears
Ring-to-ground fault (Note)	When the DMS switch detects a ring-to-ground fault condition, the switch performs the following actions: • generates a line 134 log message • places the line in a PLO state • tests the line again to check if the ring-to-ground condition clears. The switch checks the line every 5 min. The interval can be longer if the number of lines with the ring-to-ground condition is greater. The line returns to IDLe state. • generates a line 135 log message Note: The BAS Enhanced Permanent Signal adds line fault detection for this fault condition.

The BAS Enhanced Permanent Signal functions with the other DMS switch line maintenance functionalities. You can enable or disable functionality for the office or for specified lines. To enable or disable functionality, you must enter office parameter LINE_CARD_MONITOR in table OFCVAR (Variable Office Parameter). You can use SERVORD to deactivate EPS for a specified line. You use SERVORD to add the line option NHT (No Hazard Test) to the following tables:

- LENLINES (Line Assignment)
- IBNLINES (IBN Line Assignment)

Logs

The DMS switch generates a log message that identifies the line fault condition. The results of the diagnostic tests determine the log message that the switch must generate. The line fault conditions are permanent signal, hazardous voltage or ring-to-ground fault. Operating company personnel can configure the log outputs so that the system transmits the outputs. The system transmits the outputs through the automatic line testing (ALT) port of the DMS switch.

BAS Enhanced Permanent Signal (continued)

The BAS Enhanced Permanent Signal introduces LINE log 134 and LINE log 135. The switch generates LINE log 134 when a line encounters a ring-to-ground condition. The switch generates LINE log 135 when the system notifies software that a ring-to-ground condition clears.

Fault conditions that affect this functionality can generate LINE logs 105, 106, 108, 132 and 133. Possible fault conditions are permanent signal or partial dial conditions, and hazardous voltage conditions. Refer to the *Log Report Reference Manual* for additional information about logs.

Hardware information

The BAS Enhanced Permanent Signal operates on a DMS-100 SuperNode and the DMS-100 remotes. These remotes link the DMS host switch with metallic test access to the test heads. The test heads provide secondary test results.

The Northern Telecom line cards that are compatible with EPS appear in the following table.

Compatible Northern Telecom line cards

Product engineering code	Line card type
NT2X17	Type A North American Domestic
NT2X18	Type B North American Domestic
NT6X17AC	Type A North American Domestic
NT6X18AA and AB	Type B North American Domestic
NT6X19	Message Waiting Line Card
NT6X17BA	Type A World Line Card
NT6X18BA	Type B World Line Card

Operational measurements

When BAS Enhanced Permanent Signal detects a hazardous condition, the HAZDET register in operational measurement group LINEHAZ increases.

The DMS switch performs a periodic internal audit on the lines in the hazardous line state. As the hazardous line faults clear, the DMS switch performs the following steps:

- releases the cut-off relay of the line
- generates a LINE 133 log message that announces that the fault condition clears

BAS Enhanced Permanent Signal (continued)

- increases the HAZCLR register during the next scan cycle. This increase occurs approximately every 100 s.
- updates the alarm conditions
- places the line in the DMS switch shower queue to run line card diagnostics on the defective line. If the line is free of fault, the line returns to service.

Translations table flow

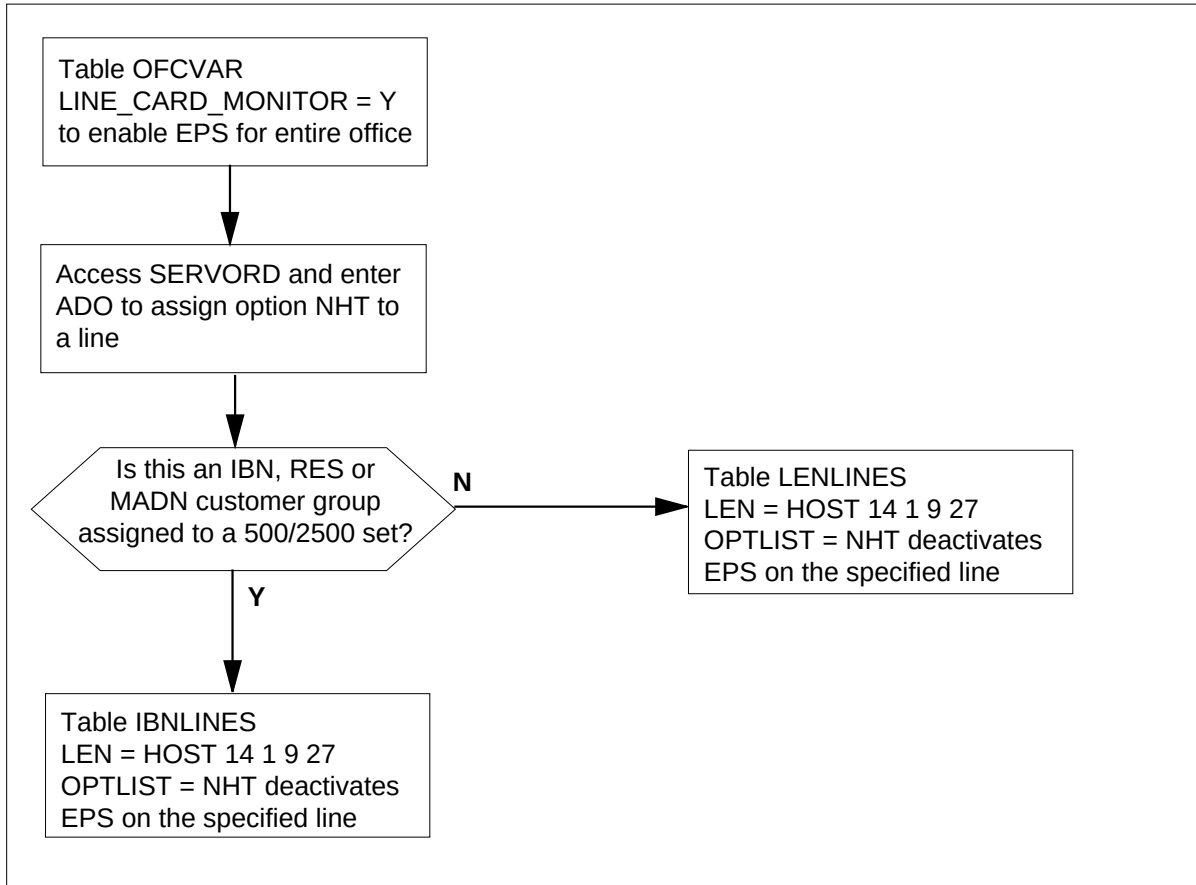
Descriptions of the BAS Enhanced Permanent Signal translations tables appear in the following list:

- Table OFCVAR lists the office parameters. The operating company defines these values. You can use table editor to change these values.
- Table LENLINES contains the line assignments and options assigned to a line. Assignment of option NHT disables the line. The switch cannot test the line for a line fault condition.
- Table IBNLINES contains the line assignments for 500/2500 sets. These sets are assigned to an Integrated Business Network (IBN), residential (RES), and a multiple appearance directory number (MADN) station number.

The BAS Enhanced Permanent Signal translation process appears in the following flowchart.

BAS Enhanced Permanent Signal (continued)

Table flow for BAS Enhanced Permanent Signal



The datafill content used in the flowchart appears in the following table.

Datafill example for BAS Enhanced Permanent Signal

Datafill table	Example data
LENLINES	HOST 14 1 9 27 S 4 5550183 DT100 (NHT) \$
IBNLINES	HOST 14 1 9 27 4 DT STN RES 5550183 100 (NHT) \$

Limits

The following limits apply to BAS Enhanced Permanent Signal:

- The Local Feature 1 is a requirement for BAS Enhanced Permanent Signal.
- BAS Enhanced Permanent Signal does not operate with the following:
 - access node line cards
 - Meridian business set (MBS)

BAS Enhanced Permanent Signal (continued)

- integrates services digital network (ISDN) line cards
- another line card that does not appear in Compatible Northern Telecom line cards table
- BAS Enhanced Permanent Signal does not support lines serviced from a digital loop carrier (DLC).
- The alternating current (AC) and direct current (DC) voltages and resistance thresholds cannot change.
- The BAS Enhanced Permanent Signal does not link to a specified subscriber service. The BAS Enhanced Permanent Signal links to conditions of the metallic facility. This functionality operates with each metallic facility. The functionality does not depend on the service that rides on the facility.
- To prevent a power convert failure, you can activate 32 lines for each line concentrating module (LCM). The user can activate the lines to a maximum of 125 of the 640 available line card cut-off relays.
- When a user activates or deactivates office parameter LINE_CARD_MONITOR in table OFCVAR, EPS continues to operate in the set mode. The EPS operates even after a DMS switch cold restart.

Interactions

The BAS Enhanced Permanent Signal does not have functionality interactions.

Activation/deactivation by the end user

The BAS Enhanced Permanent Signal does not require activation or deactivation by the end user.

Billing

The BAS Enhanced Permanent Signal does not affect billing.

Station Message Detail Recording

The BAS Enhanced Permanent Signal does not affect Station Message Detail Recording.

BAS Enhanced Permanent Signal (continued)

Datafilling office parameters

The office parameters that the BAS Enhanced Permanent Signal uses appear in the following table. Refer to *Office Parameters Reference Manual* for additional information about office parameters.

Office parameters by BAS Enhanced Permanent Signal

Table name	Parameter name	Description
OFCVAR	LINE_CARD_MONITOR	This parameter enables and disables EPS for the office. The LINE_CARD_MONITOR uses the following to identify and react to potential hazards on subscriber lines: • current DMS line card diagnostics • PLO • incoming message overload (ICMO) The default value is N. Enter Y to enable LINE_CARD_MONITOR for the entire office.
Note: To deactivate this parameter for a specified line, enter option NHT in table LENLINES or table IBNLINES. See SERVORD for information on how to enter data in these tables.		

Datafill sequence

The tables that require datafill to implement BAS Enhanced Permanent Signal appear in the following table. The tables appear in the correct entry order.

Datafill requirements for BAS Enhanced Permanent Signal

Table	Purpose of table
OFCVAR	Variable Office Parameter. This table lists office parameters. The operating company determines the values of these parameters. The operating company determines the parameters a user can change through table editor. Refer to How to enter office parameters for information on how this functionality affects office parameters.
LENLINES (Note)	Line Assignment. This table contains the line assignments and options assigned to a line.
IBNLINES (Note)	IBN Line Assignment. This table contains the line assignment for every Meridian Digital Centrex (MDC) and attendant console (AC) station.
Note: Use SERVORD to enter data in this table. A datafill procedure or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

BAS Enhanced Permanent Signal (continued)

Tools for verifying translations

The BAS Enhanced Permanent Signal does not use tools for verifying translations.

SERVORD

Use SERVORD to assign option NHT to a line. This option deactivates office parameter LINE_CARD_MONITOR. Option NHT does not allow the switch to test the specified line for a line fault condition. Possible fault conditions are a permanent signal, hazardous voltage, or ring-to-ground fault.

SERVORD limits

The BAS Enhanced Permanent Signal does not have SERVORD limits.

SERVORD prompts

The SERVORD prompts used to add BAS Enhanced Permanent Signal to a line appear in the following table.

SERVORD prompts for BAS Enhanced Permanent Signal

Prompt	Valid input	Description
DN_OR_LEN	seven-digit DN or LEN	Specifies the seven-digit DN or LEN of the line to change.
OPTION	NHT	Assigns No-Hazard test to a line that deactivates LINE_CARD_MONITOR. Does not allow the switch to test the specified line for a line fault condition.

SERVORD example for adding BAS Enhanced Permanent Signal

Use of the ADO command to add the BAS Enhanced Permanent Signal to a line appears in the following SERVORD example.

BAS Enhanced Permanent Signal (end)

SERVORD example for BAS Enhanced Permanent Signal in prompt mode

```
>ADO
SONUMBER: NOW 94 4 15 PM
>
DN_OR_LEN:
>5550183
OPTION:
> NHT
OPTION:
> $
COMMAND AS ENTERED:
ADO NOW 94 4 15 PM 5550183 ( NHT ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

SERVORD example for BAS Enhanced Permanent Signal in no-prompt mode

```
> ADO $ 5550183 NHT $
```

Note: The system enters data in table IBNLINES or table LENLINES when you assign line option NHT to a line through SERVORD.

Bellcore CAMA Format

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

BCS36 and later versions

Requirements

Bellcore CAMA does not have requirements.

Description

The Bellcore CAMA Format feature package (NTX098AA) contains Bellcore automatic message accounting (AMA) formatting features that can perform the following:

- create call entries and other records on AMA tape
- dump the contents of an AMA device, tape or disk, to a printer
- allow the operating company to generate AMA records identified by specified call codes, based on translations

DWS 1203 AMA Billing (AD4733)

This feature provides AMA billing for dialable wideband service (DWS) for calls over the following:

- primary rate interface (PRI)
- Feature Group D (FGD)
- using integrated services digital network user part (ISUP) trunks
- ISUP-IT (inter-toll) trunks

Feature AD4733 provides Bellcore AMA Format (BAF) recording. This feature provides for originating or terminating access circuit-switched calls. These calls have an information transfer rate greater than or equal to 128 kbit/s.

Global EBAF AMA (Clone) (AE1275)

Global EBAF AMA (Clone) (AE1275) allows the addition of new module code, 504 to an AMA record. This event occurs if a time change occurs during a billable call. A new option in table AMAOPTS triggers module code 504. Module code 504 is the time change information code.

Bellcore CAMA Format (continued)

VFG AMA Support for FX and ETS Calls (AF1093)

The AF1093 allows the operating company to designate an integrated business network (IBN) virtual facility group (VFG) as a foreign exchange (FX) or electronic tandem switched (ETS) facility. The VFGs designation can be tandem tie-trunk (TDMTT) or common control switching arrangement (CCSA) facilities. The FX, ETS, TDMTT, and CCSA options are for Bellcore AMA recording purposes. These designations identify the VFG as a member of a specified network.

AMA Test Call Enhancements (AF1981)

The AF1981 allows the AMATEST option for trunk groups in table AMATKOPT. The AMATEST line option is not compatible with the ONI option. The AMATEST can apply to a trunk group when the OPTION prompt appears while you change or add an entry. Every Bellcore AMA record produced by calls that originate or terminate on the trunk group are study records. The AMATEST is a trunk group option in this event.

The AF1981 enhances the AMA Test Call Capability feature. The AF1981 allows the AMATEST option on residential enhanced services (RES) lines, business sets, data units, and trunk groups. The AF1981 starts on a business set or data unit when you enter the AMATEST option in table KSETLINE. The SERVORD can start the AF1981 on these lines. The SERVORD can apply the AMATEST to RES lines. Refer to the data schema section of this document for more information on tables AMATKOPT and KSETLINE.

The originating line AMATEST mechanism includes terminating billing and second leg VFG billing. Billing records that result from a call from an originating line with AMATEST are now considered test records. These records are test records if any of the following causes the record:

- a call through a VFG
- some form of terminating billing
- normal originating billing

For LAMA/CAMA calls in BCS33 and later versions, the study indicator field records a six (6). This six indicates that a calling seven-digit number is not available. See the following figure for an example of this type of record.

Bellcore CAMA Format (continued)

ONI Equal Access Call with a Default Calling Number

```

HEX ID:AA STRUCT CODE:00625C CALL CODE:110C SENSOR TYPE:036C
SENSOR ID:00000000C REC OFC TYPE:036C REC OFC ID:00000000C
DATE:10912C TIMING IND:00000C STUDY IND:0000060C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT: 000C OVERSEAS
IND: 0C TERM NPA:00519 TERM NO:8881233C ANSWER TIME:1627062C
ELAPSED TIME:000000065C IC/INC PREFIX:02221C CC DATE: 10912C
CC TIME:1626575C ELAPSED CC:000000152C IC/INC EVENT STATUS:
010C TRK GRP:10299C ROUTING INDICATOR:1C ANI INDICATOR:1C

```

Increase Flexibility of AMA Software Configuration (AF2755)

The AF2755 provides an improved software configuration for future Bellcore AMA requirements. The improved software configuration minimizes the future impact on data store associated with the introduction of new services and related billing triggers. For example, new module code descriptions and multiple appearances of the same module code in an AMA record are possible. This feature reduces the impact on the data store requirements of an operating company.

This feature provides a new call recording software configuration and integrates Bellcore AMA in the configuration. This new configuration allows billable calls to take recording data. This configuration makes the data store required by a new service proportional to the data and use on the switch.

The creation of new extension blocks moves the Bellcore AMA to this new configuration. Explanations of these blocks follow.

New call recording software configuration

The AF2755 creates a new generic call recording configuration. This configuration is like the present call recording configuration. The following changes apply to the new configuration:

- The addition of new billing services does not affect the data store.
- This feature allows the recording of dynamic amounts of data like replicated data.
- Different subsystems now use data store from a set of common extension block pools. This condition eliminates the need for different and separate extension block pools. Different subsystems do not define subsystem extension blocks to collect and track subsystem data.
- A set of common engineering parameters dictate recording resources for every recording process that uses this configuration.

Bellcore CAMA Format (continued)

Bellcore AMA integration into the new software configuration

Bellcore AMA is the first recording subsystem that uses this call recording software configuration. This activity converts the Bellcore AMA software architecture to a distributed system that provides the following additional capabilities:

- support of multiple instances of the same module code, defined as part of Expanded Bellcore AMA format (EBAF) by the DMS switch
- ability for Bellcore AMA software formatting functions to distribute across product line types. This function improves long term software performance and maintenance functions.

AMA Compliance—TR-508 (AF3078)

This feature introduces some of the new Bellcore specifications for AMA billing. The AMA Compliance—TR-508 feature removes the 2 s minimum charge duration (MCD) timing. This feature flags the timing ind (timing indicator) field of the AMA record for calls with a short duration event. This feature records connect and carrier connect times that time or date changes on the switch do not affect. The AMA Compliance—TR-508 calculates an estimated elapsed time for AMA records generated by calls. These calls experience a timing irregularity and flags the irregularity in the timing ind field.

AMA TR-508 Compliancy II (AN0101)

This feature makes non-optional changes to Bellcore Centralized Automatic Message Accounting (CAMA) Format and Bellcore LAMA Format packages. The AN0101 simplifies long duration Bellcore format record generation. Bellcore specification requires the AN0101. Bellcore specifications changes the number and type of AMA records produced for long duration calls. This feature removes the ABCD records and replaces these records with first and continuation records. Operating companies can specify the time of day at which long duration records generate.

AMA Base Re-engineering II (AN0319)

Feature AN0319 determines the elapsed time of a billable call. This feature eliminates peripheral timing and uses CC timing.

Before this feature, the peripheral or CC determined elapsed time. The peripheral determined the elapsed time of the call. The peripheral included the elapsed time in the disconnect message sent to the CC. With CC timing, the CC determined the answer timestamp and disconnect timestamp. The system subtracts the answer timestamp from the disconnect timestamp to determine the elapsed time of a call when a call disconnects.

Bellcore CAMA Format (continued)

Feature AN0319 forces each call to use CC timing in the following billing formats:

- Bellcore AMA (Local/Toll/TOPS)
- Northern Telecom (NT) AMA (Local/Toll/TOPS)
- Station Message Detail Recording (SMDR)
- DMS-100 United Kingdom Call Detail Recording (DMS-100 UK CDR)
- Variable CDR (VCDR)

Bellcore CAMA Format (BR0378)

The BR0378 allows the operating company to perform the following functions:

- produce AMA records in Bellcore format
- dump the contents of AMA records to a device
- control and schedule the options that affect the recording of certain call types and call data
- detect and report short supervisory transitions (SST)
- detect and report long duration calls
- store operational measurement (OM) peg counts for inclusion in AMA and tracer records

Call codes 009, 033, 121 Assignment via Translations (BR0759)

The BR0759 modifies table STDPRTCT to include the additional subtable AMAPRT.

To generate call codes 009, 033, or 121 with AMA pretranslation, subtable AMAPRT must contain data. Refer to the data schema section of this document for information on table STDPRTCT and subtable STDPRT.

An example of subtable AMAPRT appears in the following MAP display. The paragraphs that follow the display describe the example.

MAP example for subtable AMAPRT

FROMDIGS	TODIGS	AMARSLT
-----	-----	-----
766	766	DA411 N
5551212	5551212	DA555 N
7224	7224	Datapath

Belcore CAMA Format (continued)

The first datafill entry causes the system to generate call code 009. The system generates this code when the leading digits received for a local directory assistance (DA) call are 766. The pretranslator name is PRT1. The pretranslator name is in table STDPRTCT. Table LINEATTR or table TRKGRP index the pretranslator name.

The second datafill entry causes the system to generate call code 033. The system generates this code when the leading digits received are 5551212 and the pretranslator name is PRT1. The pretranslator name is in table STDPRTCT. Table LINEATTR or table TRKGRP index the translator name.

The third datafill entry causes the system to generate call code 121 to generate for a Datapath call. This code generates when the leading digits are 7224 and the pretranslator name is PRT1. The pretranslator name is table STDPRTCT. Table LINEATTR or table TRKGRP index the translator name.

The BR0759 allows the operating company to generate Bellcore format AMA records. The following call codes identify these records using AMA pretranslation:

- call code 009—411 directory assistance
- call code 033—555 directory assistance
- call code 121—Datapath Terminating Access Records

Note: The AMA pretranslation applies to Meridian Digital Centrex (MDC) service and plain ordinary telephone service (POTS).

The following paragraphs describe the call codes that this feature affects.

Call code 009 (411 directory assistance)

This call code provides details for calls to local directory assistance. Without AMA pretranslation, the subtable generates call code 009. The system generates call code 009 when the 411 options in table AMAOPTS are on and the customer dials 411. The customer can dial digits other than 411 for local directory assistance when using AMA pretranslation.

This feature supports the following structure codes for call code 009:

- 00028 answered
- 00068 unanswered
- 00128 long duration

Bellcore CAMA Format (continued)

Call code 033 (555 directory assistance)

This call code provides details for calls to 555-1212 directory assistance. Without AMA pretranslation, the system generates call code 033. The system generates this code when the 555 options in table AMAOPTS are on and the customer dials 555-1212. The AMA pretranslation makes sure that the system generates call code 033 for a call to 555-1212 directory assistance.

In subtable AMAPRT, enter 555-1212 for the FROMDIGS and TODIGS fields. In subtable AMAPRT, enter DA555 for the AMARSLT field. When the CHG555 and DA555 options are on in table AMAOPTS, the customer dials 555-1212 to reach a directory assistance operator. The system generates call code 033.

This feature supports the following structure codes for call code 033:

- 00028 answered
- 00068 unanswered
- 00128 long duration

Call code 121 (datapath terminating access records)

The system generates this call code when a datapath call enters the terminating exchange. This call enters the exchange from an inter-LATA carrier (IC) and uses AMA pretranslation. The system generates call code 121 when AMA pretranslation allows this code. The received leading digits and the datafill in subtable AMAPRT determine if pretranslation occurs. Without AMA pretranslation, call code 119 (terminating access record) records for terminating Datapath calls.

This feature supports following structure codes for call code 121:

- 00656 inter-LATA
- 00657 inter-LATA, long duration

Standard translation

The system generates an AMA record if the datafill and routing results specify that billing must occur for that call. This event occurs when using fixed translation schemes. At this time, the operating company cannot change the call code that generates.

Other call attributes, like equal access, contribute to the generation of a call code. In these occurrences, the system can generate other call codes and not the code entered for AMA pretranslation. The operating company is responsible for correct datafill. For more information on datafill for equal access offices, refer to the data schema section of this document. This

Belcore CAMA Format (continued)

information refers to tables TRKGRP, TRKNAME, OCCNAME, and OCCINFO.

Universal Bellcore Centrex Billing (NC0267)

Feature NC0267 provides call line identification (CLI) in AMA records produced from a call. The originating port of the call must be an IBN ISUP trunk. This feature allows point of entry identification. This feature provides the option of using the correct network entry point of the call. The network entry point of the call is in the AMA record on billable calls that originate from a network. Universal Bellcore Centrex Billing can tag every call generated record with a different call sequence number. This feature can add support for Flexible AMA capabilities in the universal translations environment.

The following paragraphs provide a more detailed description of NC0267's abilities.

AMA call line identification

The new AMACLID option provides CLI. The options field of table AMATKOPT contains the AMACLID option. The following conditions provide CLI in the AMA record:

- the originating trunk must be IC or 2W ISUP
- the trunk must have a BILLNUM entered against the trunk
- the CLI must be available. If the CLI is not available, the system cannot add new module 046.

Note: A trunk without a BILLNUM can contain an entry for AMACLID. In this event, the CLI is the billing number. If the system generates an AMA record, the system cannot add module code 046. The originating open digits field contains the CLI.

This feature produces new module code 046. The new code is an alternate billing number for open numbering. Alternate billing number for open numbering uses current structures. The current structures are originating open digits 1 and originating open digits 2. These two structures can hold 11-digits and 9-digits and have the ability to hold 20 CLI digits. Module code 046 provides the new field, source of charge number. Source of charge number can hold an entity other than the BCD characters specified in table 155.

Refer to *Belcore Format Automatic Message Accounting Reference Guide*, 297-1001-830, for a detailed description of module code 046 and table 155.

Bellcore CAMA Format (continued)

AMA point of entry identification

A private network contains *network entities*. These network entities are physical and virtual. Physical entities include trunks and lines. Virtual entities include virtual facility groups (VFG) and direct inward system access (DISA). These network entities are charge points. At these charge points in the network, a call can enter the public-switched telephone network (PSTN) and initiate a record of charges.

Note: The process of a call that enters the PSTN is known as *overflow* and *break-out*. This process depends on the condition in which the call traverses the network.

Every call on a private network has the two following properties.

- The *point of charge* is the point in the private network where the call overflows or breaks out in the PSTN. The system begins recording charges for use of the PSTN at this point.
- The *point of entry* is where the call first enters the private network or returns to the private network. The point of entry is the same as the *invoice point* for the call.

When a call requires the system to bill charges, the system generates an AMA record. An example of this type of call is when a network call breaks out in the PSTN. The AMA record contains the point of charge but not the point of entry. The *originating open digits* field indicates the point of change. By default, the point of charge is the point of entry, but the two points are not the same.

The actual point of entry is the actual originator of the call. The AMA record does not contain the actual originator of the call. In this event, the actual originator of the call is a line in the network.

The entry of option ENTRYID for each VFG in table VIRTGRPS causes this feature to capture information for the AMA record. This feature captures information on the originator of the call and the point of entry. With datafill, the call originator is not the VFG. The call originator is a preceding node like an IBN line, trunk billing number, or another VFG. Module code 046 identifies this originator in the AMA record. When you enter option ENTRYID in table DNROUTE the same function is present for DISA stations.

Call record sequence number

Call record sequence number (CSRN) appends each AMA record generated because of call traffic. The CRSN stays with the record through the complete billing system. The CRSN appends to an AMA record by new module code

Belcore CAMA Format (continued)

042. The activation of this new option takes place in the options field of table AMAOPTS.

Universal flexible AMA

Universal flexible AMA provides the operating company with the ability to define custom AMA characteristics. Universal flexible AMA equates these characteristics with the different tariffs that they use. Universal flexible AMA allows the flexible assignment of the following:

- call type code
- service feature
- originating charge information

Operation

Creating call entries

The call process software records information about the call that associates with AMA during the different stages of a call. The call process software allocates the resources needed to record this information. The following paragraphs describe these call stages.

Initial stage

The call process software determines the originating and terminating agents and translations. These agents are needed to complete the call during the initial call stage.

Identification stage

The identification stage determines if the call is billable for the originator. If the call is billable, software allocates the resources to record the billing information.

Routing/terminating stage

Software determines if the call is billable to the terminator. Software allocates the resources needed to record the billing information.

Recall stage

With the answered call, the software marks the call and records the answer time.

Disconnect stage

On call disconnect, the elapsed time is computed and the record time is recorded. The system allocates a recording unit. The call information copies to the recording unit. The system makes the recording unit ready to process and format.

Bellcore CAMA Format (continued)

Error

When the system detects an error, the system allocates a recording unit and marks the call data in error. The system makes the recording unit ready to process and format.

Media change entries

Two types of media change entries: transfer-in and transfer-out are present.

- transfer-in—entries written at the start of the file each time a tape or disk file becomes active for the AMA stream
- transfer-out—entries written as the last entry in the file when the file becomes inactive

When the system activates the TIMECHANGE option in table AMAOPTS, each time/date change causes the following event. The change causes an entry to be output on the device. The entry indicates the date and time before and after the time change.

Tracer records

Tracer records are periodic output when table AMAOPTS activates the TRACER option. Tracer records are measurements or counts of different operational activities that call processing performs.

The system can generate tracer records each hour or each day. This action depends on the datafill for table AMAOPTS. Counts are added until midnight, when counts are reset to zero.

Each tracer record refers to events of one call. The system takes the data for the call in sequence as the call moves through the switching process. The system retrieves the data in the same sequence for the following assembly in an hourly tracer record. Events that increase an input count must increase an internal count or output count in the same tracer. The system accomplishes the audit of data transfer between components by the tracer counts to mark the data stream.

Refer to *Operational Measurements Reference Manual* for information on the range and general contents of the tracer record. Refer to *Operational Measurements Reference Manual*, for the equations to check the validity of the counts, and the audits to perform with the tracer records..

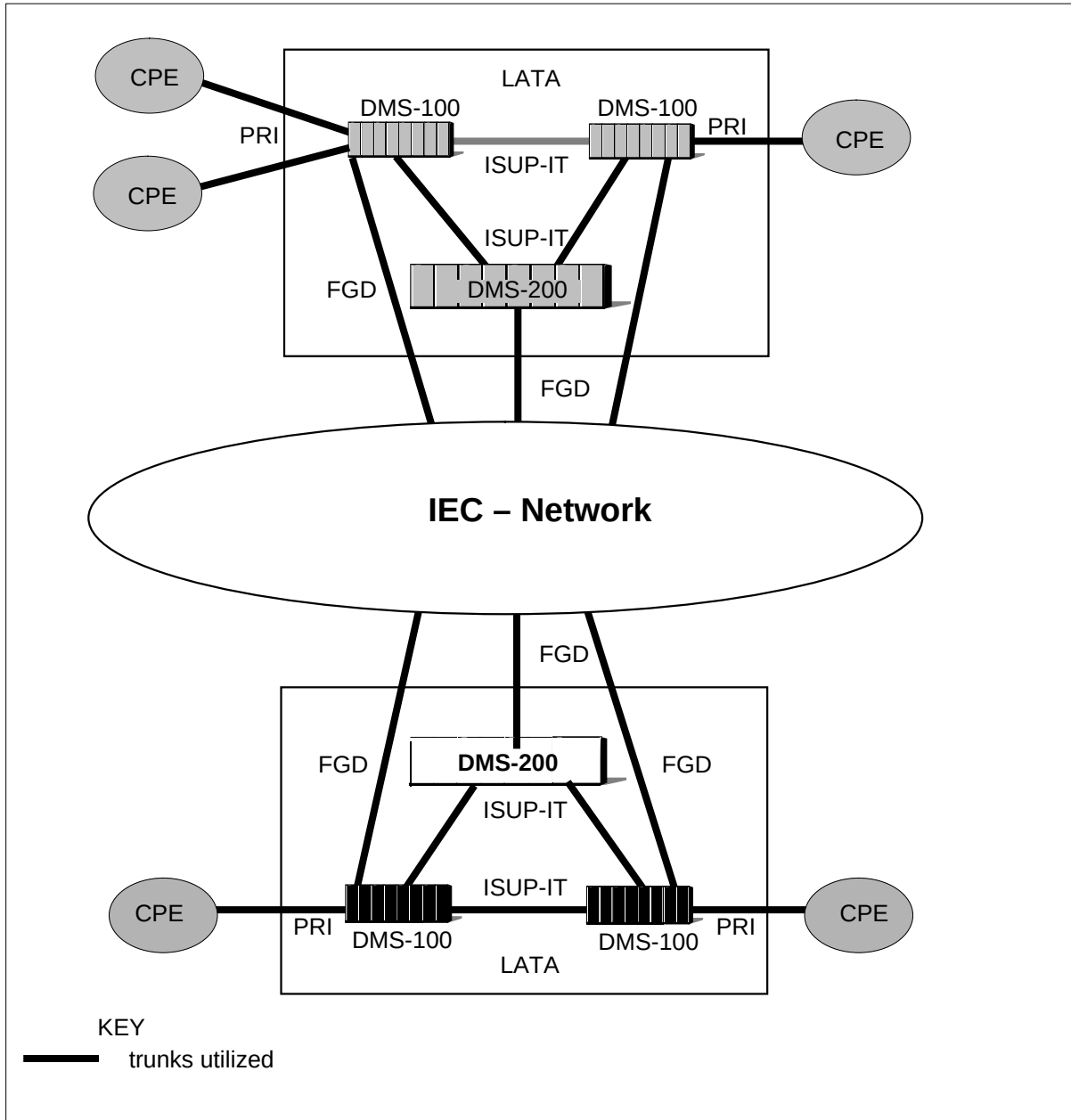
DWS 1203 AMA Billing (AD4733)

Feature AD4733 generates new intra-LATA and inter-LATA call codes. The system generates call code 148, an intranetwork high bandwidth call. The system generates this call code when an intranetwork DWS call originates and

Bellcore CAMA Format (continued)

completes at the originating switch complex. The originating switch complex is in the LATA. The system generates call code 149—an originating access high bandwidth call. The system generates this call code when an internetwork DWS call originates at the originating switch complex. The originating switch complex is in the LATA that originates the call. The system generates call code 150, terminating access high bandwidth call. The system generates this call code when an internetwork DWS call completes at the point-of-presence switch complex. The point-of-presence is in the LATA terminating the call.

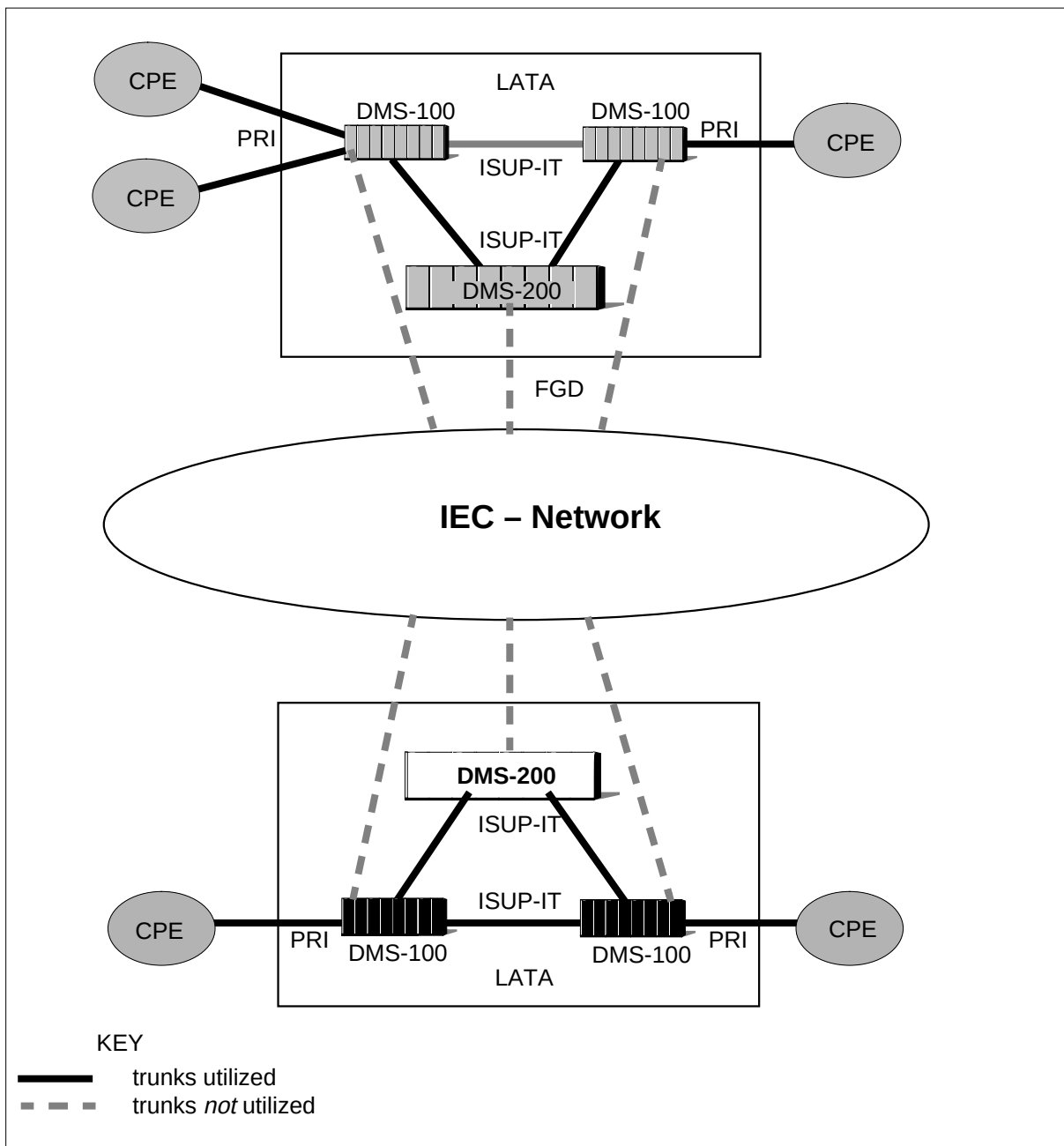
A general overview of the telephony network configuration appears in the following figure. In this figure, AD4733 provides Bellcore AMA Format (BAF) recording for DWS.

Bellcore CAMA Format (continued)**General overview of the telephone network configuration**

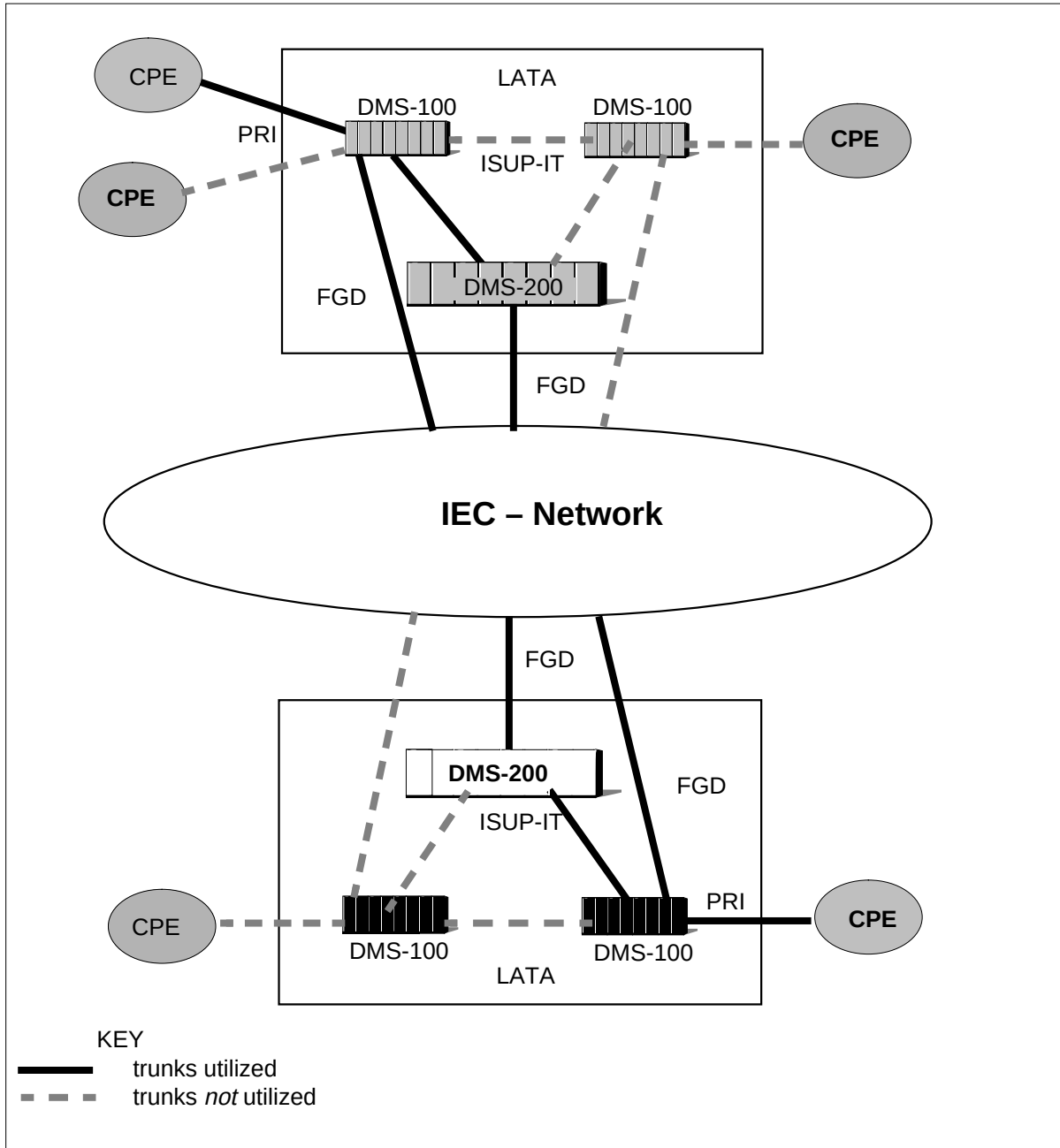
An overview of the telephony network configuration in which AD4733 provides BAF recording appears in the following figure. This recording is for intranetwork circuit-switched calls.

Belcore CAMA Format (continued)

Intranetwork circuit-switched calls



An overview of the telephony network configuration in which AD4733 provides BAF recording appears in the following figure. This recording is for originating and terminating access circuit-switched calls.

Bellcore CAMA Format (continued)**Originating and terminating access circuit-switched calls****Global EBAF AMA (Clone) (AE1275)**

A tuple TIMECHANGE in table AMAOPTS produces an AMA Time change record. The tuple produces this record when a *settime* or *setdate* occurs. The TIMECHANGE does not indicate in an AMA record that a call generates or that a time change occurs during the call.

Belcore CAMA Format (continued)

Feature AE1275 allows new module code 504 to append to an AMA record. Module code 504 appends to an AMA record if a time change occurs during a billable call. The AE1275 retains details of a maximum of three time changes that can occur over the course of the call. Feature AE1275 produces a new option CALL_TIMECHG in table AMAOPTS. This option allows a record of time change data for each call records.

VFG AMA Support for FX and ETS Calls (AF1093)

Feature AF1093 allows the Centrex customer to receive Bellcore AMA records. The customer receives these records for calls routed over FX or ETS facilities. With this feature, an operating company can designate specified incoming IBN VFGs as members of an FX or ETS network. Each non-billable (NP) call routed through a VFG FX or ETS facility causes an AMA record to generate. This event occurs when other billing does not apply. The following codes identify the Bellcore AMA record:

- call code 011—FX
- call code 085—ETS

Call codes 011 and 085 are generated for VFGs when the VFGAMA option is present in tables VIRTGRPS and VFGDATA. The call must be an NP call. The VFGAMA option takes lowest priority when AMA determines the type of billing record to produce. When other billing requirements are not present for the call, the following occurs. Call codes 011 and 085 that originate from VFG identify the AMA record. When the call is an NP call, the trunk facility designation takes precedence. The call must terminate to an IBN trunk designated as EX, ETS, CCSA or TDMTT facility.

The following table summarizes the different AMA records produced for different terminations. These terminations are routed through an IBN incoming VFG designated as an FX facility.

Summary of AMA records routed through IBN trunks

VFG facility	Type call	Termination	Type of AMA record
FX	NP	Line/trunk	FX (011)
FX	NP	IBN trunk with ETS	ETS (085)
FX	DD	IBN trunk with ETS	ETS (085)
FX	DD	Line/trunk	DD (e.g., 006)

Facility types ETS and FX are now correct facilities assigned to the VFGAMA option in tables VIRTGRPS and VFGDATA.

Bellcore CAMA Format (continued)

Call codes 011 and 085 can generate on calls that originate from VFGs. Before this feature, call codes 011 and 085 were generated for calls that terminate to IBN outgoing (IBNTO) or IBN two-way (IBNT2) trunks.

The system supports the following structure codes for call code 011:

- 00001 answered
- 00002 unanswered
- 00101 long duration
- 00500 high runner, answered, and unanswered

The system supports the following structure codes for call code 085:

- 00001 answered
- 00002 unanswered
- 00101 long duration

AMA Test Call Enhancements (AF1981)

Feature AF1981 is an extension of the AMA Test Call Capability feature. With AMA Test Call Capability, AMA data that associates with a specified line can be verified. To verify the line, place the AMATEST option on the line. Make a call that originates or terminates to this line.

The AMATEST option makes sure that a specified translations path produces an AMA record. The AMATEST option makes sure that the record fields contain the correct information. Bellcore AMA records that lines with the AMATEST option produce are marked by a 1. These lines are marked by a 1 in the fourth character position of the study indicator field. These test calls produce the AMAB200 log.

This feature allows the AMATEST option on business sets, data units, residential enhanced services (RES) lines and trunk groups. To apply the AMATEST to a trunk group, enter the AMATEST option with the desired trunk group common language location identifier (CLLI). This CLLI is in table AMATKOPT.

For business set and data unit lines, to apply the AMATEST option, use SERVORD or enter the option in table KSETLINE. For RES lines, use SERVORD to apply AMATEST. This feature allows the AMATEST option on the RES line class codes (LCC) that follow:

- IVD ARIES asynchronous data option (ADATA1)
- IVD ARIES 8 key set (A2008)

Belcore CAMA Format (continued)

- IVD ARIES 16 key, H/F optional (A2016)
- IVD ARIES 16 key secure set (A2016S)
- IVD ARIES 2216 ACD-A set (A2216A)
- IVD ARIES 2216 ACD-B set (A2216B)
- Data unit (DATA)
- ISDN terminal (ISDNKSET)
- Meridian asynchronous data option (MADO)
- Meridian 9 key set (M2009)
- Meridian 12 key set with H/F (M2112)
- Meridian 18 key set (M2018)
- Meridian 17 key set with H/F and display (M2317)
- Meridian 3000 touch set (M3000)
- Meridian 9 key set (M5009)
- Meridian 18 key set (M5018)
- Meridian 12 Key with IHSF (M5112)
- Meridian 9 Key with display (M5209)
- Meridian 12 key set with IHSF and display (M5312)
- Meridian 9 key set with 5 soft keys (M5317)
- POTS data unit (PDATA)
- Proprietary business set (PSET)
- Residential Enhanced Services (RES)

The AMA records that calls generate contain a 1 in the fourth character position of the study indicator field. These calls must originate or terminate on a trunk, business set or data unit with the AMATEST option enabled. The revenue accounting office (RAO) recognizes these records as AMA test records.

This feature produces the AMAB200 log if the LOGTEST tuple in table AMAOPTS assists this feature. Refer to *Log Report Reference Manual* for more information on AMAB200.

This feature does not produce additional AMA records. This feature marks records generated as AMA test records. This condition occurs if AMATEST is enabled on the trunk group, business set or data unit.

Bellcore CAMA Format (continued)

The AMATEST is a new trunk group option that is applied in table AMATKOPT. This option on a trunk group indicates the following. Each billing record that calls produce with this trunk group is marked as AMA test records.

Table KSETLINE accepts the AMATEST option for the business set and data unit LCCs that follow:

- ADATA1
- A2008
- A2016
- A2016S
- A2216A
- A2216B
- DATA
- ISDNKSET
- MADO
- M2009
- M2112
- M2018
- M2317
- M3000
- M5009
- M5018
- M5112
- M5209
- M5312
- M5317
- PDATA
- PSET

See the data schema section of this document for more information that concerns tables AMATKOPT and KSETLINE.

See Billing in this section for more information about the effects of this feature on AMA records.

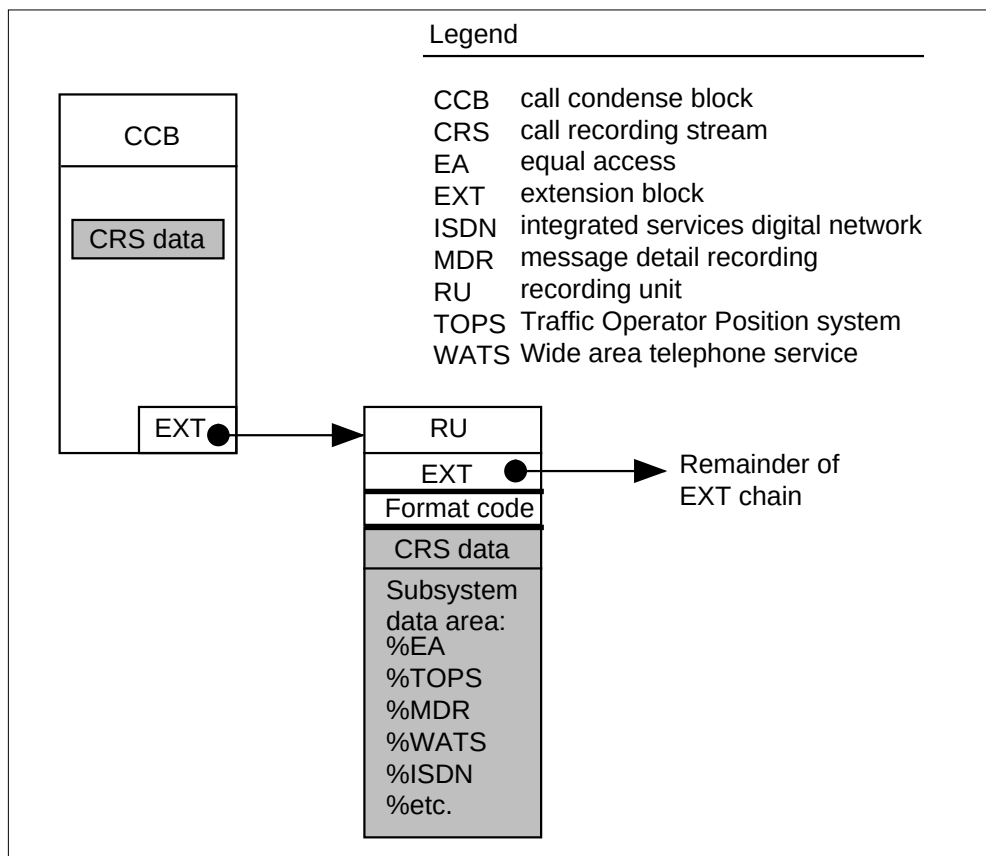
Belcore CAMA Format (continued)

Increase Flexibility of AMA Software Configuration (AF2755)

Before BCS32, call recording stream (CRS) data was collected on the call condense block (CCB) or the recording unit (RU). Refer to the following figure. The CCB contains CRS data that stores CRS-specific billing information for basic call types. The CCB contains information used to translate the call. Few subsystems use the CRS data area of the CCB to record, except the AMA stream. Most recording streams use an RU for the period of the billable call.

Through the RU, call processing activities communicate with the billing system—CRS processes. Some calls use the RU from call set-up until call disconnect with the next billing record generation. Other calls do not require the RU until time to report the data to the billing system.

Call recording stream configuration prior to BCS32



With BCS32 and later versions, a new configuration occurs. The CRS information continues to record through the CRS data part of the CCB or through extension blocks chained off of the CCB.

Bellcore CAMA Format (continued)

With the CRS data section of the CCB, maintaining recording data in the active connection of a recordable call does not change. This method applies when the call is active. When the call releases, the extension blocks chained off of the CCB are utilized.

Recording data is maintained in extension blocks that branch off the CCB. The difference is in the framework of the RU structure. Recording data does not have to be in a single extension block.

Data can distribute across the following RU structures:

- primary recording unit (PRU)
- extended recording unit (XRU)
- modular recording unit (MRU)

See the following figure for an example of the new call recording stream configuration.

Primary recording unit

A PRU is the RU element accessed directly from the CCB EXT chain. A PRU in the extension chain indicates that a released call produces a billing record. In this configuration, the PRU is the best RU structure. Maintain high-priority CRS data in the PRU. Access times to retrieve data are significantly shorter than for the other RU structures.

Extended recording units

An XRU records call data on an optional, segmented basis. The XRU is not directly in the CCB extension chain. An XRU provides recording functions. These recording functions are like the recording functions that the PRU provides. The XRU distributes call data across several XRU structures. This distribution is like the way an extension block expands the abilities of call processing and associated CCB.

Modular recording units

An MRU records call data as needed in the framework of a RU. Multiple instances of an MRU occur off a PRU. The MRU descriptions target specified pieces of recording data. The MRU descriptions are smaller than the standard XRU. The MRU types are more easily defined than XRU or PRU types because of the narrower use of the MRUs.

The new recording unit pools

The AF2755 creates six new extension blocks. These extension blocks implement the three different recording unit structures: PRU, XRU and MRU. These extension blocks are implemented as double extension blocks. This

Bellcore CAMA Format (continued)

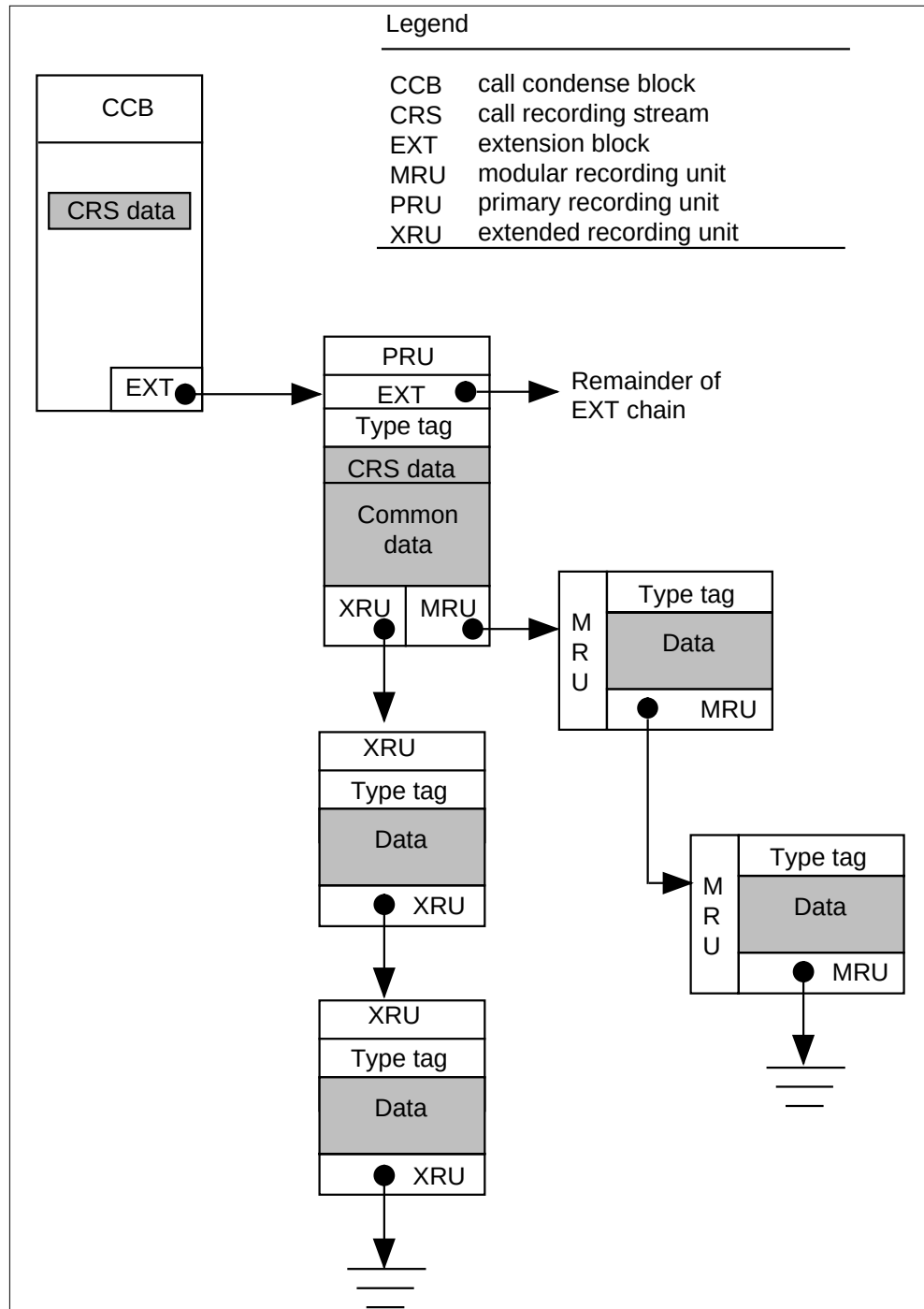
condition means that an artificial barrier is not present in provisioning large pools, if desired.

The extension blocks are as follows:

- The CRS_SUBRU_POOL1—This RU is the smallest recording unit. Use this RU as an MRU because of the small size. Do not use this RU in the XRU or PRU.
- The CRS_SUBRU_POOL2—Use this RU only in the MRU chain. Do not use this RU in the XRU or PRU mechanisms.
- The CRS_SUBRU_POOL3—This XRU or the MRU can use this RU. The recording unit that uses the RU determines how to treat this RU.
- The CRS_SUBRU_POOL4—This XRU or the MRU can use this RU. The recording unit that uses the RU determines how to treat the RU.
- The CRS_PRU_POOL2—This pool is dedicated for PRU use to record of Bellcore centralized automatic message accounting (CAMA) and local automatic message accounting (LAMA).

Bellcore CAMA Format (continued)

Call recording stream configuration with BCS32



With an RU claimed for recording, the CRS determines the extension type to use. For example, if call processing claims an AMA PRU, the

Bellcore CAMA Format (continued)

CRS_PRU_POOL2 recording unit pool can provide an extension block. Another application can claim an extension from the same CRS_PRU_POOL2 pool for billing types that are not AMA. The size of the data to record in the PRU determines the RU pool that provides the extension block. This condition is true for XRU and MRU.

Note: Only Bellcore AMA uses this configuration in BCS32.

AMA Compliance—TR-508 (AF3078)

The operation of tables that this feature creates and modifies appear in the following paragraphs.

Removal of MCD timing

Before BCS34, calls were not considered answered until the terminating party was off-hook. Both parties were off-hook for a two second period. This two second period was a minimum charge duration (MCD). The AMA records that calls generated and that were connected for less than 2 s had their answer field populated with the value 1. Value 1 means not answered. These records had elapsed time fields populated with zeros.

Before BCS34, the elapsed time of calls that were not off-hook at the same time for a minimum of 2 s, were not measured. This condition does not apply now. With Bellcore AMA format, office parameter `minimum_charge_duration` is not used. If you manually change from non-Bellcore format to Bellcore format in table CRSFMT, a message appears. This message states that you must perform a reload restart. After this event, each line and trunk peripheral must have their exec loads loaded again.

The AMA answer field is now named called party off-hook (`cld pty offhk`) and field answer time is named connect time. These changes are present because MCD timing does not determine how to fill these fields now. The `Cld pty offhk` is marked with a value of 0. This condition occurs if the terminating party of a billable call goes off-hook to connect with the originator. The `Cld pty offhk` is marked with a value of 1 if the terminating party does not go off-hook.

A call is connected when the terminating party off-hook for the call is present. Answer is when the terminating party is off-hook and both parties remain off-hook for a minimum of 2 s. The AMA now records if a call connects, not an answered call.

The elapsed time field measures the amount of time the calling and called parties are both off-hook. Elapsed time includes time when the calling party

Bellcore CAMA Format (continued)

is off-hook. Timed release disconnect (TRD) timing is applied for the terminating end of the call.

Note: The removal of MCD timing does not apply to BCS34. The removal does not apply unless the non-resident command interpreter (CI) NOMCD activates the removal of MCD. Refer to Activation/deactivation of MCD with NOMCD for instructions on how to deactivate MCD.

How to record short duration events

A short duration event is an on-hook to off-hook to on-hook action. This action exists at the terminating end of a call. This event must have a duration of less than 2 s. For example, a short duration event occurs if A calls B, B goes off-hook for less than 2 s and goes back on-hook. When the call connects, a short duration event does not occur if the calling party goes on-hook first. This condition does not depend on how fast the calling party goes on-hook.

Fill the second character of the timing indicator field with a value of 1 in an AMA record. This condition occurs in an AMA record that a call generates and that experiences a short duration event. A value of 0 is for calls that do not experience a short duration event.

Note: Set the second character of the timing indicator field to a value of 1 for calls that experience a short duration event. BCS34 does not apply. BCS34 only applies if NOMCD activates the removal of MCD in this feature. Refer to Activation/deactivation of MCD with NOMCD for instructions on how to activate MCD.

A short supervisory transition (SST) represents an instance of a short duration event. The generated AMA records with call code 034 occur for each instance of an SST. Call code 034 is now obsolete and cannot be generated. If SSTs occur for a billable record, a single billing record is generated for that call. The record is marked to indicate a short duration event occurs during the call. The timing indicator field is marked to indicate a short duration event occurs during the call.

Note: The SST events can set the short duration event flag.

Recording static answer and carrier connect times

The AMA record fields answer time and date record or the time and date that the terminating party answers a call. Before BCS34, if the switch time of day and/or date changed when answered calls were in the talking state, the following occurred. The switch did not compensate. The switch did not compensate for the time/date change when the following occurred. The switch filled the answer time and/or date fields in the AMA records for the calls when

Bellcore CAMA Format (continued)

the calls disconnect. The values in the answer time/date fields in the previous records distort the amount of time difference reflected in the time/date change.

Time of day and date changes had the same effect on AMA fields carrier connect time (cc time) and carrier connect date (cc date) as the following. The effect was the same as for answer time and date. Time date changes do not affect elapsed time and cc elapsed fields.

For BCS34, time of day and date changes do not have an effect on the values filled in the following AMA fields:

- answer time (now connect time)
- date
- cc time
- cc date for active calls already established connect and/or carrier connect

The AMA records generated at disconnect time for these calls record the time and date of connect and/or carrier connect. The time and date are recorded according to the time and date in effect at the time the event occurs.

Note: The above statement is true for an AMA record that a specified call generates. The statement is true if a maximum of 16 time changes and/or date changes occur. These changes occur between a connect event and disconnect event of a call. If more than 16 time/date changes occur between a connect and disconnect event of a call, the following action occurs. All but the 16 most recent time/date changes each cause the connect time and date to adjust. The time and date are recorded in the AMA record of the call. The time and date are adjusted forward or backward by the amount of time the time/date change specifies. The same is true for the values recorded in fields *cc time* and *cc date*.

AMA recording of timing irregularities

A timing irregularity is a condition where the connect time and/or the disconnect time for a call is not known. A timing irregularity occurs when the connect time and/or the disconnect time accuracy is not known. This condition does not allow AMA billing system to determine accurately the elapsed time for the call. A billing record with a timing irregularity that a call generated recorded an elapsed time of zero. The record is marked as a single time line record in the timing indicator field.

An attempt is made to determine an elapsed time for billing records that calls that experience a timing irregularity generate. If an unknown connect time causes the timing irregularity, the following action occurs. An attempt is made to determine the earliest time for which the switch knows of the connected call.

Bellcore CAMA Format (continued)

Use this estimated connect time to estimate an elapsed time for the call. If an unknown disconnect time causes the timing irregularity, the following action occurs. An attempt is made to determine the latest point in time for which the switch knows of the connected call. Use this estimated disconnect time to estimate an elapsed time for the call.

Billing records with elapsed time fields that contain an estimated elapsed time, contain a value of 2. The value of 2 occurs in the first character of the timing indicator field. These billing records can contain a value of zero in the elapsed time fields because of a timing irregularity. The value indicates to the downstream processor that a timing guard condition is present. This condition means the elapsed time field or connect field contains an estimated or zero value.

Calls with billing records that are marked with a timing guard condition appear in the following examples.

- A call when the terminating party answers during a warm restart is a call where the billing record contains an estimated connect time and elapsed time. The time of day at the end of the warm restart is the connect time in this event.
- A call taken down because of a cold SWACT on a peripheral is a call where the billing record contains an estimated elapsed time.
- A call that is manually force released is a call where the billing record contains a zeroed elapsed time. The switch cannot estimate how long the actual speech path is down for the call.

Note: A call taken down because of carrier failure is a call where the billing record is not marked as timing guard. The record is not marked because the time of the failure is known and the elapsed time can be accurately calculated.

AMA TR-508 Compliancy II (AN0101)

Before BCS34, long duration calls were the AMA calls that remain connected through two midnights without interruption. On each of these calls, the call assembly process can generate a maximum of three record types. These record types indicate the start, continuation, and end of a long duration call. The continuation records were generated daily as long the connected call existed. Long duration software generated four different types of AMA records, denoted by the third BCD character of the timing indicator field as follows:

Bellcore CAMA Format (continued)

Record A

The value 1 denotes this record. The system generates this record on the third midnight of a call. The elapsed time field contains the elapsed time from answer until the second midnight.

Record B

The value 2 denotes this record. The system generates this record on the fourth midnight. The elapsed time field contains the elapsed time from the second midnight to the third midnight. The system generates the elapsed time field for each midnight up to, but not including, disconnect.

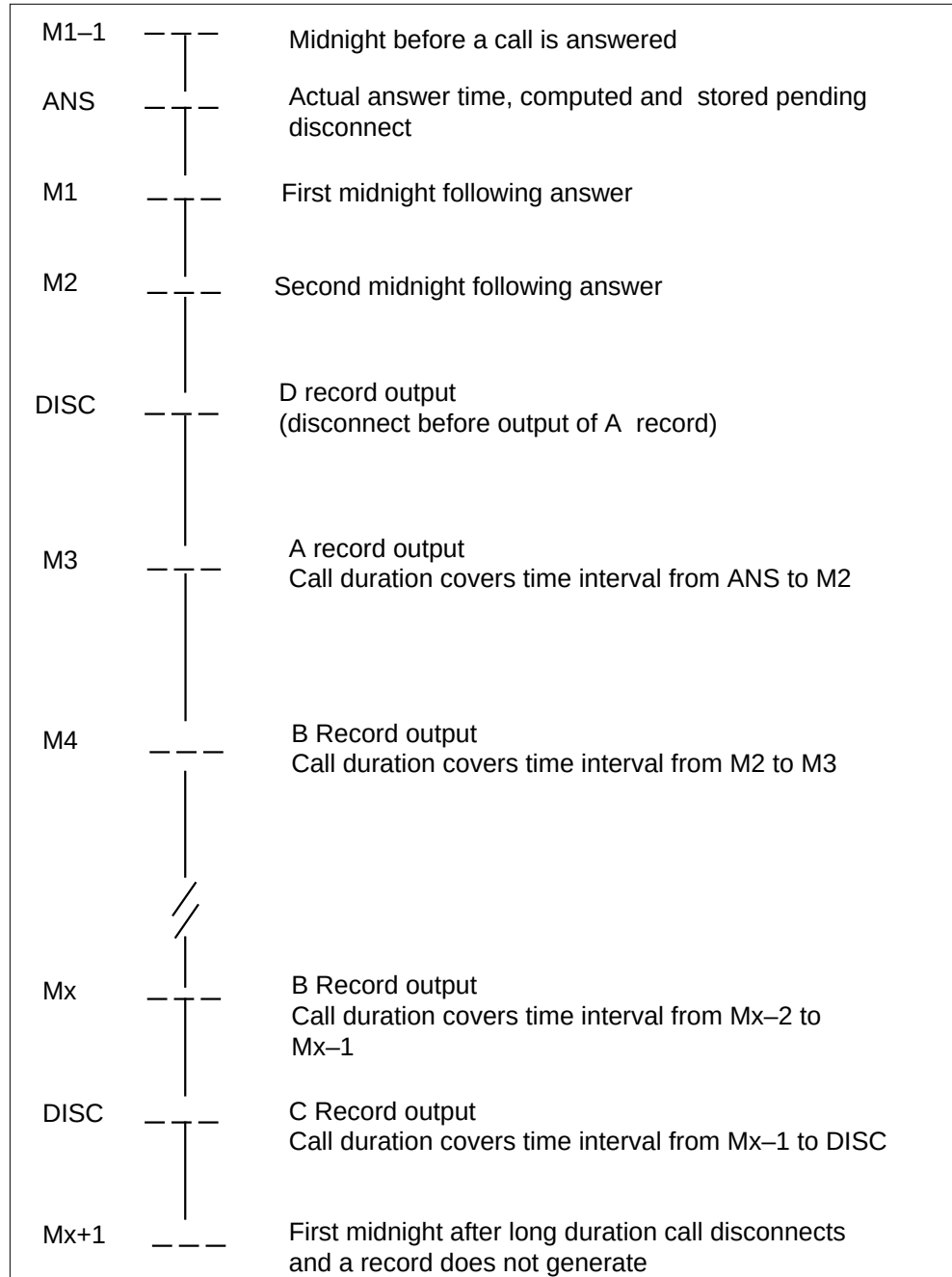
Record C

The value 3 denotes this record. The system generates this record at call disconnect except when a D record generates. The elapsed time field contains the time interval from the last midnight the system generates a record to the disconnect time.

Record D

The value 4 denotes this record. The system generates this record for a call that connects through two successive midnights but disconnects before an A record generates.

The type of long duration record that the system generates before BCS34 appears in the following figure.

Bellcore CAMA Format (continued)**Long duration call**

Feature AN0101 now defines a long duration call as a call that connects for more than 24 h. A long duration call must have a scheduled long duration record generation time. The scheduled record generation time defaults to

Bellcore CAMA Format (continued)

midnight. The operating company can specify this time through the BCLONGCALL tuple in table AMAOPTS.

Note 1: Set each option in table AMAOPTS to the NT initial value for the application of the new BCS. A dump and restore does the following. The Bellcore format value of the option from the previous BCS in each option is put in the current BCS. This condition does not include the values that did not appear in the previous BCSs. The BCLONGCALL option was not present in pre-BCS34 loads. When the BCS34 software is applied, BCLONGCALL option contains the NT initial value of OFF. The operating company must set this value to the options they require.

Note 2: Tuple LONGCALL does not apply to Bellcore format records. Tuple LONGCALL applies to NT format records and call forwarding long duration records.

Feature AN0101 allows AMA to create two types of long duration call records. These records are first record and continuation record.

For intranetwork calls, the elapsed time determines how long the call is connected. For internetwork calls, the carrier elapsed time determines how long the call is connected.

First record

First record occurs if a call connects for more than 24 h and record generation time occurs. A first record contains the following information for an intranetwork call:

- The connect time field contains the time of the connected call. Define this field as the time the called party goes off-hook.
- The connect date field contains the date of the connected call.
- The elapsed time field contains the time interval from the call connect time to the record generation time.

A first record contains the following information for an internetwork call:

- The carrier connect time field contains the time the call connects to the carrier. The carrier connect time definition depends on the call type. For Feature Group B calls, establish carrier connect time when the carrier goes off-hook. For Feature Group D calls, establish carrier connect time when the carrier sends the first wink.
- The carrier connect date field contains the date the call connects to the carrier.

Bellcore CAMA Format (continued)

- The carrier elapsed time field contains the time interval from when the call connects to the carrier to the record generation time.
- The elapsed time field contains the time interval from when the call connects to the called party to the record generation time.

Continuation record

A continuation record occurs for each following record generation time. The last continuation record occurs at disconnect time. A continuation record contains the following information for an internetwork call:

- The connect time field contains the time of the connected call. Define the field as the time the called party goes off-hook.
- The connect date field contains the date of the connected call.
- The present time field contains the time the record is formatted.
- The present date field contains the date the record is formatted.
- The elapsed time field contains the amount of time from the generation of the last record to the current record generation time or to the call disconnect time.

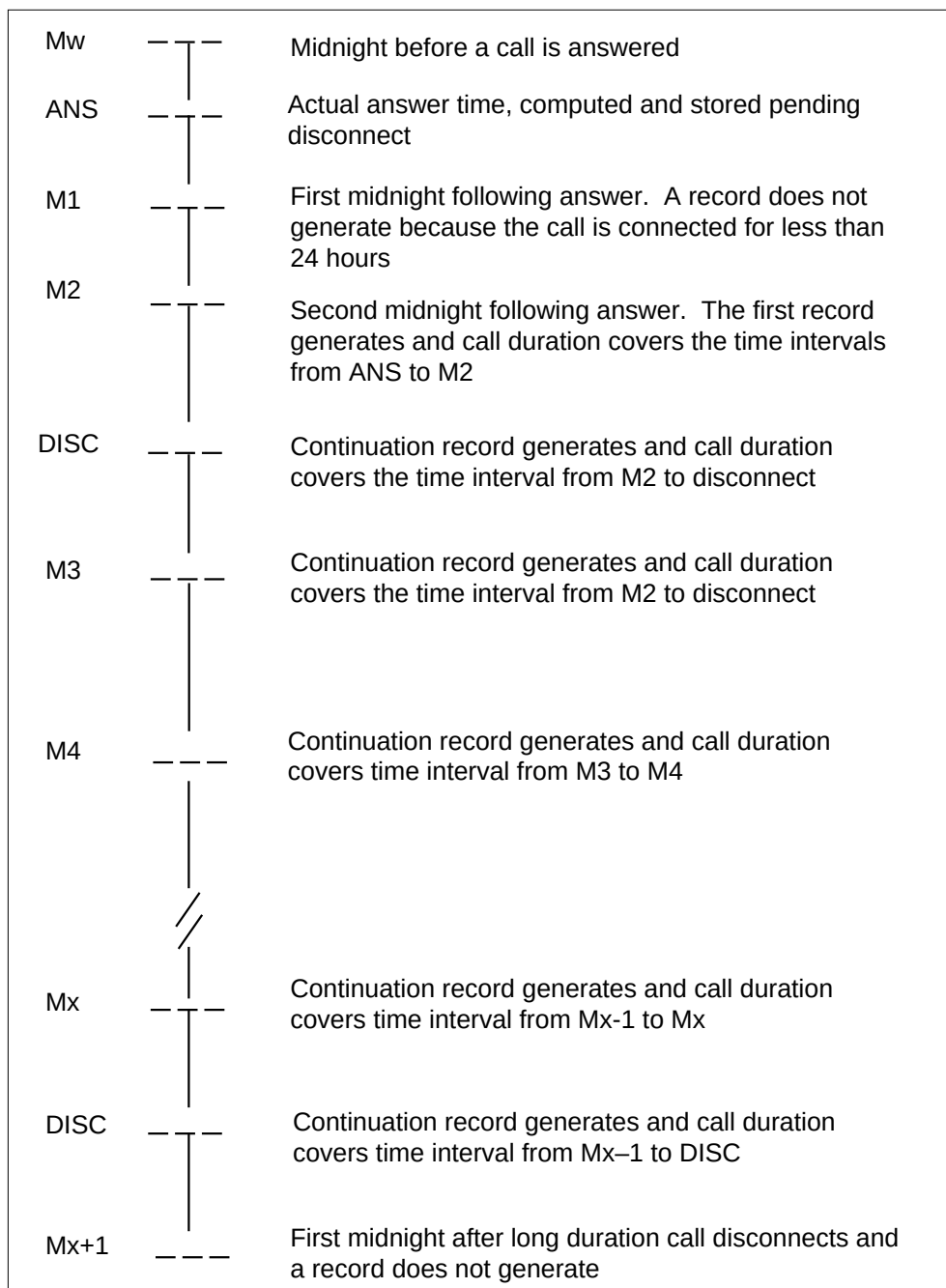
A continuation record contains the following information for an internetwork call:

- The carrier connect time field contains the time the call connects to the carrier. The carrier connect time definition depends on call type. For Feature Group B calls, establish carrier connect time when the carrier goes off-hook. For Feature Group D calls, carrier connect time is established when the first wink is received from the carrier.
- The carrier connect date field contains the date the call connects to the carrier.
- The present time field contains the time the record is formatted.
- The present date field contains the date the record is formatted.
- The carrier elapsed time field contains the amount of time from the generation of the last record to the current record generation time or to the call disconnect time.
- The elapsed time field contains the amount of time from the generation of the last record to the current record generation time or to the call disconnect time.

How AMA TR-508 Compliancy II implements the requirements of Bellcore specifications appears in the following figure.

Belcore CAMA Format (continued)

Long duration call with feature AN0101

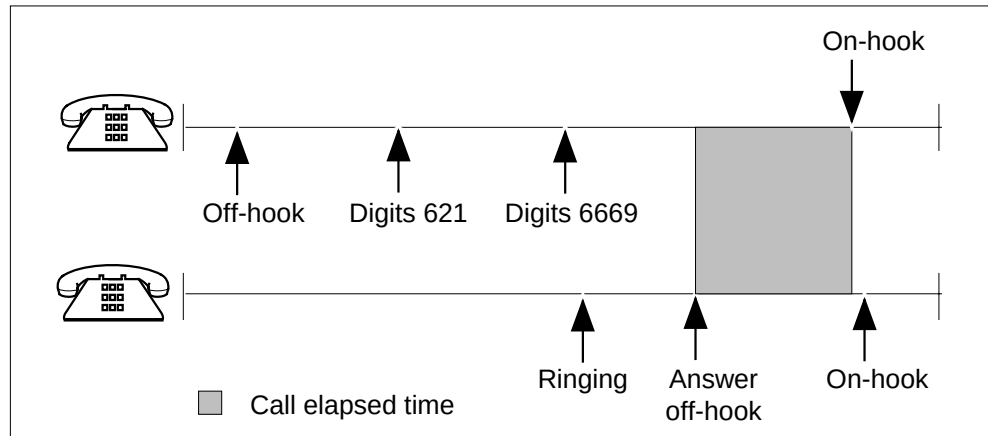


Bellcore CAMA Format (continued)

AMA Base Re-engineering II (AN0319)

An example of a line-to-line call with an elapsed time in which 621-6667 calls 621-6669, appears in the following figure. The shaded area is an elapsed time from answer to disconnection of the originator.

Call elapsed time



Universal Bellcore Centrex Billing (NC0267)

Table AMAGRPID

Table AMAGRPID creates AMA group identifiers referenced in table LINEATTR. For IBN lines and trunks, the call translates by NET DOD or NET GEN translations from table IBNXLA. The call translates to pick up a LINEATTR index. For POTS lines, a LINEATTR index is assigned against the line.

Table AMAXLAID

Table AMAXLAID specifies flexible call types FLEXCTYP and service features FLEXSF. Table AMAXLAID accepts operating company defined grouping of a maximum of eight characters. Many call types assigned by the FLEXCTYP can override all (OVRDALL) predefined DMS call types or selectively permit precedence (PRCDENCE). The following are call types that can grant precedence in the FLEXCTYP:

- **LOCAL**—Local calls receive precedence. These calls include calls set to NP in table STDPRTCT, or set to LCL in tuple CLASS of the Universal HEAD and CODE tables.
- **TOLL**—Toll calls receives precedence. These calls include calls set to DD in table STDPRTCT, or set to NATL or INTL in tuple CLASS of universal translations.

Belcore CAMA Format (continued)

- IC—Equal access receives precedence.
- VPN—VPN calls receives precedence.

Table AMAXLAID defines translation identifiers. An AMA translation identifier translation depends on if the translation system is North American or Universal. In North American offices, a modified subtable AMAPRT includes an AMAXLAID option that points to a name that table AMAXLAID identifies. In universal offices, add option AMAXLAID to the CONT, RTE and DNRTE selectors of the following tables:

- ACHEAD
- AMHEAD
- CTHEAD
- FAHEAD
- FTHEAD
- OFCHEAD
- NSCHEAD
- PXHEAD
- ACCODE
- AMCODE
- CTCODE
- FACODE
- FTCODE
- OFCCODE
- NSCCODE
- PXCODE

The information in option AMAXLAID points to a name table AMAXLAID identifies.

Table FLEXAMA

Table FLEXAMA allows a defined set of AMA characteristics for the call. These characteristics are based on the AMAGRPID and AMAXLAID

Bellcore CAMA Format (continued)

assigned against the table. Use this table when a call picks up an AMAGRPID through table LINEATTR, and an AMAXLAID through translations.

Note: If the AMAGRPID and AMAXLAID combination does not have a tuple entered in table FLEXAMA, the following occurs. The defaults in tables AMAGRPID and AMAXLAID are used.

Table LINEATTR

Feature NC0267 creates a new option field, AMAGRPID, for table LINEATTR. The NCO267 removes fields LCABILL and HOT and places these fields as options in the options field.

Translations table flow for POTS Bellcore CAMA

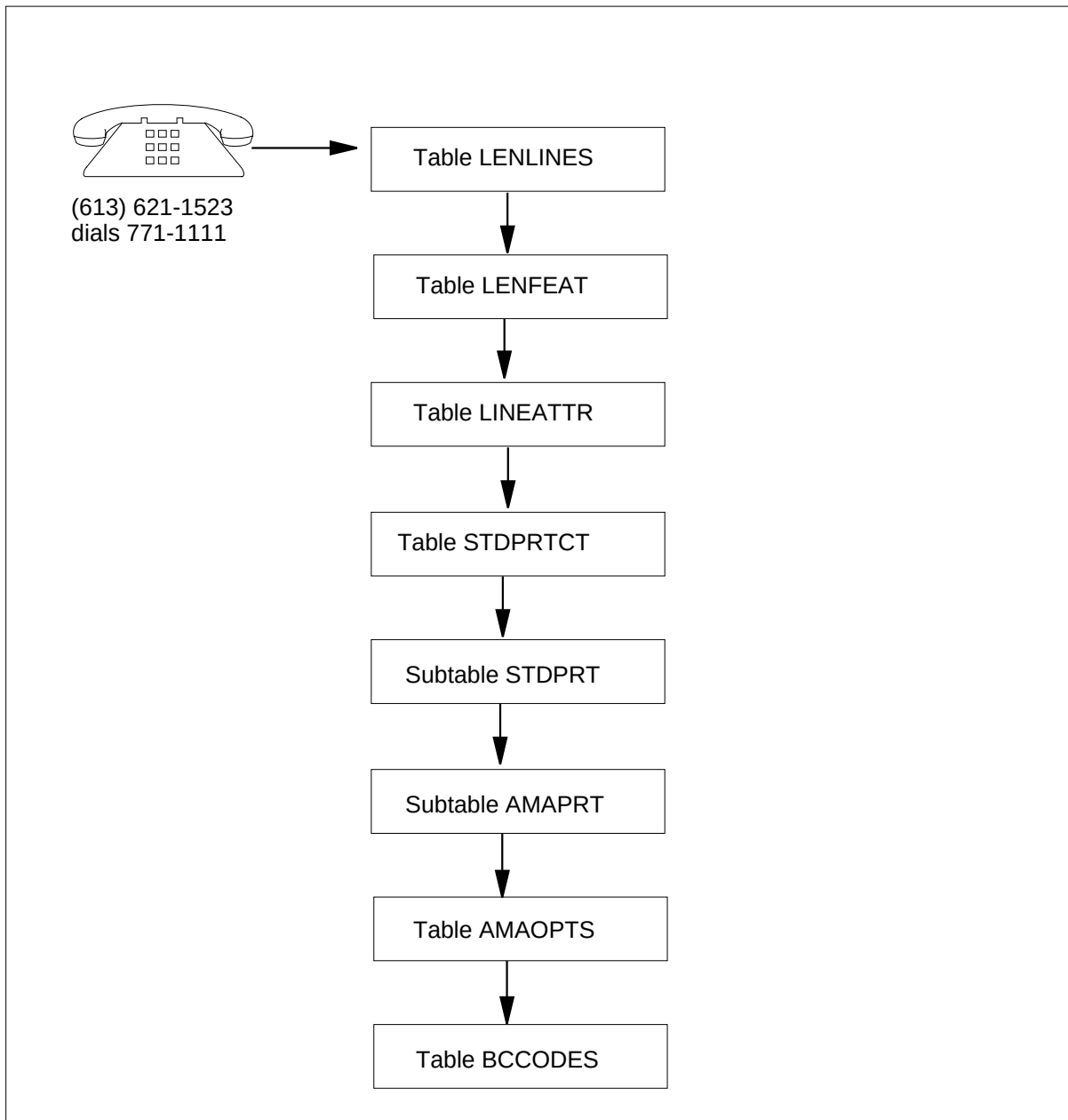
The Bellcore CAMA Format translations table appear in the following list:

- Table LENLINES contains the hardware assignments of each working line and assigned options.
- Table LINEATTR determines the indexing in screening tables and first defines the type of line that generates the call.
- Table STDPRTCT sets the type of call to process (NP, DD, OA) and performs other functions that relate to call routing and screening. Screening in table STDPRTCT comes from field PRTNM in table LINEATTR.
- Subtable STDPRT is in the index based on the leading digits of the number dialed. If leading digits are found, set call type and strip leading digits, if correct. Set the routing to continue translations.
- Subtable AMAPRT generates call codes 009, 033, 088, 121, and 800-999 through the use of AMA pretranslation.
- Table AMAOPTS controls the activation and schedule of the recording options for local, toll and high-revenue calls.
- Table BCCODES allows the operating company to specify the unanswered calls that can create billing records.

The Bellcore CAMA Format translation process appears in the following flowchart.

Belcore CAMA Format (continued)

Table flow for POTS Belcore CAMA Format



The following lists items and example data that appear in the flowchart.

- calling number (613) 621-1523
- called number 771-1111

Bellcore CAMA Format (continued)

The datafill content from the flowchart appears in the following table.

Datafill example for Bellcore CAMA Format

Datafill table	Example data
LENLINES	HOST 00 0 03 02 S 0 6211523 DT 0 CWT 3WC
LENFEAT	HOST 00 0 03 02 S CFW CFW C 613 6211523 NSCR 1 HOST 00 0 03 02
LINEATTR	0 1FR NONE NT NSCR 0 613 PRT2 L613 N CTOP N 0 NIL NILSFC LATA1 0 NIL NIL 00 N
STDPRTCT	PRT2 (12) (3)
STDPRTCT .STDPRT	600 844 N NP 0 NA
STDPRTCT .AMAPRT	771 771 DA411
AMAOPTS	DA411 ON
BCCODES	LOCAL (036) (009) (067) (074) (041)

Translations table flow for Universal Bellcore Centrex Billing (NC0267) (North American offices)

The Universal Bellcore Centrex Billing translations tables for North American offices appear in the following list:

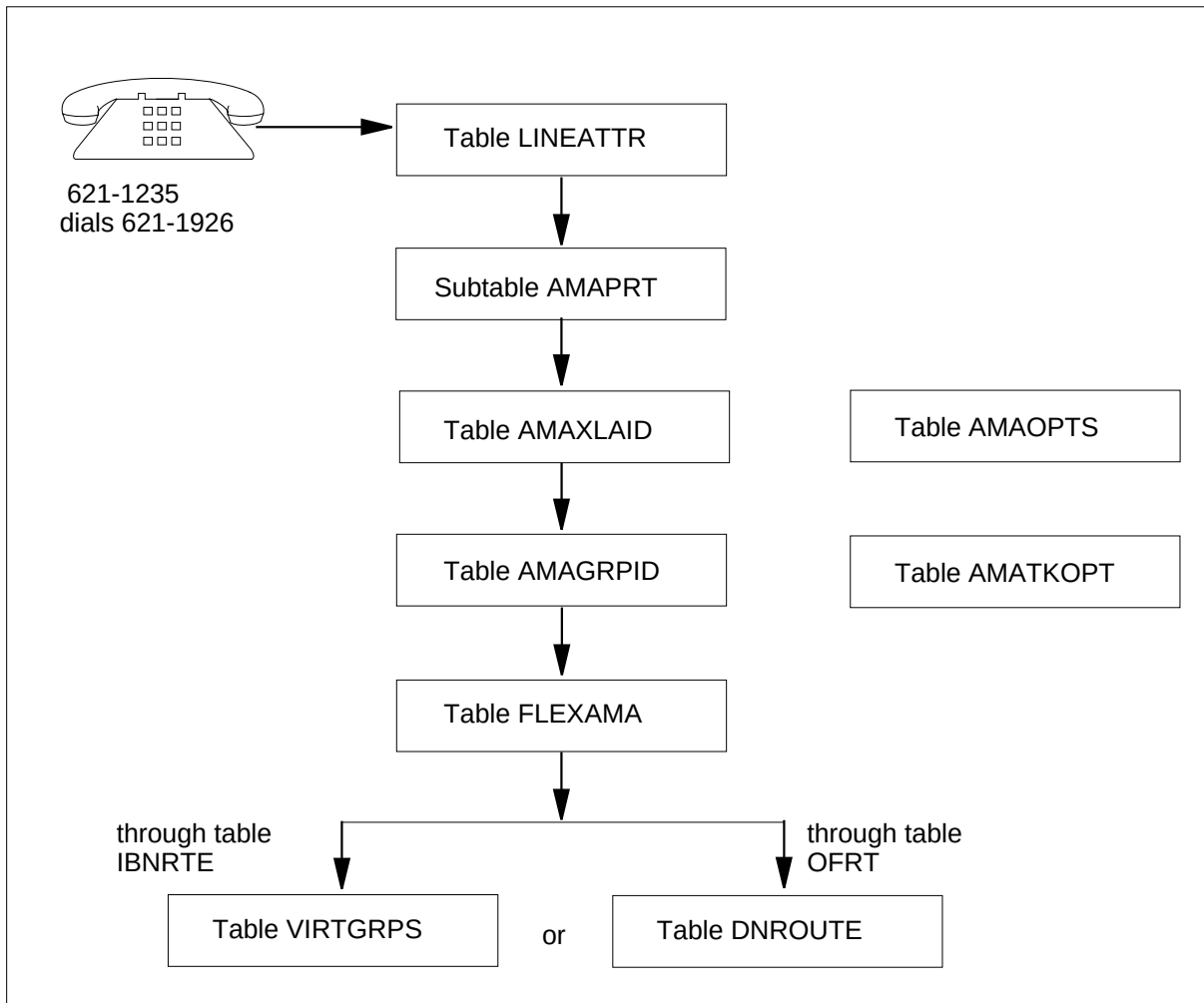
- Subtable AMAPRT generates call codes 009, 033, 088, 121, and 800-999 through the use of AMA pretranslation.
- Table AMAGRPID identifies the AMA group.
- Table AMAXLAID defines the AMA translation identifiers.
- Table FLEXAMA allows a defined set of AMA characteristics for the call. These characteristics are defined based on the AMAGRPID and AMAXLAID assigned against the table.
- Table VIRTGRPS provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS and provide equal access capabilities.
- Table DNROUTE lists information for directory numbers (DNs) that identify a route.

Belcore CAMA Format (continued)

- Table AMAOPTS controls the activation and schedule of the recording options for local, toll and high-revenue calls.
- Table AMATKOPT allows a trunk group or specified members of the trunk group to apply AMA Bellcore format specified options.

The Bellcore CAMA translations process for North American offices appears in the following flowchart.

Table flow for Bellcore CAMA Format for North American offices



Note 1: For VFGs, the translations process routes to table VIRTGRPS if you enter ENTRYID in table VIRTGRPS. For DISA stations, the translations process routes to table DNROUTE if you enter ENTRYID in table DNROUTE.

Bellcore CAMA Format (continued)

Note 2: Tables AMAOPTS and AMATKOPT are not part of the translations flow. These tables act as triggers. Table AMAOPTS triggers CRSEQNUM and table AMATKOPT triggers AMACLID.

The following lists items and example data that appears in the flowchart.

- calling number 621-1235
- called number 621-1926

The datafill content from the flowchart example appears in the following table.

Datafill example for Bellcore CAMA Format

Datafill table	Example data
LINEATTR	15 IBN NONE NT NSCR 0 071 NPRT NLCA NONE 0 NIL NILSFC NILLATA 0 PX CG5 NIL 00 N (HOT) \$
Subtable AMAPRT	782 782 AMAXLAID GENERIC2
AMAGRPID	GROUP2 DFLT (FLEXOCI 100) \$
AMAXLAID	XLA2 DFLT (FLEXCTYP STNPAID OVERDALL)(FLEXSF 800) \$
FLEXAMA	GROUP2 XLA2 GRPDATA (FLEXOCI 150) \$
VIRTGRPS	VFG1 SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N (ENTRYID) \$
DNROUTE	062 879 4390 FEAT DISA CUSTOMER1 0 N N N N (ENTRYID) \$
AMAOPTS	CRSEQNUM ON
AMATKOPT	ISUP2W (AMACLID) \$

Translations table flow for Universal Bellcore Centrex Billing (NC0267) (Universal offices)

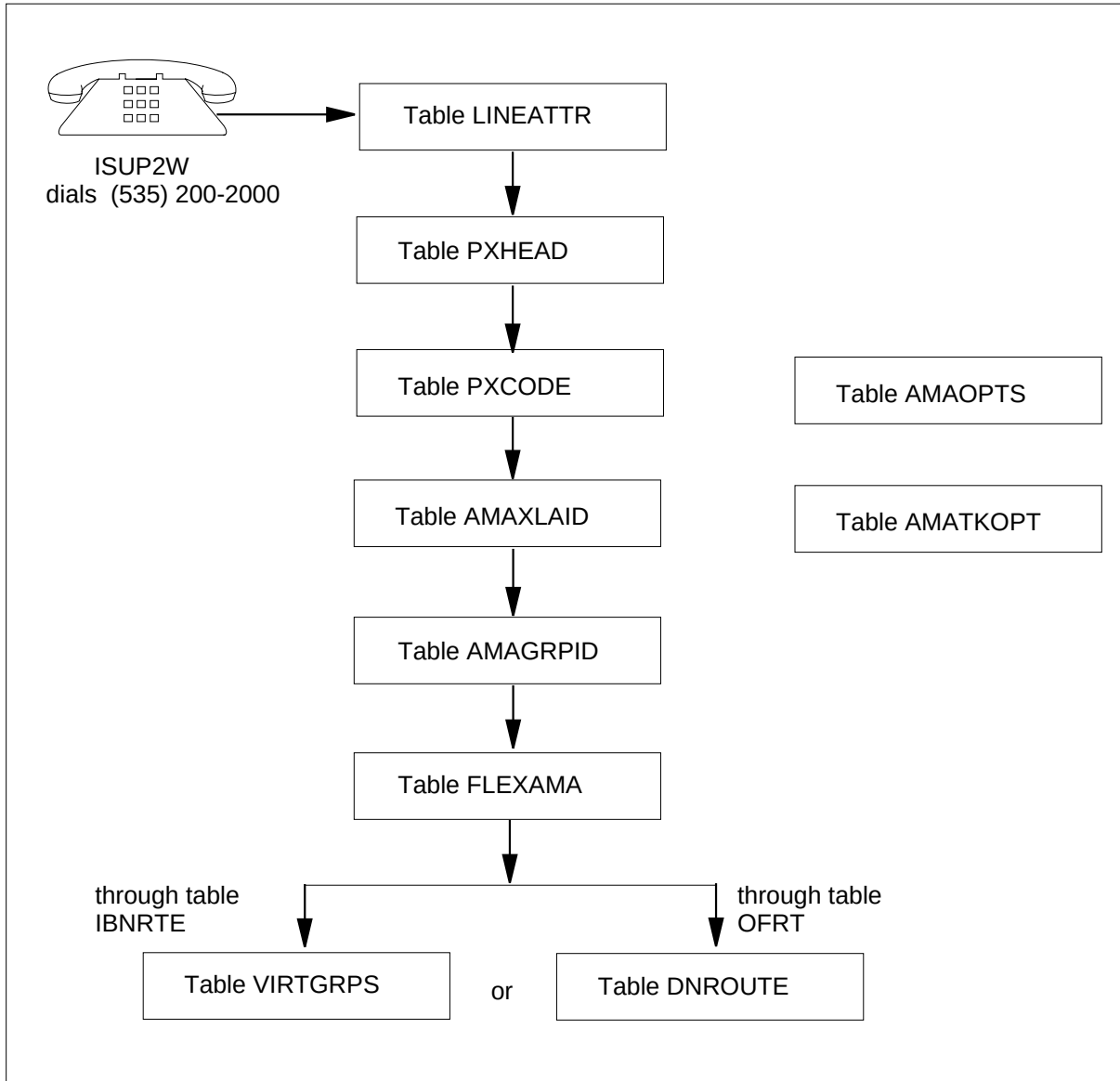
The Universal Bellcore Centrex Billing translations tables for Universal offices appear in the following list:

- Table PXHEAD defines the instance of code and route tables and characteristics.
- Table PXCDEF defines the instance of code and route tables and characteristics.
- Table AMAGRPID identifies the AMA group.
- Table AMAXLAID defines the AMA translation identifiers.

Bellcore CAMA Format (continued)

- Table FLEXAMA allows a set of defined AMA characteristics for the call. These characteristics are defined based on the AMAGRPID and AMAXLAID assigned against the table.
- Table DNROUTE lists information for DNs that identify a route.
- Table VIRTGRPS provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS and provide equal access capabilities.
- Table AMATKOPT allows AMA Bellcore format specified options to be applied on a trunk group or to specified members of the trunk group.
- Table AMAOPTS controls the activation and schedule of the recording options for local, toll and high-revenue calls.

The Bellcore CAMA translations process for Universal offices appears in the following flowchart.

Bellcore CAMA Format (continued)**Table flow for Bellcore CAMA Format for Universal offices**

Note 1: For VFGs, the translations process routes to table VIRTGRPS if you enter ENTRYID in table VIRTGRPS. For DISA stations, the translations process routes to table DNROUTE if you enter ENTRYID in table DNROUTE.

Note 2: Tables AMAOPTS and AMATKOPT are not part of the translations flow. These tables act as triggers. Table AMAOPTS triggers CRSEQNUM and table AMATKOPT triggers AMACLID.

Bellcore CAMA Format (continued)

The following lists items and example data that appear in the flowchart.

- calling number ISUP2W
- called number (535) 200-2000

The datafill content from the flowchart example appears in the following tables.

Datafill example for Bellcore CAMA Format

Datafill table	Example data
LINEATTR	15 IBN NONE NT NSCR 0 071 NPRT NLCA NONE 0 NIL NILSFC NILLATA 0 PX CG5 NIL 00 N (HOT) \$
PXHEAD	LCLXLA SDFLT DFOP DFOP (MM 7 10) (XLT PX CG1) (AMAXLAID XLA1) \$ NOCON STD
PXCODE	CG2 200 200 CONT (MM 10 10) (XLT PX CG2) (AMAXLAID XLA1) \$
AMAGRPID	GROUP2 DFLT (FLEXOCI 100) \$
AMAXLAID	XLA2 DFLT (FLEXCTYP STNPAID OVERDALL)(FLEXSF 800) \$
FLEXAMA	GROUP2 XLA2 GRPDATA (FLEXOCI 150) \$
VIRTGRPS	VFG1 SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N (ENTRYID) \$
DNROUTE	062 879 4390 FEAT DISA CUSTOMER1 0 N N N N (ENTRYID) \$
AMAOPTS	CRSEQNU ON
AMATKOPT	ISUP2W (AMACLID) \$

Limits

The following sections describe limits that apply to Bellcore CAMA Format features:

DWS 1203 AMA Billing (AD4733)

The following limits apply to this feature:

- The DWS calls on DMS-100 and DMS-200 Canadian telephone networks use call code 148 and structure code 0190.
- Outgoing wideband calls on ATC trunks generate call code 149, not call code 110. Incoming wideband calls on ATC trunks can generate call code 150, and not call code 119.

Note: Call code 110 and 119 are generated for narrowband calls.

Bellcore CAMA Format (continued)

- Set the OCCTERM in table AMAOPTS to ON to initiate CAMA recording.
- Set the UNIVERSAL_AMA_BILLING in table OFCENG to N to allow North American AMA billing.
- Enter Field KEY AMA. Enter Field FORMAT BCFMT in table CRSFMT to initiate Bellcore AMA.

Global EBAF AMA (Clone) (AE1275)

The following limits apply to this feature:

- A maximum of three time changes are recorded for each AMA record.
 - Module code 504 appends to an AMA record. This AMA is produced after the call releases and is not produced at the time the change occurs.
 - Module code 504 does not append to AMA records that unanswered call recording produces.
 - A time change does not impact the recording of *connect* or *elapsed* times.
 - Module code 504 appends to the next record that LONGCALL system produces if a time change occurs during a LONGCALL.
- Recording of time changes applies if you:
 - Set CALL_TIMECHG in table AMAOPTS to ON
 - Set UNIVERSAL_AMA_BILLING in table OFCENG to ON
 - Set TIMECHANGE in table AMAOPTS to OFF

AMA Test Call Enhancements (AF1981)

The AF1981 is operational in a switch configured for Bellcore AMA format. This feature can be present in switches configured for other formats, but to enable this feature does not have an effect.

To enable this feature for long duration calls, AMATEST must be present on the originator, not the terminator. Long duration calls are calls in progress for more than 24 h.

Note: If AMATEST is applied on a trunk group or line the following action occurs. *All* Bellcore AMA records that calls that originate or terminate to this line produce, are marked as study records.

In the study indicator field, with a default calling number and a called number that is not present, the study indicator field records a value of 4. This value signifies calling and called number are not present, not value 6.

Bellcore CAMA Format (continued)

AMA Compliance—TR-508 (AF3078)

The following limits apply to this feature:

- A switch recording Bellcore format AMA data does not use MCD timing. Other billing SMDR on this switch does not use MCD timing if the switch records in Bellcore format.
- On the DMS switch, TRD timing activates when the terminating party goes on-hook while the originating party is still off-hook. The two parties can be off-hook at the same time for continuous seconds. This condition does not affect activation. This functionality does not comply with Bellcore specifications. This specification states the TRD must not activate unless both parties are off-hook for two continuous seconds. Because of this non-compliance, short duration calls on the DMS switch can be overbilled by all or part of TRD time when the called party goes on-hook first.

Note: The previous limits apply if non-resident CI command NOMCD activates the removal of MCD. Refer to Activation/deactivation of MCD with NOMCD for instructions on how to deactivate MCD.

- An elapsed time cannot be estimated for calls taken down because of a cold SWACT on a subscriber carrier module 100 rural (SMR), subscriber carrier module 100S (SMS), or subscriber carrier module 100 urban (SMU). This condition occurs because of specified limits of this peripheral type. The AMA record generated for this call shows the timing guard flag set and a zero elapsed time.

AMA TR-508 Compliance II (AN0101)

Feature activation and deactivation of long duration software records produced with call code 031 functions according to previous Bellcore specifications. AD record is not produced. For D records, the timing indicator field was 5. This value is not correct now. Value 3 replaces value 5.

Set each option in table AMAOPTS to the NT initial value when you apply the new BCS. A dump and restore puts the Bellcore format value of the option from the previous BCS in each option in the current BCS. This condition does not include values that did not appear in the previous BCSs. Before this feature, LONGCALL in table AMAOPTS controlled Bellcore Format long duration record generation. Obtain the first value for BCLONGCALL from the LONGCALL value from the previous BCS. The BCLONGCALL option was not present in pre-BCS34 loads. With the applied BCS34 software, BCLONGCALL option contains the NT initial value of OFF. The operating company must set this value to the options they require.

Bellcore CAMA Format (continued)

Bellcore CAMA Format (BR0378)

The following limits apply to this feature:

- Table VIRTGRPS option VFGAMA facility types apply to incoming IBN VFGs. These facility types are ETS, FX, CCSA, and TDMTT.
- The application of the FX and ETS options is the only way that the DMS switch can identify a VFG as an ETS or FX facility.
- When the FX or ETS option and the call detail recording (CDR) option are assigned to a VFG, the VFGAMA option takes precedence over the CDR option. Billing is based on the VFGAMA option datafill. If CDR is on, a VFG for NP type calls has an assigned FX. If the MDRRAO feature activates for the call, call code 011 generates.
- This feature only applies to Bellcore AMA format.
- The AMADUMP is not supported for data stored on a distributed processing peripheral (DPP).

Call Codes 009, 033, 121 Assignment via Translation (BR0759)

The BR0759 does not support all call codes. Call code 121, Datapath terminating access record, is an inter-LATA call code. The system generates this call code for calls incoming from an equal access carrier. Call code 121 does not generate for intra-LATA Datapath calls.

The system cannot generate call codes entered for AMA pretranslation for the following reasons.

- Tables LINEATTR and TRKGRP do not specify a pretranslator in the PRTNM field.
- The leading digits of the called number are altered before you index in subtable STDPRT.
- Other attributes like equal access cause the system to generate call code before the call code that the subtable AMAPRT specifies. The equal access call codes have higher priority than call codes 088 and 800-805.

The BR0759 supports the following trunk groups:

- SuperCAMA (SC) and CAMA (OC)
- Access To Carrier (ATC)
- P2 trunk (P2)
- PX trunk (PX)
- IBN trunks (IBNTI and IBNT2)

Belcore CAMA Format (continued)

Universal Bellcore Centrex Billing (NC0267)

The following limits apply to this feature:

- Calls where the originating port is an ISUP trunk with AMACLID entered against the trunk have the AMA calling line identification provided.
- Incoming or two-way ISUP trunks permit data entered in AMACLID.
- The count (0000000-9999999) of the call record sequence number rolls over to 0000001 not 0000000. This condition distinguishes this event from the restart types that cause the count to reset to 0000000.

Note: Any attempt to enter the AMACLID option on trunks that are not an incoming or two-way ISUPs, results in the following. A rejection of the tuple and the generation of a warning message occurs.

Interactions

The interactions between Bellcore CAMA Format and other functionalities appear in the following paragraphs.

DWS 1203 AMA Billing (AD4733)

Feature AD4733 interacts with the following features:

- AD3936—LEC Wideband Call Processing
- AD4433—LEC WSS ISUP to PRI Interworking
- AD4449—LEC WSS PRI
- AD4732—LEC DWS FGD ISUP

Global EBAF AMA (AE1124)

If a switch has Global EBAF AMA (AE1124), SMDR and authorization code are recorded in AMA. SMDR and authorization code are recorded if MDRRAO and new option AUTHAMA are entered in field OPTIONS of table CUSTSMDR.

VFG AMA support for FX and ETS calls (AF1093)

The switch can have the MDR Data in the AMA Stream feature package (NTXA88AA) and an active Message Detail Recording Revenue Accounting Office (MDRRAO) feature on a customer group. When this condition is present, the following billing interactions occur when the VFG has a facility designation:

- NP calls that customer groups with an active MDRRAO feature originate, generate call code 159 for the first leg of the call. For the second leg of the call (VFG to terminator), the call code generated is call code 011 or 085. These records have an appended module code 100. Enter the incoming

Bellcore CAMA Format (continued)

facility type in the module as 011 (FX) or 085 (ETS). The VFG datafill determines the incoming facility type.

- Direct dial (DD) calls that customer groups with an active MDRRAO feature originates, do not generate call codes 011 or 085. Module code 100 is appended to the record generated. Enter the facility type assigned to the VFG, FX or ETS as an 011 or 085 in the incoming facility type field.

The following table summarizes different AMA records. These records are produced when the following occurs. The IBN incoming VFGs for routing are assigned to customer groups with the MDRRAO feature active, module code 100.

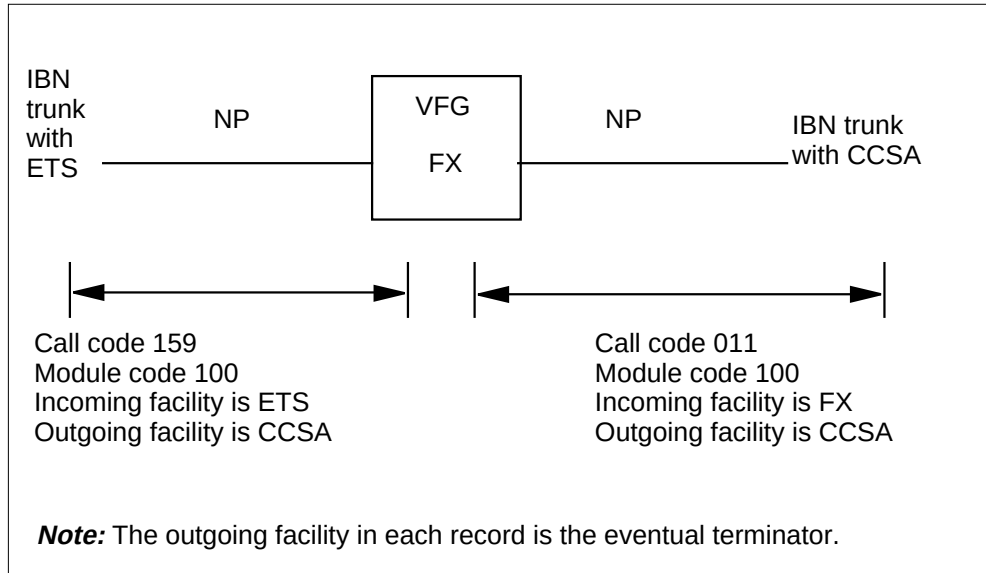
Summary of AMA records produced with IBN trunks when the MDRRAO feature is active

VFG	Call type	Termination	Type of AMA record	Incoming facility	Outgoing facility
FX	NP	Line/trunk	FX (011)	FX (011)	Line or unknown
FX	NP	IBN trunk with ETS	FX (011)	FX (011)	ETS (085)
FX	DD	Line/trunk	DD (006)	FX (011)	Line or unknown
FX	DD	IBN trunk with ETS	DD (006)	FX (011)	ETS (085)

With the assigned MDRRAO option to customer groups that originate calls in the following figure, the result is two AMA records. The first leg of the call generates a call code 159 AMA record with module 100 appended. In this module, the incoming facility is an ETS incoming trunk. The call goes to a CCSA trunk. The call marks the outgoing facility type as CCSA. The call sees through to the terminator and marks the outgoing facility in both records as CCSA. For the second leg of the call, a call code 011 AMA record is generated. The second leg of the call originates from an FX facility and the call does not normally generate a different AMA record. The call marks the incoming facility type in module 100 as 011 (FX). The call marks the outgoing facility as 021 (CCSA).

Belcore CAMA Format (continued)

Billing for the MDRRAO feature



AMA TR-508 Compliancy II (AN0101)

This feature modifies long duration AMA software to comply with Bellcore specification.

Activation/deactivation by the end user

Bellcore CAMA Format does not require activation or deactivation by the end user.

Billing

DWS 1203 AMA Billing (AD4733)

The following structure codes associate with the new call codes in feature AD4733.

- Structure code 00190 associates with call code 148.
- Structure code 00645 associates with call code 149 and 150.

The following call codes associate with feature AD4733.

- call code 148—Intranetwork high bandwidth call
- call code 149—Originating access high bandwidth call
- call code 150—Terminating access high bandwidth call

Call code 148 generates when an intranetwork DWS call originates and completes at the originating switch complex in the LATA.

Bellcore CAMA Format (continued)

An example of an AMA record generated for call code 148 appears in the following figure.

Call code 148

```

HEX ID:AA STRUCT CODE:00190C CALL TYPE:148C SENS0 TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:21208C TIMING IND:00000C STUDY IND:0000000C CLD PTY
OFF-HK:0C SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C
ORIG NPA:214C ORIG NO:6315555C OVERSEAS IND: 0C TERM NPA:00944
TERM NO:6316666C CONN TIME:1707492C ELAPSED TIME:000000169C
SERV IND:003C DATA RATE IND:003C TERMINATING COMPANY:000C
  
```

The system generates call code 149 when an internetwork DWS call originates at the originating switch complex in the LATA that originates the call.

An AMA record generated for call code 149 appears in the following figure.

Call code 149

```

HEX ID:AA STRUCT CODE:00645C CALL TYPE:149C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:21208C TIMING IND:00000C STUDY IND:0000000C CLD PTY
OFF-HK:0C SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C
ORIG NPA:214C ORIG NO:6403333C OVERSEAS IND: 0C TERM
NPA:00822 TERM NO:6843333C CONN TIME:1705250C ELAPSED
TIME:000000147C IC/INC PREFIX:01251C CC DATE:21208C CC
TIME:1705188C ELAPSED CC:000000209C IC/INC EVENT STATUS:010C
TRUNK GROUP NUMBER:41066C ROUTING IND:1C DIALING IND:5C ANI
IND:1C SERV IND:003C DATA RATE IND:003C TERMINATING
COMPANY:000C
  
```

The system generates call code 150 when an internetwork DWS call completes at the point-of-presence switch complex in the LATA terminating the call.

An example of an AMA record generated for call code 150 appears in the following figure.

Belcore CAMA Format (continued)

Call code 150

```
HEX ID:AA STRUCT CODE:00645C CALL TYPE:149C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:21208C TIMING IND:00000C STUDY IND:0000000C CLD PTY
OFF-HK:0C SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C
ORIG NPA:214C ORIG NO:6403333C OVERSEAS IND: 0C TERM
NPA:00822 TERM NO:6843333C CONN TIME:1705246C ELAPSED
TIME:000000153C IC/INC PREFIX:01252C CC DATE:21208C CC
TIME:1705183C ELAPSED CC:000000216C IC/INC EVENT STATUS:010C
TRUNK GROUP NUMBER:61065C ROUTING IND:1C DIALING IND:FF ANI
IND:1C SERV IND:003C DATA RATE IND:003C TERMINATING
COMPANY:000C
```

Global EBAF AMA (Clone) (AE1275)

Global EBAF AMA adds time change information, module code 504, to Bellcore AMA.

An example of an AMA record generated for module code 504 appears in the following figure.

Module code 504

```
HEX ID:AA STRUCT CODE:40510C CALL CODE:006C SENSOR
TYPE:036C SENSOR ID:0250250C REC OFC TYPE:036C REC OFC
ID:0250250C DATE:20225C TIMING IND:00000C STUDY
IND:0000000C CLD PTY OFF-HK:0C SERVICE OBSERVED: 0C OPER
ACTION:0C SERVICE FEATURE:000C SIG DIGITS NEXT FIELD:010C
ORIG OPEN DIGITS 1:00212002000C ORIG OPEN DIGITS
2:FFFFFFFF ORIGINATING CHARGE INFO:FFFF DOMESTIC/INTL
INDICATOR:1C SIG DIGITS NEXT FIELD:004C TERM OPEN DIGITS
1:00000002001C TERM OPEN DIGITS 2:FFFFFFFF CONNECT
TIME:0930059C ELAPSED TIME:000000144C MODULE CODE:504C TIME
BEFORE CHANGE:0930170C TIME AFTER CHANGE:0935004C DATE
BEFORE CHANGE:20225C DATE AFTER CHANGE:20225C MODULE
CODE:000C
```

The following is an example of call time change data.

Call time change data (Sheet 1 of 2)

Information	Field Number	Number of characters
Module code 504	88	4
Time before change	18	

Bellcore CAMA Format (continued)**Call time change data (Sheet 2 of 2)**

Information	Field Number	Number of characters
Time after change	18	8
Date before change	6	8
Date after change	6	6

AMA Compliance—TR-508 (AF3078)

The billing format is changed in the meaning of the correct values that are entered in fields timing indicator and cld pty offhk. The field cld pty offhk was named answer. These fields are non-optional and are not changed in size. Changes in fields timing indicator and cold party off-hook appear in the following tables.

Timing indicator

BDC characters	Meaning
1	0 = Timing guard condition is not present 2 = Timing guard condition
2	0 = Short called off-hook not detected 1 = Short called off-hook detected
3	0 = Not long duration call 1 = First record (long duration connection or feature activation) 2 = Continuation record (long duration connection) 3 = Service deactivation
4	0 (This character is not used)
5	0 (This character is not used)
6	SIGN (hex C)

Timing guard condition is present when the following are not known:

- connect time
- connect date
- carrier connect time
- carrier connect date

Belcore CAMA Format (continued)

- elapsed time
- carrier elapsed time of an AMA billing record

The elapsed time field, and/or carrier elapsed time field can contain an estimated value.

Record short called off-hook condition when the following occurs. The called party of a call that is not connected experiences an on-hook to off-hook to on-hook action. The off-hook part of the action is less than 2 s long.

A long duration call is a call that connects for more than 24 h and encounters record generation time. This character is set to 1 when the call connects for more than 24 h and the record generation time occurs. This character is set to 2 for each subsequent long duration record when the call still connects at the record generation time. The BCD character is set to 2 long duration call disconnects.

An example of a called part off-hook indicator appears in the following table.

Called party off-hook indicator

BDC characters	Meaning
1	0 = Called party off-hook not detected 1 = Called party off-hook detected
2	SIGN (hex C)

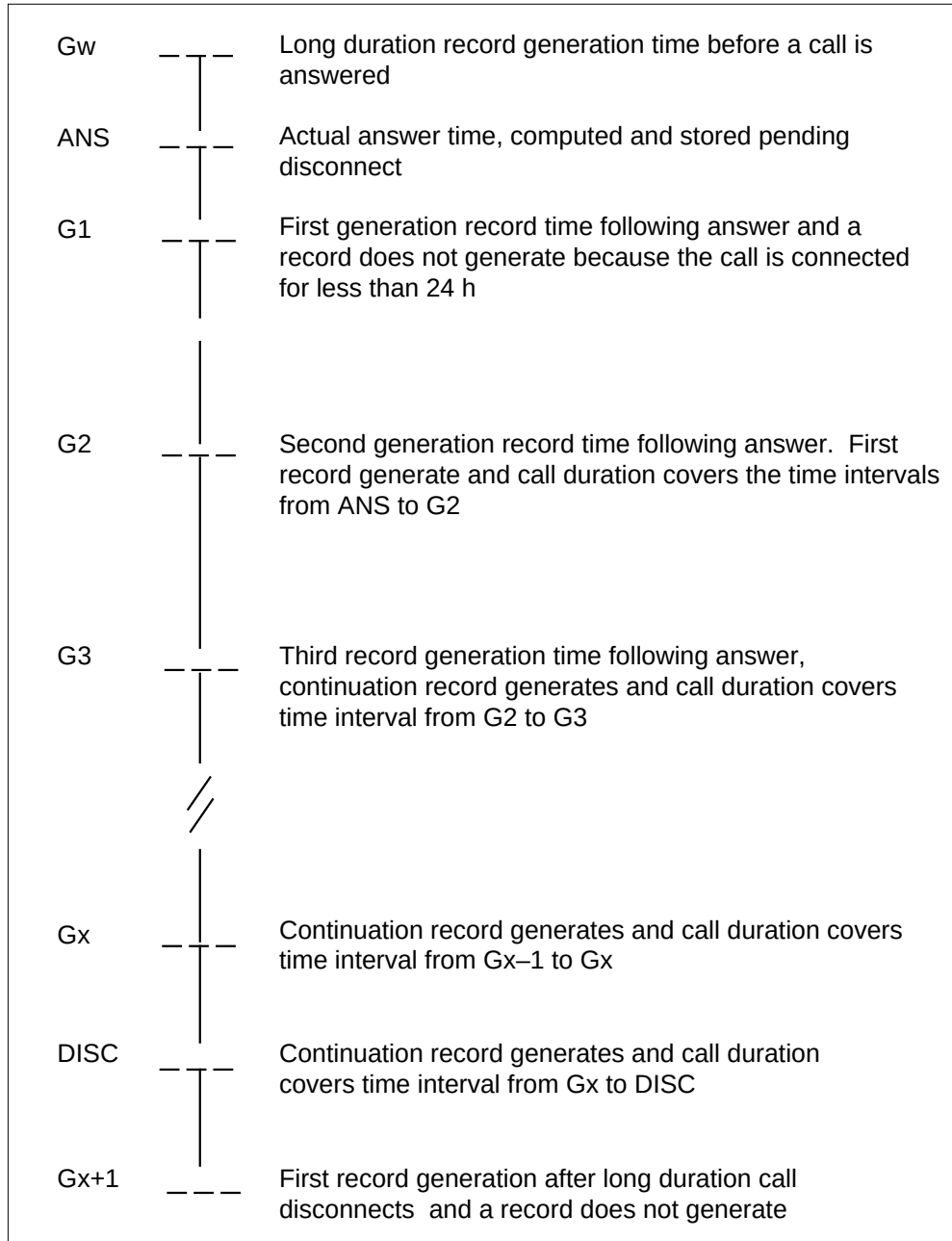
Called party off-hook detection occurs when the called party goes off-hook to connect to the originator. This condition means that the old minimum charge duration period is not taken in account when you fill this field with a correct value. This condition means the elapsed time field can contain a value that is less than the old minimum charge duration period.

AMA TR-508 Compliance II (AN0101)

Long duration record generation is available in AMA. Feature AMA TR-508 Compliance II (AN0101) now defines long duration call as the following. A long duration call connects continuously for 24 h and encounters the record generation time. This feature adds the ability to schedule the record generation time. The operating company can specify the time of day that long duration records can generate.

Note: See table Timing indicator for changes in the BCD characters.

A simplified version of a long duration call appears in the following figure.

Bellcore CAMA Format (continued)**Long duration call**

Belcore CAMA Format (continued)

Long duration values and the records they produce appear in the following table.

Long duration value

Value	Time	Date	Example record
Gw	11 pm	May 7	not produced
Answer	9 pm	May 8	not produced
G1	11 pm	May 8	not produced
G2	11 pm	May 9	First record generated at G2
G3	11 pm	May 10	Continuation record generated at G3
Gx	11 pm	May 11	Continuation record generated at Gx
Disconnect	9 pm	May 12	Continuation record generated at disconnect
Gx + 1	11 pm	May 12	not produced

An example of a first record generated at G2 appears in the following figure. Set the third BCD character in the timing indicator field to 1. The elapsed time is greater than 24 h.

First record generated at G2

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10509C TIMING IND:00100C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001560000C
```

A continuation record generated at G3 appears in the following example. Set the third BCD character in the timing indicator field to 2. The elapsed time is 24 h.

Bellcore CAMA Format (continued)

Continuation record generated at G3

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10508C TIMING IND:00200C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001440000C PRESENT DATE:10510C PRESENT TIME:2300000C
```

An example of a continuation record generated at Gx appears in the following figure. Set the third BCD character in the timing indicator field to 2. The elapsed time is 24 h.

Continuation record generated at Gx

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10508C TIMING IND:00200C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001440000C PRESENT DATE:10511C PRESENT TIME:2100000C
```

An example of a continuation record generated at disconnect appears in the following figure. Set the third BCD character in the timing indicator field to 2. The elapsed time is less than 24 h because the call disconnects before the record generation time.

Continuation record generated at disconnect

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10508C TIMING IND:00200C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001320000C PRESENT DATE:10511C PRESENT TIME:2300000C
```

Note: Records are not guaranteed to be exactly 24 h.

Bellcore CAMA Format (continued)

Bellcore CAMA Format (BR0378)

In a CAMA office, the system generates the following call codes to identify AMA records:

- 006 station paid
- 009 directory assistance 411
- 033 directory assistance 555
- 090 switch tracer
- 092 switch/RAO tracer
- 119 terminating access records
- 132 terminating FGA

Call Codes 009, 033, 121 Assignment via Translation (BR0759)

The system can generate call codes 009 and 033 with AMA or standard pretranslation. The AMA pretranslation allows the operating company to enter a number other than 411 for local directory assistance. The AMA pretranslation allows for 555-1212 specified directory assistance calls.

The system can generate call code 121 instead of 119 for a terminating Datapath call when you use AMA pretranslation. This condition allows the operating company to identify Datapath terminating records.

The following describes call codes 009, 033, 121, and associated structures:

- Call Code 009 (411 directory assistance) is for local directory assistance calls.

The following structure codes are supported for call code 009:

- 00028 answered
- 00068 unanswered
- 00128 long duration
- Call Code 033 (555 directory assistance) is for calls routed to 555-1212 directory assistance.

Bellcore CAMA Format (continued)

The following structure codes are supported for call code 033:

- 00028 answered
- 00068 unanswered
- 00128 long duration
- Call Code 121 (Datapath terminating access records). The operating company can use this call code instead of 119 (terminating access record) for an inter-LATA Datapath call.

The following structure codes are supported for call codes 121:

- 00656 inter-LATA
- 00657 inter-LATA, long duration

Billing is in accordance with Bellcore AMA formatting.

The following figures are examples of AMA records generated for call codes 006, 009, 033, 119 and 121. The hexadecimal C at the end of each field indicates that the field is complete. A 1 at the start of a structure code indicates there is not an answer.

Call code 006

```
HEX ID:AA STRUCT CODE:10002C CALL TYPE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60422C TIMING IND:00000C STUDY IND:2300000C ANSWER:1C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT: 000C ORIG
NPA:613C ORIG NO:7224121C OVERSEAS IND: 0C TERM NPA:00918
TERM NO:2411111C CONN TIME:0100354C ELAPSED TIME:000000000C
CKT DATE: 60422C CKT TIME:0100397C CIRCUIT ID:0000320C
```

Call code 009

```
HEX ID:AA STRUCT CODE:00028C CALL TYPE:009C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60422C TIMING IND:00000C STUDY IND:2320000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT: 000C ORIG
NPA:613C ORIG NO:6211234C CONN TIME:0121205C
```

Bellcore CAMA Format (continued)

Call code 033

```
HEX ID:AA STRUCT CODE:00028C CALL TYPE:033C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60422C TIMING IND:00000C STUDY IND:2300000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT: 000C ORIG
NPA:613C ORIG NO:6211234C CONN TIME:0143219C
```

Call code 119

```
HEX ID:AA STRUCT CODE:00653C CALL TYPE:119C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60507C TIMING IND:00000C STUDY IND:0200000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT: 000C OVERSEAS
IND: 1C TERM NPA:00613 TERM NO:6211234C TIME:0149494C
ELAPSED TIME:000000083C IC/INC PREFIX:02222C CC DATE: 60507C
CC TIME:0149443C ELAPSED CC:000000134C IC/INC EVENT: 010C
TRK GRP:00000C ROUTING:0C
```

Call code 121

```
HEX ID:AA STRUCT CODE:10656C CALL TYPE:121C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60103C TIMING IND:00000C STUDY IND:0200000C ANSWER:1C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT: 000C OVERSEAS
IND: 1C TERM NPA:00613 TERM NO:7224121C TIME:0000000C
ELAPSED TIME:000000000C IC/INC PREFIX:02222C CC DATE: 60102C
CC TIME:1629488C ELAPSED CC:000000182C IC/INC EVENT: 001C
TRK GRP:00000C ROUTING:0C SERVICE IND:003C DATA RATE
INDICATOR:006C CIRCUIT ID:7000167C
```

AMA Base Re-engineering II (AN0319)

An example of an AMA record in Bellcore format appears in the following figure. The AMA record that generates call code 006 and contains call details for a direct-dialed, station-paid toll call appears in the following figure. The recorded field elapsed time in the AMA record is in units of minutes, seconds and tenths of seconds.

Bellcore CAMA Format (continued)

Call code 006

```

HEX ID:AA STRUCT CODE:00500C CALL TYPE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60114C CLD PTY OFF-HK:1C SERV FEAT:000C ORIG NPA:613C
ORIG NO:6215981C OVERSEAS IND: 1C TERM NPA:00613 TERM
NO:6635989C CONN TIME:0059345C ELAPSED TIME:000000212C
  
```

Universal Bellcore Centrex Billing (NC0267)

This feature adds call record sequence number (module code 042) to Bellcore AMA. This feature adds alternate billing number for open numbering (module code 046) to Bellcore AMA. To append module code 042 to the AMA record, enter option CRSEQNUM in table AMAOPTS. The call record sequence number module code 042 appears in the following example.

Call code 042

```

HEX ID:AA STRUCT CODE:40510C CALL TYPE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10611C TIMING IND:00000C STUDY IND:0000000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C SIG DIGITS
NEXT FIELD:01C ORIG OPEN DIGITS 1:00012364101C ORIG OPEN
DIGITS 2:FFFFFFFF ORIGINATING CHARGE INFO:FFFF DOMESTIC/
INTL INDICATOR:1C SIG DIGITS NEXT FIELD:004C TERM OPEN
DIGITS 1:00000004104C TERM OPEN DIGITS 2:FFFFFFFF CONNECT
TIME:1408363C ELAPSED TIME:000000045C MODULE CODE:042C
CALL RECORD SEQUENCE NUMBER:0000123C MODULE CODE:000C
  
```

Alternate billing number for open numbering (module code 046) allows the AMA record of call to provide an obtained CLI. The originating port must be a trunk. An example of module code 046 appears in the following example.

Belcore CAMA Format (continued)

Call code 046

```

HEX ID:AA STRUCT CODE:40510C CALL TYPE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10611C TIMING IND:00000C STUDY IND:0000000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C SIG DIGITS
NEXT FIELD:01C ORIG OPEN DIGITS 1:00012364101C ORIG OPEN
DIGITS 2:FFFFFFFF ORIGINATING CHARGE INFO:FFFF
DOMESTIC/INTL INDICATOR:1C SIG DIGITS NEXT FIELD:004C TERM
OPEN DIGITS 1:00000004104C TERM OPEN DIGITS 2:FFFFFFFF
CONNECT TIME:1408363C ELAPSED TIME:000000045C MODULE
CODE:046C SOURCE OF CHARGE NUMBER:1C SIG DIGITS NEXT
FIELD:009C ORIG OPEN DIGITS 1:00628770770C ORIG OPEN DIGITS
2:FFFFFFFF MODULE CODE:000C

```

Note: You can append this module twice on one AMA call record. You can append one module to hold CLI if the originating trunk has AMACLIID entered and the other appends to identify the point of entry. Point of entry is billing incurred during the same call on an entity with ENTRYID entered. The source of charge number indicates if AMACLIID or ENTRYID generates module code 046.

Station Message Detail Recording

In tables VIRTGRPS and VFGDATA, assign the VFGAMA option to an integrated business network (IBN) incoming virtual facility group (VFG). Specify the facility type as foreign exchange (FX) or electronic telephone set (ETS). The call can be a no prefix (NP) call. The system can route the call through the designated VFG. If this event occurs, and if no other billing applies to the call, the system generates call code 011 or 085.

The system can route a call through a VFG that has the VFGAMA option FX. When this condition occurs, the system assigns a Station Message Detail Recording (SMDR) record to the first half of the call. The system also assigns an Automatic Message Accounting (AMA) record (call code 011) to the first half of the call. The system assigns another SMDR record to the second half of the call. The system generates two SMDR records because SMDR record generation is on in table IBNXLA.

In switches with the MDRRAO feature activated, the system can generate call code 011 or 085 for the second leg of a call. This call has the same datafill that appears in the previous paragraph. The system adds module code 100 to the record. In module code 100, the incoming facility type is 011 (FX) or 085 (ETS). The system adds module code 100 to the AMA record generated. The AMA record always reflects the incoming facility type for calls that route through VFGs assigned facility types.

Bellcore CAMA Format (continued)

Examples of AMA records the system generates for call codes 011 and 085 appear in the following figures.

Call code 011 - High Runner

```
HEX ID:AA STRUCT CODE:00500C CALL TYPE:011C SENSOR
TYPE:036C SENSOR ID:0000000C REC OFC TYPE:036C REC OFC
ID:0000000C DATE:90306C ANSWER:0C SERV FEAT: 000C ORIG
NPA:613C ORIG NO:7224000C OVERSEAS IND: 1C TERM NPA:00613
TERM NO:6221424C CONN TIME:1327379C ELAPSED
TIME:000000024C
```

Call code 085 - Answered Call

```
HEX ID:AA STRUCT CODE:00001C CALL TYPE:085C SENSOR
TYPE:036C SENSOR ID:0000000C REC OFC TYPE:036C REC OFC
ID:0000000C DATE:90306C TIMING IND:10000C STUDY
IND:0000000C ANSWER:0C SERV OBSERVED:0C OPER ACTION:0C
SERV FEAT: 000C ORIG NPA:613C ORIG NO:7224000C OVERSEAS
IND: 1C TERM NPA:00613 TERM NO:6221424C CONN TIME:1330172C
ELAPSED TIME:000000021C
```

Datafilling office parameters

The office parameters that Bellcore CAMA Format uses appear in the following table. Refer to *Office Parameters Reference Manual* for more information about office parameters.

Office parameters by Bellcore CAMA Format (Sheet 1 of 2)

Table nameParameter	Explanation and action
OFCSTD BCS_NUMBER	This parameter indicates the batch change supplement (BCS) load number of the load image. The device independent recording package (DRIP) records the parameter on the Bellcore AMA tape header labels. The parameter has an issue number to indicate the BCS number. The parameter has a subissue number to indicate special BCS releases.
OFCENG CRS_SUBRU_POOL1_ SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL1 extension block.
OFCENG CRS_SUBRU_POOL2_ SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL2 extension block.

Belcore CAMA Format (continued)

Office parameters by Belcore CAMA Format (Sheet 2 of 2)

Table nameParameter	Explanation and action
OFCENG CRS_SUBRU_POOL3_SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL3 extension block. Generation of Bellcore AMA structures for MDC functions requires this extension block. Bellcore AMA structures for number service code functions PVN and E800 require this structure. A Bellcore AMA billing record requires a maximum of one block from this pool. This requirement is different from CRS_SUBRU_POOL1_SIZE and CRS_SUBRU_POOL2_SIZE values.
OFCENG CRS_SUBRU_POOL4_SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL4 extension block. Billing of the TOPS traffic that uses Bellcore AMA call recording requires this extension block. All TOPS billing requires a block from this pool.
OFCENG CRS_PRU_POOL1_SIZE	This parameter does not have a BCS32 application.
OFCENG CRS_PRU_POOL2_SIZE	Most Bellcore AMA RU data ports to this RU pool as a PRU structure. Provision the pool to include the sum of the values of the following parameters: • NUM_OF_BC_AMA_UNITS • NUM_OF_BC_LAMA_UNITS Provisioning recording units (RU) is a continuous process. Because this feature adds new extension block types, the EXT OMs change to include the new extension block types. The EXT OMs must monitor the use of the RU pool. The establishment of acceptable sizes for each RU pool requires the monitoring of the available OMs.

Increase Flexibility of AMA Software Configuration (AF2755)

The office parameters in table OFCENG (office engineering) control the size of each RU pool. Descriptions of each RU pool appear in the office parameters table. Module codes for correct office parameters follow.

The module codes for office parameter CRS_SUBRU_POOL1_SIZE are:

- module codes 100 and 101 — MDR RAO AMA
- module code 120 — centrex customer group identification
- module code 110 — class display AMA
- module code 059 — TOPS EA service time

Bellcore CAMA Format (continued)

- module code 312 — TOPS guest name and room number
- module code 052 — TOPS listing services

The module and structure codes for office parameter CRS_SUBRU_POOL2_SIZE are:

- module code 102 and 20XXX structure codes — authcode/account code recording
- call code 136, structure codes 00140 and 00141 — revenue allocation recording
- module code 309 — TOPS E800 service
- module codes 314 and 315 — TOPS overwritten number data

AMA specific to number service code (NSC) functions

The PVN and E800 calls with Bellcore AMA billing require a block from pool CRS_SUBRU_POOL3_SIZE.

Provisioning RUs is a continuous process. Because this feature adds new extension block types, the EXT OMs change to include the new extension block types. The EXT OMs must monitor the use of the RU pool. The establishment of acceptable sizes for each RU pool requires monitoring of the available OMs.

Bellcore format AMA migration and provisioning requirement

This feature alters how RUs are provisioned for Bellcore format AMA offices. This configuration makes some present extension blocks out of use. The extension blocks that BCS32 and later versions do not use appear in the following table.

Obsolete extension blocks (Sheet 1 of 2)

Extension block	Feature subject	Size	Stream	RU pool	Comments
BC_RECORDING_UNIT	NUM_OF_BC_AMA_UNITS	98	BC AMA	CRS_PRU_POOL1	The base Bellcore CAMA record unit
BC_LAMA_REC_UNIT	NUM_OF_BC_LAMA_UNITS	98	BC AMA	CRS_PRU_POOL1	The base Bellcore LAMA record unit

Belcore CAMA Format (continued)

Obsolete extension blocks (Sheet 2 of 2)

Extension block	Feature subject	Size	Stream	RU pool	Comments
REAL_EXTENSION_BLOCK	REVAL_NUMBER_OF_EXT_BLOCKS	9	BC AMA	CRS_SUPRU_POOL2	Introduced by feature AF1400 in BCS29
MDR_EXT_BLOCK	NUM_OF_MDR_EXT_BLOCKS	13	BC AMA	CRS_SUPRU_POOL2	Introduced by feature AF1980 in BCS29

Datafilling office parameters for DWS 1203 AMA Billing (AD4733)

The office parameter that feature DWS 1203 AMA Billing, AD4733 uses appears in the following table. Refer to *Office Parameters Reference Manual* for more information about office parameters.

Office parameters by DWS 1203 AMA Billing

Table name	Parameter	Explanation and action
OFCENG	UNIVERSAL_AMA_BILLING	This parameter specifies if billing structures must use Open Numbering designs in the Belcore Format AMA subsystem.

Datafilling office parameters for AMA Compliance—TR-508 (AF3078)

The office parameters that the AMA Compliance (TR-508) uses appears in the following table. Refer to *Office Parameters Reference Manual* for more information about office parameters.

Office parameters by AMA Compliance (TR-508) (AF3078)

Table name	Parameter	Explanation and action
OFCENG	MINIMUM_CHARGE_DURATION	This parameter specifies the time in 10 ms intervals. The specified time interval determines if the system considers a call answered when the called party off-hook exceeds the specified interval.
Note: Feature AMA Compliance TR-508 (AF3078) changes the default value of office parameter MINIMUM_CHARGE_DURATION. The default value is 16 (160 ms) instead of 208 (2.08 s).		

Bellcore CAMA Format (continued)

Datafill sequence

Tables that require datafill to implement Bellcore CAMA Format appear in the following table. The tables appear in the correct entry order.

Datafill requirements for Bellcore CAMA Format (Sheet 1 of 2)

Table	Purpose of table
OFCSTD	Standard Office Parameter. The office parameters that have a standard value appear in this table.
OFCENG	Office Engineering. This table contains data on engineering parameters for the office. Refer to Datafilling office parameters for how Bellcore CAMA Format affects office parameters.
LINEATTR	Line Attributes. Provides a list of attributes for the line index assigned to every subscriber line.
STDPRTCT	List of Standard Pretranslation Tables. Lists the operating company-defined names of the Standard Pretranslator subtable (STDPRTCT.STDPRT).
STDPRTCT. STDPRT	Standard Pretranslator Subtable. Sets up the translations for a specified call type.
STDPRTCT. AMAPRT	AMA Pretranslator. Generates call codes 009, 033, 088, 121, and 800-999 with AMA pretranslation.
AMAOPTS	AMA Options. Controls the activation and the schedule of the recording options for local, toll, and high-revenue calls.
BCCODES	Bellcore Codes. Allows the operating company to specify which unanswered calls will create billing records. If an option is active in table AMAOPTS, the system searches table BCCODES for the corresponding call code. If the code is in table BCCODES, the system creates a billing record for that unanswered call.
VIRTGRPS	Virtual Facility Group. Provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS. The trunks provide equal access capabilities.
VFGDATA	Virtual Facility Group Data. Allows non-operating company user access to the data in table VIRTGRPS. Non-operating company users have access to tables VFGDATA and VFGENG. A change to data in tables VFGDATA and VFGENG affects the data in table VIRTGRPS. A change to data in table VIRTGRPS affects the data in tables VFGDATA and VFGENG.

Bellcore CAMA Format (continued)

Datafill requirements for Bellcore CAMA Format (Sheet 2 of 2)

Table	Purpose of table
AMATKOPT	AMA Trunk Group Option. Allows the application of AMA Bellcore format specified options on a trunk group or to specified members of the trunk group.
KSETLINE	Business Set and Data-Unit Line Assignment. Contains data of directory number appearances on business sets and data units. Each number relate key on a business set and data unit requires one entry.

Datafilling table LINEATTR

Datafill for Bellcore CAMA Format for table LINEATTR appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section in this document for a description of the other fields.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Explanation and action
PRTNM		Standard Pretranslator subtable or NPRT	Standard pretranslator subtable name. Enter the name of the Standard Pretranslator subtable assigned to the line attribute index, if pretranslation of digits is required. Enter NPRT if standard pretranslation is not required.

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example.

MAP example for table LINEATTR

```

LAIDX LCC CHGCLSS COST SCRNL LG STS PRTNM LCA NAME
ZEROMPOS TRAFSNO
MRSA SFC LATANM MDI IXNAME DGCLNAME FANIDIGS
RESINF OPTIONS
-----
0 1FR NONE NT FR01 0 613 PRT1 L613
TSPS 10
NIL NILSFC LATA1 0 NIL NIL 00
N $

```

Bellcore CAMA Format (continued)

The pretranslator name PRT1 assigned in field PRTNM is indexed into table STDPRTCT. Pretranslation occurs if the PRTNM field of table LINEATTR or table TRKGRP specifies a pretranslator name.

For BCS34 and later versions, LCABILL and HOT are no longer in the fields in table LINEATTR. The LCABILL and HOT are options in the options field.

Datafilling table STDPRTCT

Datafill for table STDPRTCT appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section in this document for a description of the other fields.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Explanation and action
EXTPRTNM			External standard pretranslator subtable name. Enter the name that the operating company defines to represent the standard pretranslator subtable. Do not enter the standard pretranslator name C7PT. The integrated services digital network (ISDN) user part (ISUP) trunks automatically use C7PT on test calls in offices with ISUP capability.
Note: The maximum number of tuples in table STDPRTCT is 1024.			

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following example.

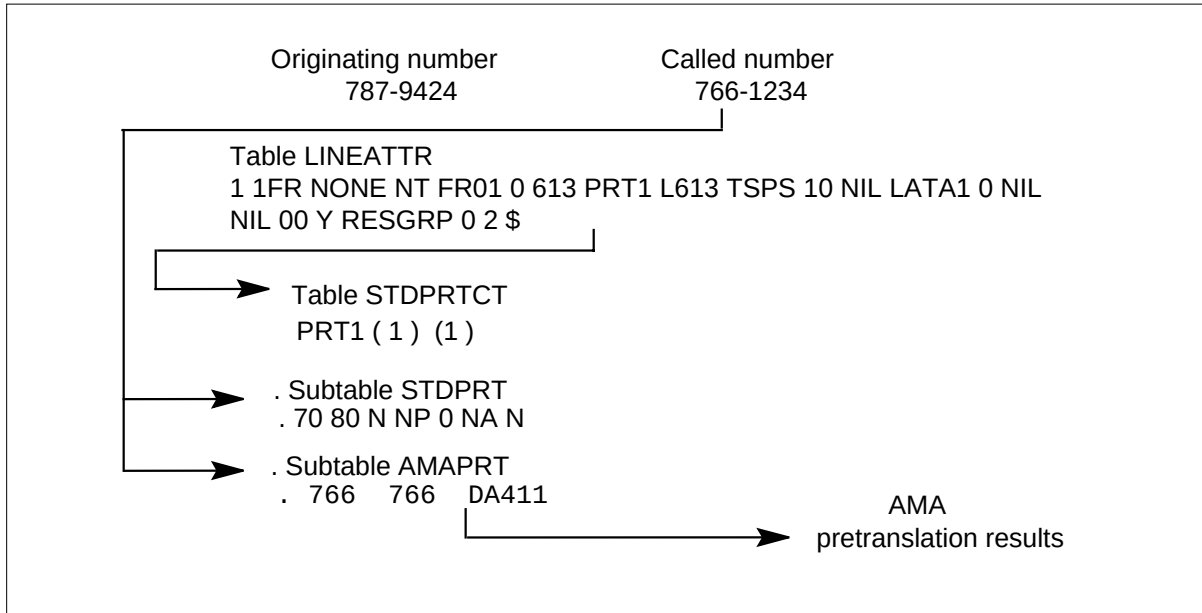
MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
PRT1	(1)	(1)

A STDPRT subtable corresponds to each pretranslator in table STDPRTCT. The received leading digits of the called number index subtable STDPRT. The indexing process with the pretranslator entered in table LINEATTR to index table STDPRTCT appears in the following figure. The process of the leading digit of the called number index to subtable STDPRT also appears in the following figure. The indexing appears for an originating line (787-9424) dialing 766-1234.

Belcore CAMA Format (continued)

Table indexing for standard pretranslation



In the previous figure, the datafill in subtable STDPRT indicates that the call is not billable. The type of call is NP. Without the datafill in subtable AMAPRT, the call does not generate an AMA record. The datafill in subtable AMAPRT indicates that the system generates call code 009 (DA411). This indication occurs when the user dials a number with leading digits 766. The leading digits of the called number determine the indexing in the STDPRTCT subtables. The system translates a called number with leading digits 70, 71, 72, 73 79, or 80 with subtable STDPRT datafill that appears in the figure above. The datafill that appears above is 70 80 N NP 0 NA N. The system generates call code 009 when the first digits of the called number are 766. The system generates call code 009 when the 411 options are set to ON in table AMAOPTS.

Datafilling subtable STDPRT

Datafill for subtable STDPRT in table STDPRTCT appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table.

Bellcore CAMA Format (continued)

See the data schema section of this document for a description of the other fields.



CAUTION
Possible office billing alteration
Changes in subtable STDPRT can alter office billing because of call code types. The call type default is NP. See the data schema section of this document for additional information about subtable STDPRT.



WARNING
Possible office billing alteration
Changes in subtable STDPRT can alter office billing because of call code types. The call type default is NP. See the data schema section of this document for additional information about subtable STDPRT.

Datafilling subtable STDPRTCT

Field	Subfield or refinement	Entry	Explanation and action
	TYPCALL	NP	Type of call. Enter NP. <i>Note:</i> See the data schema section of this document for a description of the other fields.

Datafill example for subtable STDPRT
Sample datafill for subtable STDPRT in table STDPRTCT appears in the following example.

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
70	80	N NP 0 NA N

Belcore CAMA Format (continued)

Datafilling subtable AMAPRT

Datafill for subtable AMAPRT in table STDPRTCT appears in the following table. The fields that apply to Belcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAPRT

Field	Subfield or refinement	Entry	Explanation and action
AMARSLT		refer to subfields	AMA result. A description of the subfields for this field follows.
	CALLCODE	DA411, DA555, NONDA555, or Datapath	Call code. Enter DA411, DA555, NONDA555 or Datapath to generate an AMA record of a specified call code.
	SFPRSNT	N	Service feature present. Enter N to prevent replacement of the current service feature field value.

Datafill example for subtable AMAPRT

Sample datafill for subtable AMAPRT in table STDPRTCT appears in the following example.

MAP example for subtable AMAPRT

FROMDIGS	TODIGS	AMARSLT
766	766	DA411 N
5551212	5551212	DA555 N

When the subscriber dials a number with leading digits 766, the system generates call code 009 for that local directory assistance (DA) call. When the subscriber dials digits 555-1212, the system generates call code 033.

Digits in the FROMDIGS and TODIGS fields can be different from subtable STDPRT to subtable AMAPRT. The operating company can enter AMA pretranslation results separately from standard pretranslation results.

An operating company can use BR0759 to generate specified call codes. These call codes are based on AMA pretranslation. The system generates AMA pretranslation through subtable AMAPRT. The system uses the leading digits of the called number to index subtable AMAPRT. When the system

Bellcore CAMA Format (continued)

locates the leading digits of the called number in subtable AMAPRT, the system generates an AMA record. The call code datafill specifies identifies the AMA record.

Note: The AMA pretranslation affects call codes the system generates when subtable AMAPRT is entered for the received leading digits. When subtable AMAPRT is not entered for the received leading digits, AMA pretranslation does not affect call codes.

For example, the translation of inter-LATA Datapath call can occur with standard pretranslation. This action generates call code 119, the terminating access record. This action occurs because subtable AMAPRT does not have an entry for the called number. The operating company can enter data in subtable AMAPRT. This action forces generation of call code 121 for the received leading digits of a Datapath call. Call code 121 is the Datapath terminating access record.

Note: The AMA pretranslation does not occur unless table LINEATTR or table TRKGRP specifies a pretranslator name (field PRTNM). This pretranslator name must index to table STDPRTCT. The leading digits of the called number determine the index in the STDPRT and AMAPRT subtables.

AMA pretranslation datafill

The system can use AMA pretranslation to generate the following call codes:

call code 009

411 directory assistance

call code 033

555 directory assistance

call code 121

Datapath terminating access record

Belcore CAMA Format (continued)

The system can generate call codes 009 and 033 without AMA pretranslation. This system generates these call codes without AMA pretranslation when the following conditions apply:

- DA411 and CHG411 and/or DA555 and CHG555 options are turned on in table AMAOPTS
- a subscriber dials 411 or 555-1212

With AMA pretranslation, the system can generate call code 009 for local DA calls other than 411. The system limits call code 033 to 555-1212 calls. Feature BR0759 implements Call code 121. The system can generate call code 121 only through use of AMA pretranslation for Datapath terminating access records.

Call codes generated from AMARSLT datafill in subtable AMAPRT

AMARSLT	Call code generated	Feature package required
DA411	009	NTX098AA
DA555	033	NTX098AA
NONDA555	088	NTX098AA and NTX737AA
Datapath	121	NTX098AA
CC800	800	NTX098AA and NTX737AA
CC801	800	NTX098AA and NTX737AA
CC802	802	NTX098AA and NTX737AA
CC803	803	NTX098AA and NTX737AA
CC804	804	NTX098AA and NTX737AA
CC805	805	NTX098AA and NTX737AA

Note 1: The system can generate call codes 088 and 800-805 only if the two feature packages, NTX737AA and NTX098AA, are in conjunction. The NTX737AA feature package is Flexible Bellcore AMA feature package.

Note 2: The AMA pretranslation dictates the generation of a Bellcore AMA call code.

Note 3: The AMA pretranslation uses the pretranslator name specified in table LINEATTR or table TRKGRP. For example, datafill in subtable STDPRT can cause indexing into table STDPRTCT again, with a new

Bellcore CAMA Format (continued)

pretranslator name. The AMA pretranslation uses only the first pretranslator name used to index table STDPRTCT.

Datafilling table AMAOPTS

Table Automatic Message Accounting options (AMAOPTS) automatically controls the activation and schedule of the recording options not recorded on AMA tape. Table AMAOPTS contains one tuple for every option. The user can activate, deactivate and schedule options at specified dates and times. To perform these actions, change the scheduling information for the options. The user controls the output produced by the AMA system with these actions.

Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS because base AMA incorporates the functions of the tuples.

Datafill for table AMAOPTS appears in the following table. The fields that apply directly to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		DA411 and DA555	Option. Enter DA411 and DA555.
SCHEDULE		see subfield	Schedule. This field contains the following subfields: • AMASEL • ONDATE • ONTIME • OFFDATE • OFFTIME • SCHED • TV • TU A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate DA411 and DA555.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

Belcore CAMA Format (continued)

MAP example for table AMAOPTS

OPTION	SCHEDULE
DA411	ON
DA555	ON

This sample datafill causes the system to record DA 411 and 555 calls. This sample datafill causes the system to generate AMAB log reports. All unanswered toll calls generate call codes in table BCCODES. The system records short supervisory changes. The system outputs long period call reports every 24 h.

Datafilling table BCCODES

Datafill for table BCCODES appears in the following table. The fields that apply to Belcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Explanation and action
CALLTYPE		TOLL	Belcore call type. Enter TOLL (toll calls).
CODES		Belcore call codes or \$	Belcore call codes. Enter a group of Belcore call codes. Enter \$ to terminate the tuple. Note: Refer to the data schema section of this document for a complete listing of Belcore call codes.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example.

MAP example for table BCCODES

CALLTYPE	CODES
TOLL	(006) (007) (030) (033) (068) (069) (008) \$

Bellcore CAMA Format (continued)

Datafilling table VIRTGRPS

Datafill for table VIRTGRPS appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see subfields	Options. This field contains subfields OPTION and FACILITY. Descriptions of these subfields follow.
	OPTION	VFGAMA	Option. Enter VFGAMA.
	FACILITY	FX	Facility. Enter FX (Automatic Flexible Routing).

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example.

MAP example for table VIRTGRPS

KEY	DATA
	OPTIONS
PXXVFG	SIZE 1 IBN 6137224000 IBNTST 0 0 0 N Y N
	(VFGAMA FX) \$

For IBN incoming VFGs, the VFGAMA field designates a VFG as one of the following facilities:

- a CCSA
- a TDMTT
- an FX
- an ETS

The system generates Bellcore AMA billing records. Call code 011 (FX), 021 (CCSA), 032 (TDMTT), or 085 (ETS) identify these records. This feature supports four facility types when the user requests a range for field VFGAMA. The FX and ETS did not receive support earlier. When operating company personnel attempted to add these options, a processing error occurred in table software. This feature now supports FX and ETS.

Belcore CAMA Format (continued)

The system can route an NP call through an IBN incoming VFG as an ETS or FX facility. This event occurs when you assign the VFGAMA option and specify a facility. The system generates a call code 011 (FX) AMA record or a call code 085 (ETS) AMA record when no other billing applies.

Datafilling table VFGDATA

Datafill for table VFGDATA appears in the following table. The fields that apply directly to Belcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VFGDATA

Field	Subfield or refinement	Entry	Explanation and action
	OPTIONS	VFGAMA	Option. Enter VFGAMA.
	FACILITY	option VFGAMA of table VIRTGRPS	Facility. Enter the data in field FACILITY for the option VFGAMA of table VIRTGRPS.

Datafill example for table VFGDATA

Sample datafill for table VFGDATA appears in the following example.

MAP example for table VFGDATA

KEY	DATA
PXVFG IBNVI	
IBNVI 6137221111	COMKODAK 0 0 0 Y Y N (VFGAMA ETS) \$

The ETS and FX facility types are supported when assigned to the VFGAMA option for incoming IBN VFGs when TYPEDIR is IBNVI. The VFGAMA option does not change.

Bellcore CAMA Format (continued)

Datafilling table AMATKOPT

Datafill for table AMATKOPT appears in the following table. The fields that apply directly to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMATKOPT

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		AMATEST ALL or \$	Options. Enter AMATEST ALL. Enter \$ to terminate the tuple.

Datafill example for table AMATKOPT

Sample datafill for the table AMATKOPT appears in the following example.

MAP example for table AMATKOPT

CLLI	OPTIONS
ICTRUNK	(AMATEST ALL) \$

Note: Option TERMNPA in table AMATKOPT can specify the terminating NPA of a trunk. The option is for offices that serve a minimum of two NPAs. This option applies when the user dials an office code of a maximum of seven digits in length. The system uses the NPA entered in subfield CONNGNPA of table AMATKOPT for the terminating NPA field in the billing record.

Datafilling table KSETLINE

Datafill for table KSETLINE appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.



CAUTION

Incompatible features being assigned to the line

Use the Service Order (SERVORD) system to add and delete tuples from table KSETLINE. Do not use the table editor. Use of the table editor to enter data in this table can result in the assignment of features that are not compatible to the line. The table datafill is for information only.

Belcore CAMA Format (continued)



WARNING

Incompatible features being assigned to the line

Use the Service Order (SERVORD) system to add and delete tuples from table KSETLINE. Do not use the table editor. Use of the table editor to enter data in this table can result in the assignment of features that are not compatible to the line. The table datafill is for information only.

Datafilling table KSETLINE

Field	Subfield or refinement	Entry	Explanation and action
	OPTLIST	AMATEST or \$ to terminate	

Datafill example for table KSETLINE

Sample datafill for table KSETLINE appears in the following example.

MAP example for table KSETLINE

KSETKEY FORMAT								DNRESULT	
HOST	00	0	08	05	2	DN	Y	6215800	
				IBNTST		0			0 613
									(AMATEST) \$

Bellcore CAMA Format (continued)

Datafill sequence for DWS 1203 AMA Billing (AD4733)

The tables that require datafill to implement DWS 1203 AMA Billing (AD4733) appear in the following table.

Datafill requirements for Bellcore CAMA Format

Table	Purpose of table
OFCENG	Office Engineering Table. This table contains data on engineering parameters for the office. See Datafilling office parameters for how Bellcore CAMA Format affects office parameters.
AMAOPTS	AMA Options. Controls the activation and the schedule of the recording options for local, toll, and high-revenue calls. One tuple for each option is present. A schedule is present for each option. The schedule defines if an option is active, active only at specified times, or inactive.
CRSFMT	Call Record Stream Format. Defines format characteristics for specified data streams.

Datafilling table AMAOPTS

Datafill for table AMAOPTS appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
OPTION		OCCTERM	Option. Enter OCCTERM.

Belcore CAMA Format (continued)

Datafilling table AMAOPTS (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SCHEDULE		see subfield	Schedule. This field contains the following subfields: • AMASEL • ONDATE • ONTIME • OFFDATE • OFFTIME • SCHED • TV • TU A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to initiate CAMA recording.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP examples for table AMAOPTS

OPTION	SCHEDULE
OCCTERM	ON

Datafilling table CRSFMT

Datafill for table CRSFMT appears in the following table. The fields that apply to Belcore CAMA Format appear in the following table. See the data schema section of this document for a description of the other fields.

Datafilling table CRSMFT

Field	Subfield or refinement	Entry	Explanation and action
KEY		AMA	Key. Enter AMA as the call data stream name.
FORMAT		BCFMT	Format. Enter BCFMT for Bellcore toll offices.

Bellcore CAMA Format (continued)

Datafill example for table CRSFMT

Sample datafill for table CRSFMT appears in the following example.

MAP example for table CRSMFT

KEY	FORMAT	DATADUMP	CDRSRCH	ALARMS	TIMERDMP	TIMERVAL
AMA	BCFMT		N	NIL_FM	Y	N
						0

Datafill sequence for Global EBAF AMA (Clone) (AE1275)

The table that requires datafill to implement Global EBAF AMA (AE1275) appears in the following table.

Datafill requirements for Bellcore CAMA Format

Table	Purpose of table
AMAOPTS	AMA Options. Controls the activation and the schedule of the recording options for local, toll, and high-revenue calls.

Datafilling table AMAOPTS

Datafill for table AMAOPTS appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
OPTION		CALL_ TIMECHG	Option. Enter CALL_TIMECHG.

Belcore CAMA Format (continued)

Datafilling table AMAOPTS (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SCHEDULE		refer to subfield	Schedule. This field contains the following subfields: • AMASEL • ONDATE • ONTIME • OFFDATE • OFFTIME A description of AMASEL follows.
	AMASEL	ON or OFF	AMA selector. Enter ON to add the time change module code to an AMA record. Enter this value if a time change (settime/setdate) occurs during a call. Enter OFF to prevent the addition of time change module code to an AMA record. Perform this action if a time change (settime/setdate) occurs during a call.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
CALL_TIMECHG	ON
TIMECHANGE	OFF

Datafill sequence for TR-508 AMA Compliance II (AN0101)

The table that requires datafill to implement TR-508 AMA Compliance II (AN0101) appears in the following table.

Datafill requirements for Belcore CAMA Format

Table	Purpose of table
AMAOPTS	AMA Options. Controls the activation and the schedule of the recording options for local, toll, and high-revenue calls.

Bellcore CAMA Format (continued)

Datafilling table AMAOPTS

Datafill for table AMAOPTS appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		BCLONGCALL	Option. Enter BCLONGCALL.
SCHEDULE		refer to subfields	Schedule. This field contains the following subfields: • AMASEL • ONDATE • ONTIME • OFFDATE • OFFTIME Descriptions of these subfields follow.
	AMASEL	PERIODIC	AMA selector. Enter PERIODIC to activate BCLONGCALL at the specified date and time to perform the periodic activity. Complete subfields ONDATE and ONTIME to specify the date and time for activation. Complete subfield SCHED for the time intervals to perform the activity.
	ONDATE	year, month, and day, YYMMDD	Activation on date. Enter the year, month, and day that the system must activate the option. The format is YYMMDD.
	ONTIME	hour and minute, HHMM	Activation on time. Enter the hour and minute the system must activate the option. The format is HHMM.

Note: Do not enter data in subfields SCHED, TV, and TU.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

Belcore CAMA Format (continued)

MAP example for table AMAOPTS

OPTION	SCHEDULE
BCLONGCALL PERIODIC 921215 0000 24	HRS

Datafill sequence for Universal Bellcore Centrex Billing (NC0267) (North American offices)

Specified tables require datafill to implement Universal Bellcore Centrex Billing (NC0267) in North American offices that use this feature. These tables appear in the following table. The tables appear in the correct entry order.

Datafill requirements for Universal Bellcore Centrex Billing (NC0267) (North American offices)

Table	Purpose of table
AMATKOPT	AMA Trunk Group Option. Allows the application of AMA Bellcore format specified options on a trunk group or to specified members of the trunk group.
DNROUTE	Directory Number Route. This table contains information for directory numbers (DN) that identify a route.
VIRTGRPS	Virtual Facility Group. Provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS. The trunks provide equal access capabilities.
AMAOPTS	AMA Options. Controls the activation and the schedule of the recording options for local, toll, and high-revenue calls.
AMAGRPID	AMA Group Identification. Identifies the AMA group.
AMAXLAID	AMA Translations Identification. Defines the AMA translation identifiers.
FLEXAMA	Flexible AMA. Allows for definition of a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned against the table determines the definition of the characteristics.
STDPRCT. AMAPRT	AMA Pretranslator. Generates call codes 009, 033, 088, 121, and 800-999 with AMA pretranslation.

Bellcore CAMA Format (continued)

Datafilling table AMATKOPT

Datafill for table AMATKOPT appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

See table AMATKOPT

Field	Subfield or refinement	Entry	Explanation and action
CLLI		trunk group code	Common language location identifier (CLLI). Enter the code for the trunk group in table CLLI.
OPTIONS		AMACLID	Options. Enter AMACLID. Enter \$ to terminate the tuple.

Datafill example for table AMATKOPT

Sample datafill for the table AMATKOPT appears in the following example.

MAP example for table AMATKOPT

CLLI	OPTIONS
ISUP2W	(AMACLID) \$

Note: Enter data in subfield DISAOPT in table DNROUTE with ENTRYID for customers that enter data into ENTRYID for DISA stations. Enter data into subfield OPTION in table VIRTGRPS with ENTRYID for customers that enter ENTRYID for VFGs. Do not enter data in both table DNROUTE and table VIRTGRPS.

Datafilling table DNROUTE

Datafill for table DNROUTE appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table DNROUTE

Field	Subfield or refinement	Entry	Explanation and action
	DISAOPT	ENTRYID	DISA option. Enter ENTRYID.

Belcore CAMA Format (continued)

Datafill example for table DNROUTE

Sample datafill for table DNROUTE appears in the following example.

MAP example for table DNROUTE

AREACODE	OFCCODE	STNCODE	DNRESULT
062	879	4390	FEAT DISA CUSTOMER1 0 N N N N
(ENTRYID) \$			

Datafilling table VIRTGRPS

Datafill for table VIRTGRPS appears in the following table. The fields that apply to Belcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	ENTRYID	Option. Enter ENTRYID.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example.

MAP example for table VIRTGRPS

KEY	DATA OPTIONS
VFG1	SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N
(ENTRYID) \$	

Datafilling table AMAOPTS

Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS because base AMA currently contains the function of these tuples.

Bellcore CAMA Format (continued)

Datafill for table AMAOPTS appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		CRSEQNUM	Option. Enter CRSEQNUM.
SCHEDULE		see subfield	Schedule. This field contains the following subfields: • AMASEL • ONDATE • ONTIME • OFFDATE • OFFTIME • SCHED • TV • TU A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate CRSEQNUM.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
CRSEQNUM	ON

Belcore CAMA Format (continued)

Datafilling table AMAGRPID

Datafill for table AMAGRPID appears in the following table. The fields that apply to Universal Bellcore Centrex Billing appear in this table. See the data schema section of this document for a description of the other fields.

Note: Table AMAGRPID allows 63 entries.

Datafilling table AMAGRPID

Field	Subfield or refinement	Entry	Explanation and action
GRPID		group identification key	Group identification key. Enter the group identification key.
DFLT		option for the key	Default. Enter the option for the key.
	DFLTSEL	NODFLT or DFLT	Default selector key If you enter NODFLT, the system does not prompt you for other options. If you enter DFLT, the system prompts you for the GRPOPTN and OCI. Enter FLEXOCI, when prompted for the GRPOPTN. Enter the OCI value, when prompted for the OCI. The OCI value is 1 to 255. The value provided fills the originating charge info field of any AMA record.

Datafill example for table AMAGRPID

Sample datafill for table AMAGRPID appears in the following example.

MAP example for table AMAGRPID

GROUPKEY	DEFAULT
GROUP1	
GROUP2	NODFLT
DFLT (FLEXOCI 100) \$	

Bellcore CAMA Format (continued)

Datafilling table AMAXLAID

Datafill for table AMAXLAID appears in the following table. The fields that apply to Universal Bellcore Centrex Billing appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAXLAID

Field	Subfield or refinement	Entry	Explanation and action
XLAIDKEY		a maximum of eight characters	Translations identifications key. Enter the translations identifications key. The key can have a maximum of eight characters.
DEFAULT		see subfield	Default. This field contains subfield DFLTSEL. Description of this subfield follows.
	DFLTSEL	NODFLT or DFLT	Default selector. If you enter NODFLT, the system does not prompt you for other options. If you enter DFLT, the system prompts you for the following subfields.
	FLEXCTYP	see list	FLEXCTYP sets up one of the following call types for the call: • STNPAID • FLATRATE • NONDA555 • DA555 • DATAPATH • DA411 • GENERIC • 800-999 • FREE
	FLEXSF	numeric 800 to 999	FLEXSF sets up one of the following override selectors: • OVRDALL (overrides all other call types) • PRCDENCE Enter LOCAL, TOLL, IC, or VPN. The assignment of these call types overrides this flexible AMA assignment.

Datafill example for table AMAXLAID

Sample datafill for table AMAXLAID appears in the following example.

Belcore CAMA Format (continued)

MAP example for table AMAXLAID

XLAIIDKEY	DEFAULT
XLAI1	NODFLT
XLAI2	
DFLT (FLEXCTYP STNPAID OVRDALL)(FLEXSF 800) \$	
XLAI3	
DFLT (FLEXCTYP FREE PRCDENCE (TOLL) \$)\$	

Datafilling table FLEXAMA

Datafill for table FLEXAMA appears in the following example. The fields that apply to Universal Bellcore Centrex Billing appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table FLEXAMA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
FLEXKEY		group ID and translations ID	Flexama key. Enter the GRPID assigned in table AMAGRPID. Enter the XLAIID assigned in table AMAXLAID.
CONTENT		see subfields	Content. This field contains subfields GRPDATA, XLADATA, and ALLDATA. Descriptions of these subfields follow.
	GRPDATA	Group data	Group data. If you enter GRPDATA, the system prompts you for the GRPOPTN and OCI.
	GRPOPTN	group option from AMAGRPID	Group option. Enter the group option (GRPOPTN) assigned in table AMAGRPID.
	OCI		Enter the OCI.

Bellcore CAMA Format (continued)**Datafilling table FLEXAMA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	XLADATA	see explanation	Translation data. If you enter XLADATA, The system prompts you for XLAOPTN. Enter FLEXCTYP or FLEXSF. See the data schema section of this document for a description of the other options.
	ALLDATA	see explanation	All data. If you enter ALLDATA, the system prompts for OPTN. Enter FLEXOCI, FLEXCTYP, or FLEXSF. See the data schema section of this document for a description of the other options.

Datafill example for table FLEXAMA

Sample datafill for table FLEXAMA appears in the following example.

MAP example for table FLEXAMA

FLEXKEY	CONTENT
GROUP1 XLA2	
ALLDATA \$	
GROUP2 XLA2	
GRPDATA (FLEXOCI 150) \$	

Datafilling subtable AMAPRT

Datafill for subtable AMAPRT in table STDPRTCT appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling subtable AMAPRT

Field	Subfield or refinement	Entry	Explanation and action
AMARSLT			AMA result. This field contains the subfield CALLCODE that follows.
	CALLCODE		Call code. Enter AMAXLAID to generate an AMA record of a specified call code.

Belcore CAMA Format (continued)

Datafill example for subtable AMAPRT

Sample datafill for subtable AMAPRT in table STDPRTCT appears in the following example.

MAP example for subtable AMAPRT

FROMDIGS	TODIGS	AMARSLT
780	781	GENERIC 800 Y OVRDALL N
782	782	AMAXLAID GENERIC2
783	785	AMAXLAID GENERIC1

Note: If subtable AMAPRT is not entered for the received leading digits, AMA pretranslation does not affect the call code generated.

Datafill sequence for Universal Bellcore Centrex Billing (NC0267) (Universal offices)

The tables that require datafill to implement Universal Bellcore Centrex Billing (NC0267) in universal offices appear in the following table. The tables appear in the correct entry order.

Datafill requirements for Universal Bellcore Centrex Billing (NC0267) (Universal offices) (Sheet 1 of 2)

Table	Purpose of table
AMATKOPT	AMA Trunk Group Option. Allows the application of AMA Bellcore format specified options on a trunk group or to specified members of the trunk group.
DNROUTE	Directory Number Route. Information for DNs that identify a route appears in this table.
VIRTGRPS	Virtual Facility Group. This table provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS. The trunks provide equal access abilities.
AMAOPTS	AMA Options. This table controls the activation and schedule of the recording options for local, toll, and high-revenue calls.
AMAGRPID	AMA Group Identification. This table identifies the AMA group.
AMAXLAID	AMA Translations Identification. This table defines the AMA translation identifiers.
FLEXAMA	Flexible AMA. This table allows the definition of a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned against the table determine the definition.

Bellcore CAMA Format (continued)

Datafill requirements for Universal Bellcore Centrex Billing (NC0267) (Universal offices) (Sheet 2 of 2)

Table	Purpose of table
LINEATTR	Line Attribute. This table provides a list of attributes for the line index assigned to each subscriber line.
PXHEAD	Prefix Code Head. This table defines the instance of code and route tables and the characteristics of the tables.
PXCODE	Prefix Code. This table defines the instance of code and route tables and the characteristics of the tables.

Note: Feature NC0267 allows the entry of option AMAXLAID in tables PXHEAD and PXCODE.

The following tables can replace datafill option AMAXLAID in the CONT, DNRTE, or RTE selector of table PXHEAD as a table for the NC0267:

- ACHEAD
- AMHEAD
- CTHEAD
- FAHEAD
- FTHEAD
- OFCHEAD
- NSCHEAD

The following tables can replace table PXCODE:

- ACCODE
- AMCODE
- CTCODE
- FACODE
- FTCODE
- OFCCODE
- NSCCODE

Refer to local requirements for information on the head and code tables that apply to your office. Replace tables PXHEAD and PXCODE with the correct head and code tables for your office.

Belcore CAMA Format (continued)

Datafilling table AMATKOPT

Datafill for table AMATKOPT appears in the following example. The fields that apply directly to Bellcore CAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMATKOPT

Field	Subfield or refinement	Entry	Explanation and action
CLLI		trunk group code from table CLLI	Common language location identifier (CLLI). Enter the code for the trunk group in table CLLI.
OPTIONS		AMACLID or \$	Options. Enter AMACLID. Enter \$ to terminate the tuple.

Datafill example for table AMATKOPT

Sample datafill for table AMATKOPT appears in the following example.

MAP example for table AMATKOPT

CLLI	OPTIONS
ISUP2W	(AMACLID) \$

Note: Enter data in subfield DISAOPT in table DNROUTE. Enter this data with ENRTYID for customers that enter data in ENTRYID for DISA stations. Enter data in subfield OPTIONS in table VIRTGRPS with ENTRYID for customers that enter data in ENTRYID for VFGs. Do not enter data in both table DNROUTE and table VIRTGRPS.

Datafilling table DNROUTE

Datafill for table DNROUTE appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table DNROUTE

Field	Subfield or refinement	Entry	Explanation and action
	DISAOPT	ENTRYID	DISA Option. Enter ENTRYID.

Bellcore CAMA Format (continued)

Datafill example for table DNROUTE

Sample datafill for table DNROUTE appears in the following example.

MAP example for table DNROUTE

AREACODE	OFCCODE	STNCODE	DNRESULT
062	879	4390	FEAT DISA CUSTOMER1 0 N N N N
(ENTRYID) \$			

Datafilling table VIRTGRPS

Datafill for Bellcore CAMA Format for table VIRTGRPS appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	ENTRYID	Option. Enter ENTRYID.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example.

MAP example for table VIRTGRPS

KEY	DATA
	OPTIONS
VFG1	SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N
(ENTRYID) \$	

Datafilling table AMAOPTS

Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS because base AMA incorporates the function of the tuples.

Bellcore CAMA Format (continued)

Datafill for table AMAOPTS appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		CRSEQNUM	Option. Enter CRSEQNUM.
SCHEDULE		refer to subfield	Schedule. This field contains the following subfields: • AMASEL • ONDATE • ONTIME • OFFDATE • OFFTIME • SCHED • TV • TU A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate CRSEQNUM.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
CRSEQNUM	ON

Bellcore CAMA Format (continued)**Datafilling table AMAGRPID**

Datafill for Bellcore CAMA Format for table AMAGRPID appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Note: Table AMAGRPID allows 63 entries.

Datafilling table AMAGRPID

Field	Subfield or refinement	Entry	Explanation and action
GRPID		group identification key	Group identification key. Enter the group identification key.
DFLT		key option	Default. Enter the option for the key.
	DFLTSEL	NODFLT or DFLT	Default Selector Key. If you enter NODFLT, the system does not prompt you for other options. If you enter DFLT, the system does not prompt you for the GRPOPTN and OCI.
	GRPOPTN	FLEXOCI	Group option. Enter FLEXOCI, when the system prompts you for the GRPOPTN.
	OCI	numeric 1 to 255	OCI. The value fills the originating charge information field of any AMA record.

Datafill example for table AMAGRPID

Sample datafill for table AMAGRPID appears in the following example.

MAP example for table AMAGRPID

GROUPKEY	DEFAULT
GROUP1	
GROUP2	NODFLT
DFLT (FLEXOCI 100) \$	

Belcore CAMA Format (continued)

Datafilling table AMAXLAID

Datafill for table AMAXLAID appears in the following table. The fields that apply to Universal Bellcore Centrex Billing appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAXLAID

Field	Subfield or refinement	Entry	Explanation and action
XLAIIDKEY		a maximum of eight characters	Translations identifications key. Enter the translations identifications key.
DEFAULT		see subfield	Default. This field contains subfield DFLTSEL. A description of this subfield follows.
	DFLTSEL	NODFLT or DFLT	Default selector. If you select NODFLT, the system does not prompt you for other options. If you select DFLT, the system does not prompt you for the following subfields.
	FLEXCTYP	call type	FLEXCTYP sets up one of the following call types for the call: • STNPAID • FLATRATE • NONDA555 • DA555 • DATAPATH • DA411 • GENERIC 800 to 999 • FREE
	FLEXSF	see explanation	The FLEXSF is entered. An entry that ranges from 800 to 999 follows FLEXSF. After a call type is entered, you are prompted for an override selector (OVERDSEL). Enter one of the following: • OVRDALL (overrides all other call types) • PRCDENCE Enter LOCAL, TOLL, IC, or VPN. The assignment of these call types overrides this flexible AMA assignment.

Bellcore CAMA Format (continued)

Datafill example for table AMAXLAID

Sample datafill for table AMAXLAID appears in the following example.

MAP example for table AMAXLAID

XLAIIDKEY	DEFAULT
XLAI1	NODFLT
XLAI2	
DFLT (FLEXCTYP STNPAID OVERDALL)(FLEXSF 800) \$	
XLAI3	
DFLT (FLEXCTYP FREE PRCDENCE (TOLL) \$)\$	

Datafilling table FLEXAMA

Datafill for table FLEXAMA appears in the following table. The fields that apply to Universal Bellcore Centrex Billing appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table FLEXAMA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
FLEXKEY		Group ID and Translations ID	Flexama key. Enter the GRPID assigned in table AMAGRPID. Enter the XLAIID assigned in table AMAXLAID.
CONTENT		see subfields	Content. This field contains subfields GRPDATA, XLADATA, and ALLDATA. Descriptions of these subfields follow.
	GRPDATA	see subfields	Group data. If you enter GRPDATA, the system prompts you for the refinements GRPOPTN and OCI.
	GRPOPTN	GRPOPTN assigned in table AMAGRPID	Group option. Enter the group option (GRPOPTN) assigned in table AMAGRPID.
	OCI	OCI	Enter the OCI.

Belcore CAMA Format (continued)

Datafilling table FLEXAMA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	XLADATA		Translation data. If you enter XLADATA, the system prompts you for XLAOPTN. Enter FLEXCTYP or FLEXSF. See the data schema section of this document for a description of the other fields.
	ALLDATA		All data. If you enter ALLDATA, the system prompts you for OPTN. Enter FLEXOCI, FLEXCTYP, or FLEXSF. See the data schema section of this document for a description of the other fields.

Datafill example for table FLEXAMA

Sample datafill for table FLEXAMA appears in the following example.

MAP example for table FLEXAMA

FLEXKEY	CONTENT
GROUP1 XLA2	
ALLDATA \$	
GROUP2 XLA2	
GRPDATA (FLEXOCI 150) \$	

The datafill of the CONT, DNRTE, or RTE selector with option AMAXLAID in tables PXHEAD and PXCODE appears in the following examples. You can enter AMAXLAID in the following tables:

- ACHEAD
- AMHEAD
- CTHEAD
- FAHEAD
- FTHEAD
- OFCHEAD
- NSCHEAD

Bellcore CAMA Format (continued)

- ACCODE
- AMCODE
- CTCODE
- FACODE
- FTCODE
- OFCCODE
- NSCCODE

Refer to the data schema documents for a description of the other head and code tables.

Datafilling table PXHEAD

Datafill for Bellcore CAMA Format for table PXHEAD appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table PXHEAD

Field	Subfield or refinement	Entry	Explanation and action
	XLASEL	CONT, DNRTE, or RTE	Translation selector. Enter CONT, DNRTE, or RTE. When the system prompts you for the OSEL, enter AMAXLAID. When the system prompts you for the XLAID, enter the translation identifier.

Datafill example for table PXHEAD

Sample datafill for table PXHEAD appears in the following example.

Belcore CAMA Format (continued)

MAP example for table PXHEAD

XLANAME	DFLT
CON MAXIDX	DFOP
LCLXLA	
DFOP (MM 7 10) (XLT PX CG1) (AMAXLAID XLA1) \$	SDFLT
NOCON STD	

Datafilling table PXCODE

Datafill for Bellcore CAMA Format for table PXCODE appears in the following table. The fields that apply to Bellcore CAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table PXCODE

Field	Subfield or refinement	Entry	Explanation and action
	XLASEL	CONT, DNRTE, or RTE	Translation selector. Enter CONT, DNRTE, or RTE. When the system prompts you for the OSEL, enter AMAXLAID. When the system prompts you for the XLAID, enter the translation identifier.

Datafill example for table PXCODE

Sample datafill for table PXCODE appears in the following example.

MAP example for table PXCODE

XLANAME FROMD TOD	XLADATA
CG2 200 200	
CONT (MM 10 10) (XLT PX CG2) (AMAXLAID XLA1) \$	
CG3 200 200	
RTE (DEST 131) (AMAXLAID XLA2) \$	

Bellcore CAMA Format (continued)

Tools for verifying translations

The datafill that translates a call appears in the TRAVER utility. The TRAVER supports AMA pretranslation.

When subtable AMAPRT is entered for the received leading digits of the called number, the AMAPRT datafill appears in the TRAVER. If subtable AMAPRT is not entered, the default datafill appears as NONE. The output from TRAVER when the digits dialed are not entered in AMAPRT, appears in the following example.

The output from TRAVER when TRAVER verifies Bellcore CAMA Format appears in the following example. This example is only one possible TRAVER result. TRAVER results can differ for each switch.

Belcore CAMA Format (continued)

TRAVER output example for Bellcore CAMA Format

```

> traver l 6211234 9501488 b
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC
LATA1 0
  NIL NIL 00 Y RESGRP 0 2 $
LCABILL OFF-BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) ( 0)
  . SUBTABLE STDPRT
    WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
    BILLING. CALL      TYPE DEFAULT IS NP. PLEASE REFER TO
    DOCUMENTATION.
    . 9501488 9501488 FGB DD 0 ITT Y OFRT 1002 7 7
    . . TABLE OFRT
    . . 1002 N D OCAMDCM 0 N N
    . . EXIT TABLE OFRT
    . SUBTABLE AMAPRT
    . KEY NOT FOUND
    . DEFAULT VALUE IS: NONE
      .
      .
      .
      .
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OCAMDCM          9501488          ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 OFLO
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Activation/verification of features

The following section provides instructions to generate the AMA records supported for CAMA format. Specified call codes identify these AMA records.

Call code 009

The system creates line 621-1235 in the following example. This procedure can verify the generation of call code 009.

Bellcore CAMA Format (continued)

Procedure to verify the generation of call code 009

At your location

- 1 Make sure an active AMA file is available for AMA recording.
- 2 Set up translations so that 621-1235 dialing 766 does not generate a billing record. Make sure that table LINEATTR or table TRKGRP specifies a pretranslator that indexes to table STDPRTCT.
- 3 Make sure that the DA411 and CHG411 options are ON in table AMAOPTS.
- 4 From 621-1235, dial 766. Make sure the system does not generate an AMA record.
- 5 Add the following tuple to subtable AMAPRT: 766 766 DA411.
- 6 From 621-1235, dial 766. Answer the call.
- 7 Leave the call connected for a minimum of 5 s to make sure the system generates an ANSWERED AMA record.
- 8 Verify that the system generates an AMAB log with call code 009.
- 9 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates an AMA record to produce call code 009 with structure code 00028 (answered).
- 10 Repeat step Section 6, "From 621-1235, dial 766. Answer the call." on page -213, but do not answer the call.
- 11 Verify that the system generates an AMAB log with call code 009.
- 12 Perform an AMADUMP of the AMA file that contains the call record. Make sure the system generates an AMA record to produce call code 009 with structure code 00068 (unanswered).

Call code 033 (555 directory assistance)

The system creates line 621-1235 in the following example. This procedure can verify the generation of call code 033.

Procedure to verify the generation of call code 033 (555 directory assistance)

At your location

- 1 Make sure that an active AMA file is available for AMA recording.
- 2 Set up translations so that 621-1235 dialing 555-1212 does not generate a billing record. Make sure TCHG555 and DA555 are OFF in table AMAOPTS. Make sure table LINEATTR or table TRKGRP specifies a pretranslator that indexes to table STDPRTCT.
- 3 From 621-1235, dial 555-1212. Make sure the system does not generate an AMA record.
- 4 Add the following tuple to subtable AMAPRT: 5551212 5551212 DA555.
- 5 Make sure that the DA555 and CHG555 options are ON in table AMAOPTS.
- 6 From 621-1235, dial 555-1212. Answer the call.
- 7 Leave the call connected for a minimum of 5 s to make sure the system generates an ANSWERED AMA record.

Belcore CAMA Format (continued)

- 8 Verify that the system generates an AMAB log with call code 033.
- 9 Perform an AMADUMP of the AMA file that contains the call record. Make sure the system generates an AMA record to produce call code 033 with structure code 00028 (answered).
- 10 Repeat step Section 6, "From 621-1235, dial 555-1212. Answer the call." on page -213, but do not answer the call.
- 11 Verify that the system generates an AMAB log with call code 033.
- 12 Perform an AMADUMP of the AMA file that contains the call record. Make sure the system generates an AMA record to produce call code 033 with structure code 00068 (unanswered).

Call code 121 (Datapath terminating access record)

The system creates line 621-1235 in the following testing example. This procedure can verify the generation of call code 121.

Procedure to verify the generation of call code 121 (Datapath terminating access record)***At your location***

- 1 Make sure an active AMA file is available for AMA recording.
- 2 Make sure the two data units connect to digital line cards on a line module. Make sure the two units operate correctly.
- 3 Make sure the modem pool operates correctly.
- 4 Originate a Datapath call routed over an ATC trunk. Press the DN key on a data unit. Dial another data unit.
- 5 Press the DN key on the terminating data unit to answer the call. The connect lamp is lit. This event indicates that the two data units are in synchronization.
- 6 Leave the call connected for at least 5 s to make sure the system produces an ANSWERED AMA record.
- 7 Press the RELEASE keys on the originating and terminating data units to disconnect the call.
- 8 Verify that the system generates an AMAB log with call code 119.
- 9 Add the following tuple to subtable AMAPRT: 7224 7224 Datapath.
- 10 Set up translations so that 621-1235 dialing 722-4XXX specifies a pretranslator. The pretranslator causes indexing to table STDPRTCT.
- 11 Originate a Datapath call routed over an ATC trunk. Press the DN key on a data unit and dial another data unit.
- 12 Press the DN key on the terminating data unit to answer the call. The connect lamp is lit. This event indicates that the two data units are in synchronization.
- 13 Leave the call connected for at least 5 s to make sure the system produces an ANSWERED AMA record.
- 14 Press the RELEASE keys on the originating and terminating data units to disconnect the call.
- 15 Verify that the system generates an AMAB log with call code 121.

Bellcore CAMA Format (continued)

- 16** Perform an AMADUMP of the AMA file that contains the call record. Make sure the system generates an AMA record. This action produces a call code 121 with structure code 00656 (answered).

AMA Compliance—TR-508 (AF3078)

The following section provides instructions for activation/deactivation of MCD with NOMCD.

Activation/deactivation of MCD using NOMCD

The NOMCD command allows customers to enable/disable the removal of minimum charge duration (MCD) in AF3078. All switches default to MCD billing. MCD billing is for calls marked as unanswered with elapsed times of less than the value of MINIMUM_CHARGE_DURATION. The value of MINIMUM_CHARGE_DURATION is normally 2 s. If a suppression of MCD occurs, all billable calls that a terminating party goes off-hook records a non-zero elapsed time.

The following values are for NOMCD.

ENABLE

enables the suppression of MCD billing

DISABLE

disables the suppression of MCD billing

QUERY

indicates if MCD billing is in use

Bellcore CAMA Format (continued)

The following tables describe how to query, enable, or disable MCD, and the prompt responses.

Activation/deactivation of MCD with NOMCD

Step	Action	Response
1	HELP NOMCD	This command enables/disables the suppression of minimum charge duration billing for switches that record AMA data in Bellcore format. Examine the documentation for feature AF3078 for information on the effect if you enable/disable minimum charge duration billing. Read this documentation before you use this command. Parms: <FUNCTION> {ENABLE, DISABLE, QUERY}
2	NOMCD QUERY	The switch suppresses minimum charge duration billing. Billing records for all answered calls are marked as answered. This event occurs if the conversation time is greater than the value OFCENG office parameter of MINIMUM_CHARGE_DURATION or The switch performs minimum charge duration billing. Billing records for calls with conversation times less than the value of OFCENG office parameter MINIMUM_CHARGE_DURATION are marked as unanswered.

Bellcore CAMA Format (continued)

Use the following command to deactivate the MCD after a QUERY NOMCD. Perform this command after the switch reads that the switch performs minimum charge duration billing.

Deactivation of MCD with NOMCD

Step	Action	Response
1	NOMCD ENABLE	Your request suppresses minimum charge duration billing. Billing records for answered calls are marked as answered if the conversation time is less than OFCENG office parameter MINIMUM_CHARGE_DURATION. Activation of your request requires a reload restart. After the restart, the system must reload the exec software of all call processing peripherals. Do you want to proceed? Confirm (YES or NO): >YES The system accepts your request. Activation of your request takes place on the next reload restart. You can reverse the request with a command. A restart is not necessary. This event can occur if a reload restart did not occur to activate the request. When a restart activates this request, the system must reload the exec software of all line and trunk peripherals. To reload the software, use the EXEC option of the LOADPM command. Use this command when the peripheral is posted at the peripheral module (PM) MAP level.

Belcore CAMA Format (continued)

Use the following command to activate an MCD after a QUERY NOMCD. Enter this command after the switch reads that the switch performs minimum charge duration billing.

Activation of MCD with NOMCD

Step	Action	Response
1	NOMCD DISABLE	Your request initiates minimum charge duration billing. Billing records for calls with conversation times less than the value of OFCENG office parameter MINIMUM_CHARGE_DURATION are marked as unanswered. Activation of your request requires a reload restart. After the restart, the system must reload the exec software of all call processing peripherals. Do you wish to proceed? Confirm (YES or NO): >YES Your request is accepted. Activation of your request occurs during the next reload restart. You can reverse the request. A restart is not necessary if a reload restart did not occur to activate the request. If a restart did occur to activate this request, the system must reload the exec software of all line and trunk peripherals immediately. To perform a reload, use the EXEC option of the LOADPM command when the peripheral is posted at the PM MAP level.

SERVORD

SERVORD limits

Belcore CAMA Format does not have SERVORD limits.

SERVORD prompts

The SERVORD prompts that assign the AMA Test Call Enhancements feature to a PSET line appear in the following table.

SERVORD prompts for AMA Test Call Enhancements

Prompt	Valid input	Explanation
DN_OR _LEN	Valid DN or LEN	Enter the correct seven-digit DN or the LEN.
OPTION	AMATEST	Enter AMATEST to assign the AMA Test Call Enhancements feature to a PSET line.

Example service orders for implementing Belcore CAMA Format

The use of the ADO to add the AMA Test Call Enhancements feature appears in the following SERVORD example.

Bellcore CAMA Format (end)

SERVORD example for adding Bellcore CAMA Format

The method in which to add Bellcore CAMA Format to a PSET line with the ADO command appears in the following example.

SERVORD example for Bellcore CAMA Format in prompt mode

```
>SERVORD
S0:
>ADO
SONUMBER: NOW 91 8 4 AM
>
DN_OR_LEN
>6215001
OPTION:
>AMATEST
OPTION:
>$
COMMAND AS ENTERED:
ADO NOW 91 8 4 AM 6215001 ( AMATEST ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y
```

SERVORD example for Bellcore CAMA Format in no-prompt mode

```
> ADO $ 6215001 AMATEST $
```

Bellcore LAMA Format

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

BCS36 and later versions

Requirements

Bellcore LAMA Format does not have requirements.

Description

The following paragraphs describe the Bellcore LAMA Format feature.

DWS 1203 AMA Billing (AD4733)

This feature provides AMA billing for dialable wideband service (DWS) for calls on the following features:

- primary rate interface (PRI)
- Feature Group D (FGD) that uses integrated services digital network user part (ISUP) trunks and ISUP-IT (inter-toll) trunks

Feature AD4733 provides Bellcore AMA Format (BAF) recording for originating or terminating access circuit-switched calls. This feature provides BAF recording for the calls that contain an information transfer rate of a minimum of 128kbit/s.

Global EBAF AMA (Clone) (AE1275)

Global EBAF AMA (AE1275) allows a new module code to append to an AMA record. The code appends to the AMA record if a time change occurs during a billable call. The new module code is 504. This code is time change information. A new option in table AMAOPTS triggers module code 504.

VFG AMA Support for FX and ETS Calls (AF1093)

Feature AF1093 allows the operating company to designate an MDC virtual facility group (VFG) as a foreign exchange (FX). The operating company can designate the MDC VFG as an electronic tandem switched (ETS) facility. The operating company can currently designate VFGs as tandem tie-trunk (TDMTT) and common control switching arrangement (CCSA) facilities. The FX, ETS, TDMTT, and CCSA options are used for Bellcore AMA recording purposes. These features identify the VFG as a member of a specified network.

Bellcore LAMA Format (continued)

AMA Test Call Capability (AF1462)

The AF1462 allows you to designate an originating or terminating meridian digital centrex (MDC) or plain ordinary telephone Service (POTS) line as an AMA test call line.

This feature facilitates verification of AMA data that associates with a line in two ways. The first method makes sure a specified translation path produces an AMA record. The second method makes sure the record contains the correct information in a specified field.

The AMATEST option does not interact with the AMAB117 log. The AMATEST option does not cause the system to generate multiple billing records for a call. One call can generate both the AMAB117 and AMAB200 log report.

The AMATEST option kills high-runner structure codes. The study indicator must be set.

AMA Test Call Enhancements (AF1981)

Feature AF1981 improves the AMA Test Call Capability feature. Feature AF1981 allows the AMATEST option on the following parts:

- residential (RES) lines
- business sets
- data units
- trunk groups

For trunk groups, AMATEST is a trunk option in table AMATKOPT. For RES lines, you can use the Service Order System (SERVORD) to apply the AMATEST option. For business sets and data units, you can use SERVORD to apply the AMATEST option. You can enter data in table KSETLINE to apply the AMATEST option. The AMATEST line option is not compatible with the ONI option.

The originating line AMATEST mechanism includes terminating billing and second leg VFG billing. The system recognizes billing records for a call from an originating line with AMATEST as test records. The system considers billing records as test records if one of the following events occurs:

- the record is from a call through a VFG
- the record is from a form of terminating billing
- the record is from a form of traditional originating billing

Belcore LAMA Format (continued)

For LAMA/CAMA calls in BCS33, the study indicator field records a six (6). The recorded number indicates that a calling seven-digit number is not available. Refer to the following figure for an example of how a record can appear.

ONI equal access call with a default calling number

```
HEX ID:AA STRUCT CODE:00625C CALL CODE:110C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10912C TIMING IND:00000C STUDY IND:0000060C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT: 000C OVERSEAS
IND: 0C TERM NPA:00519 TERM NO:8881233C ANSWER TIME:1627062C
ELAPSED TIME:000000065C IC/INC PREFIX:02221C CC DATE: 10912C
CC TIME:1626575C ELAPSED CC:000000152C IC/INC EVENT STATUS:
010C TRK GRP:10299C ROUTING INDICATOR:1C ANI INDICATOR:1C
```

Increase Flexibility of AMA Software Configuration (AF2755)

The AF2755 provides an improved software configuration for future Bellcore AMA requirements. The AF2755 minimizes the future impact on data store associated with the introduction of new services. The AF2755 minimizes the related billing triggers of the new services. For example, new module code descriptions and multiple appearances of the same module code in an AMA record can occur. These improvements have the least possible impact on the data store requirements of an operating company.

This feature provides a new call recording software configuration and integrates Bellcore AMA in the configuration. This new configuration allows billable calls to claim recording data as required. In this configuration, the data store that the service requires, is proportional to the data of the configuration on the switch. The data store is proportional to the use of the configuration on the switch.

The creation of new extension blocks allows Bellcore AMA to transfer to this new configuration. A description of these blocks follows.

New call recording software configuration

This feature creates a new generic call recording configuration. The current call recording configuration determines this configuration. The current call recording configuration contains the following changes:

- The addition of current billing services does not affect memory less than the previous system.
- The recording of dynamic amounts of data can currently occur. This data includes replicated data.

Bellcore LAMA Format (continued)

- Different subsystems now use data store from a set of common extension block pools. This function eliminates the requirement for different and separate block pools. Different subsystems do not define the extension blocks to collect and track specified subsystem data.
- A set of common engineering parameters dictate recording resources for the recording processes that use this configuration.

Bellcore AMA Integration into the new software configuration

Bellcore AMA is the first recording subsystem that requires use of this new call recording software configuration. This activity converts the Bellcore AMA software architecture to a distributed system that provides the following additional capabilities:

- the support of multiple instances of the same module code, defined as part of Expanded Bellcore AMA format (EBAF) by the DMS
- the ability for Bellcore AMA software formatting functions to distribute across product line types. This ability helps in long term software performance and maintenance functions.

AMA Compliance—TR-508 (AF3078)

This feature implements some of the current Bellcore specifications for AMA billing. The AMA Compliance—TR-508 feature removes the 2 s minimum charge duration (MCD) timing. This feature flags the timing ind (timing indicator) field of the AMA record for calls that experience a short duration event. This feature records connect and carrier connect times. Time or date changes on the switch do not affect the connect and carrier connect times. The AMA Compliance—TR-508 calculates an estimation of time that elapses for AMA records that calls generate. These calls have a timing irregularity. The AMA Compliance—TR-508 flags the irregularity in the timing ind field.

TR-862 AMA Compliance: Circuit (AF3556)

Feature AF3556 is the first phase delivery of Integrated Services Digital Network (ISDN) circuit-mode Bellcore format Automatic Message Accounting that Bellcore specifications describe. This feature introduces the billing capabilities of the ISDN Core Module and the ISDN Terminator User Service Module. This feature introduces billing that signaling capability determines.

ISDN core module 070

The ISDN core module contains:

- bearer capability
- network interworking indication

Belcore LAMA Format (continued)

- any signaling or supplementary services that the system must record
- a release cause indication

An example of a station-paid record that An ISDN directory number with module code 070 appended produces a station-paid record. An example of a station-paid record appears in the following figure. The example indicates the following:

- a circuit-mode speech call
- no interworking
- called party subaddress
- high and low layer compatibility information delivery
- normal call clearing

Station-paid record with module code 070

```
HEX ID:AA STRUCT CODE:40500C CALL CODE:045C SENSOR  
TYPE:036C  
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC  
ID:0000000C  
DATE:90712C TIMING IND:00000C STUDY ND:0200000C  
ANSWER:0C SERVICE OBSERVED:0C OPER ACTION:0C SERVICE  
FEATURE:000C ORIG NPA:613C ORIG NUMBER: 6215901C OVERSEAS  
IND:1C TERM NPA:00613 TERM NO:6215911C CONNECT  
TIME:1049386C ELAPSED TIME:000006291C  
MODULE CODE:070C BEARER CAPABILITY:002C NETWORK  
INTERWORKING:0C SIG OR SUP SERVICE CAPABILITIES  
USAGE:112111111111100C RELEASE CAUSE INDICATOR:00016C  
MODULE CODE:000C
```

ISDN abbreviated core module 071

When the system must not record billable signaling or supplementary service capabilities, and the ISDN core module applies, ISDN abbreviated core module 071 is appended. An ISDN directory number with module code 071 appended produces a station paid record. An example of a station-paid record appears in the following figure. The example indicates a circuit-mode speech call, not end-to-end ISDN, and normal call clearing.

Bellcore LAMA Format (continued)

Station-paid record with module code 071

```
HEX ID:AA STRUCT CODE:40500C CALL CODE:006C SENSOR  
TYPE:036C  
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C  
DATE:01001C ANSWER:0C SERVICE FEATURE:000C ORIG NPA:613C  
ORIG NUMBER: 6215901C OVERSEAS IND:1C TERM NPA:00819 TERM  
N0:6221422C CONNECT TIME:1942372C ELAPSED TIME:000000021C  
MODULE CODE:071C BEARER CAPABILITY:001C NETWORK  
INTERWORKING:2C RELEASE CAUSE INDICATOR:00016C MODULE  
CODE:000C
```

ISDN terminating user service module 073

The ISDN terminating user service module appends to currently defined record structures for ISDN terminating detailed billed calls. Module code 073 records the use of additional services the system delivers to the called user.

Note: Module code 073 is different from the ISDN core module. The system only appends module code 073 if the system must record terminating signaling capabilities. The telephone company must determine that these signaling capabilities can be billed. The system appends the ISDN core module if the system must record or not record signaling capabilities.

The ISDN terminating user service module currently supports the following call codes:

- subscriber line usage termination (SLUS), terminating entry—call code 036
- free number termination (FNT)—call code 074
- terminating billing option—call codes 800 to 999

If the system must not generate an associated call record, and module code 073 must be output, the system generates a new call code 184. The system appends module code 073 to call code 184. This event occurs when the telephone company must bill the call for the use of billable terminating ISDN services. This new call code indicates that ISDN terminating services must be billed. The call code indicates that an associated call code is not present to append module code 073. An example of a terminating user service record that uses call code 184 with module code 073 appears in the following figure.

Belcore LAMA Format (continued)

Terminating user service record using call code 184 with module code 073

```

HEX ID:AA STRUCT CODE:40001C CALL CODE:184C SENSOR
TYPE:036C SENSOR ID:0000000C REC OFC TYPE:036C REC OFC
ID:0000000C
DATE:90712C TIMING IND:00000C STUDY IND:0200000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERVICE FEAT:000C ORIG
NPA:613C ORIG NUMBER:6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM NO:6215901C CONNECT TIME:1049386C ELAPSED
TIME:000006291C MODULE CODE:073C TERM SIG OR SUP SERVICE
USAGE: 112111000000000C IC/INC PREFIX:FFFFFF BEARER
CAPABILITY:002C
MODULE CODE:000C

```

A subscriber line use termination (SLUS) record that uses call code 036 with module code 073 appears in the following example.

Subscriber line usage termination record with call code 036 with module code 073

```

HEX ID:AA STRUCT CODE:40079C CALL CODE:036C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:90712C TIMING IND:00000C STUDY IND:0200000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERVICE FEAT:000C ORIG
NPA:613C ORIG NUMBER:6215901C CONNECT TIME:1049386C ELAPSED
TIME:000006291C MODULE CODE:073C TERM SIG OR SUP SERVICE
USAGE:112111000000000C IC/INC PREFIX:02222C BEARER
CAPABILITY:
002C MODULE CODE:000C

```

Refer to the Billing section for a description of the module codes associated with this feature.

Refer to *Belcore Format Automatic Message Accounting Reference Guide*, 297-1001-830 for the fields and values of the module codes.

New billing introduced by ISDN signaling capabilities

Feature AF3556 introduces new service and tariff methods. With the ISDN out-of-band signaling capabilities, the system can send signaling information as part of call establishment. Telephone companies can charge for these

Bellcore LAMA Format (continued)

services. The signaling capabilities that the DMS supports appear in the following table.

Signaling capability

Signaling capability	Switch recorded in	Billable party	BRI only	Description
Calling Number ID Delivery	Terminating	Called		Provides for delivery of calling number to the called user before answer, unless the calling user prohibits delivery.
Calling Party Subaddress Delivery	Terminating	Called	X	Provides for delivery of calling number to the called user. This event occurs before answer of a calling-party subaddress of a maximum of 20 octets that the calling user provides.
Called Party Subaddress Delivery	Originating	Calling	X	Provides for delivery of calling number to the called user. This event occurs before answer of a called-party subaddress of a maximum of 20 octets that the calling user provides.
Low-layer Compatibility Delivery	Originating	Calling	X	Identifies information transfer aspects of equipment that the calling user uses. The called user equipment uses these aspects to determine a response to the terminating call. The response can be rate adaptations.
High-layer Compatibility Delivery	Originating	Calling	X	Identifies information transfer aspects of equipment that the calling user uses. The called user equipment uses these aspects to determine a response to the terminating call. The response can be telephony and facsimile.

Note: The BRI Only indicates that the capability is currently supported on basic rate interface (BRI). The capability is not supported on primary rate interface (PRI). *Switch Recorded in* refers to the location of the record to report the use of the signaling capability.

Bellcore LAMA Format (continued)

The following paragraphs describe the new source of billing for ISDN, addressed in BCS34. This billing relates to signaling capabilities.

In BCS34, the telephone company can specify the following signaling capabilities as a billable service for each directory number (DN)/call type (CT):

- calling party subaddress delivery
- called party subaddress delivery
- low-layer compatibility delivery
- high-layer compatibility delivery

The AF3556 adds a circuit-mode parameter ISDNAMA in table DNATTRS. This parameter allows the telephone company to specify the signaling capability use that you must record for each DN/CT. The addition of an ISDNAMA option occurs for each DN/CT. You can assign the ISDNAMA through table DNATTRS or through SERVORD.

The ISDNAMA option prompts for a name that identifies the signaling and supplementary service use for the associated DN/CT. You must record the signaling and supplementary service use. Enter the names that can associate with the ISDNAMA option in table ISDNBILL. These names in table ISDNBILL associate with a list of signaling and supplementary services to record.

Office-wide control for ISDN AMA

Feature AF3556 creates a new line option in SERVORD. The ISDNAMA option specifies a GRPNAME for each DN/CT. The GRPNAME, which is in the new table ISDNBILL, specifies the signaling and supplementary service capabilities that are billed.

The AF3556 allows you to control the production of the ISDN AMA structures for the whole office. The assignment of the new option ISDNCIRCUIT through table AMAOPTS controls the production of the ISDN AMA. The following section describes the values that you can enter in table AMAOPTS for the ISDNCIRCUIT option.

ON

The system implements billing as described for ISDN circuit-mode AMA.

OFF

ISDN circuit-mode billing does not take place in the office billing proceeds as if this activity is not in the office.

Bellcore LAMA Format (continued)

OFF

The ISDN circuit-mode billing occurs in the office and billing proceeds as if this activity is not in the office.

TIMED

ISDN billing starts at the ONDATE and ONTIME and ends at the OFFDATE and OFFTIME.

AMA TR-508 Compliance II (AN0101)

This feature makes non-optional changes to Bellcore CAMA Format and Bellcore LAMA Format packages. The AN0101 simplifies long duration Bellcore format record generation. Bellcore specification requires AN0101. Bellcore specifications changes the number and type of AMA records that the AN0101 produces for long duration calls. This feature removes the ABCD records and replaces these records with first and continuation records. Telephone companies can specify the time of day at which the system generates long duration records.

AMA Base Re-engineering II (AN0319)

Feature AN0319 provides a better method to determine the elapsed time of a billable call. The AN0319 eliminates peripheral timing and forces the use of CC timing.

Before this feature, the peripheral or CC determined elapsed time. The peripheral determined the elapsed time of the call and included the elapsed time in the disconnect message sent to the CC. By use of CC timing, the CC determines the answer timestamp and disconnect timestamp. The CC subtracts the answer timestamp from the disconnect timestamp to determine the elapsed time of a call. This event occurs when a call disconnects.

Feature AN0319 forces calls to use CC timing in the following billing formats:

- Bellcore AMA (Local/Toll/TOPS)
- Northern Telecom (NT) AMA (Local/Toll/TOPS)
- Station Message Detail Recording (SMDR)
- DMS-100 United Kingdom Call Detail Recording (DMS-100 UK CDR)

Bellcore LAMA Format (continued)

Bellcore LAMA Format Enhancements (BC0683), Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512)

The NTX159AA feature package contains Bellcore AMA formatting features that perform the following tasks:

- create call entries and other records on AMA tape
- dump the contents of AMA records on a device (tape or disk)
- dump the contents of an AMA device to a printer
- provide MDC compatibility with Bellcore format
- allow the operating company to generate AMA records that specified call codes identify. Translations determine these records.
- produce AMA records in Bellcore-specified format
- control and schedule the options that affect the recording of fixed call types and call data
- detect and report SST
- detect and report long period calls
- store OM peg counts for inclusion in AMA and tracer records

BC AMA inter-LATA WATS Call Code 111 (BC1698)

The BC1698 is an enhancement to the NTX159AA feature package. The BC1698 provides call code 111 recording capability (inter-LATA WATS station detail). The AMA record that call code 111 identifies, provides originating local access and transport area (LATA) access information. The system generates an AMA record when an inter-LATA carrier/international carrier (IC/INC) routes an OUTWATS call originated from an MDC station. Call code 111 identifies this AMA record for the system to generate.

Call Codes 009, 033, 121 Assignment via Translation (BR0759)

The BR0759 modifies table STDPRTCT to include one additional subtable AMAPRT. Before BR0759, only subtable STDPRT was present.

To generate call codes 009, 033, or 121 with AMA pretranslation, you must enter data in subtable AMAPRT. Refer to the data schema section of this document for information on table STDPRTCT and subtable STDPRT.

The example of subtable AMAPRT appears in the following figure. The three paragraphs that follow the figure describe the subtable.

Bellcore LAMA Format (continued)

MAP example for subtable AMAPRT

FROMDIGS	TODIGS	AMARSLT
766	766	DA411N
5551212	5551212	DA555N
7224	7224	DATAPATH

The first datafill entry causes the system to generate call code 009. Call code 009 occurs when the received leading digits for a local directory assistance call are 766. The pretranslator name is PRT1. The pretranslator name is indexed from table LINEATTR or table TRKGRP.

The second datafill entry causes the system to generate call code 033. The system generates call code 033 when the received leading digits are 5551212. The pretranslator name is PRT1. The pretranslator indexed from table LINEATTR or table TRKGRP.

The third datafill entry causes the system to generate call code 121. The system generates call code 121 for a Datapath call when the received leading digits are 7224. The pretranslator name is PRT1. The pretranslator code is indexed from table LINEATTR or table TRKGRP.

The BR0759 allows the operating company to generate Bellcore (BC) format AMA records that the following call codes identify. The BR0759 uses AMA pretranslation:

call code 009

411 directory assistance

call code 033

555 directory assistance

call code 121

Datapath terminating access records

Note: The AMA pretranslation applies to MDC service and plain ordinary telephone service (POTS).

Call code 009 (411 directory assistance)

An AMA record that call code 009 identifies, provides details for calls to local directory assistance. Without AMA pretranslation, call code 009 generates when 411 options in table AMAOPTS are turned on and the customer dials 411. With AMA pretranslation, the customer can dial digits that are not 411 for local directory assistance.

Belcore LAMA Format (continued)

The system supports the following structure codes for call code 009:

00028

answered

00068

unanswered

00128

long duration

Call code 033 (555 directory assistance)

An AMA record that call code 033 identifies provides details for calls to 555-1212 directory assistance. Without AMA pretranslation, call code 033 generates when 555 options in table AMAOPTS are turned on, and the subscriber dials 555-1212. The AMA pretranslation makes sure that call code 033 generates for a call to 555-1212 directory assistance.

In subtable AMAPRT, 555-1212 is entered for the FROMDIGS and TODIGS fields. DA555 is entered for the AMARSLT field. When the CHG555 and DA555 options are turned on in table AMAOPTS and the subscriber dials 555-1212, the system generates call code 033. The subscriber dials 555-1212 to reach a directory assistance operator.

The system supports the following structure codes for call code 033:

00028

answered

00068

unanswered

00128

long duration

Call code 121 (datapath terminating access record)

The system generates an AMA record that call code 121 identifies. This event occurs when a Datapath call enters the terminating exchange from an inter-LATA carrier (IC). The system uses the AMA pretranslation. The system generates call code 121 when AMA pretranslation allows this event to occur. The received leading digits and the datafill in subtable AMAPRT determine pretranslation. Without AMA pretranslation, the system records call code 119 terminating access record for terminating Datapath calls.

The system supports the following structure codes for call code 121:

00656

inter-LATA

Bellcore LAMA Format (continued)

00657

inter-LATA, long duration

Other call attributes are present, like equal access, that also contribute to the generation of a call code. With these attributes, the system can generate other call codes. The system does not the call code that the operating company enters for AMA pretranslation. The operating company must enter data correctly. For information on datafill for equal access offices, refer to the data schema section of this document. Datafill for equal access offices includes tables TRKGRP, TRKNAME, OCCNAME, and OCCINFO.

Datapath AMA Format—Call Codes 072 and 117 (BR0793)

This feature provides the following call code recording capability for Bellcore format LAMA recording:

call code 072

intra-LATA Datapath

call code 117

inter-LATA Datapath

Call code 072 replaces call code 006 (station paid) for Datapath calls made with the public switched network. Call code 117 replaces call code 110 for Datapath calls made with the equal access network.

Datapath provides circuit-switched data services for synchronous or asynchronous data with a standard, non-loaded, two-wire subscriber loop.

Datapath provides access through the following:

- the switched network
- digital transmission for integrated voice and data switching
- multiple device access from data terminal equipment

Refer to the Datapath suite of documents for additional information on Datapath.

Universal Bellcore Centrex Billing (NC0267)

Feature NC0267 can provide call line identification (CLI) in AMA records. The NC0267 provides CLI in AMA records produced from a call with an originating port that is an IBN ISUP trunk. This feature allows point of entry identification. This feature allows the system to use the accurate network entry point of the call in the AMA record. The system can use the accurate network entry point on billable calls that originate in a network. Universal Bellcore Centrex Billing can tag all records that a call generates with a specified call

Belcore LAMA Format (continued)

sequence number. This feature can add support for Flexible AMA capabilities in the Universal Translations environment.

The following paragraphs describe the abilities of the NC0267.

AMA call line identification

The new option AMACLID allows the provision of the CLI. The new option AMACLID is in the options field of table AMAKOPT. The following conditions must be present for the AMA record to specify a CLI:

- originating trunk must be IC or 2W ISUP
- trunk must have a BILLNUM datafilled against the trunk
- CLI must be available. If the CLI is not available, new module 046 are not appended

Note: You can enter the AMACLID against a trunk without a BILLNUM. This entry forces the use of the CLI as a billing number. If the system generates an AMA record, the system does not append module code 046. The system populates the originating open digits field with the CLI.

This feature produces a new module code. This new module code is alternate billing number for open numbering. Alternate billing number for open numbering is module code 046. Alternate billing number for open numbering uses the current structures, originating open digits 1 and originating open digits 2. These two structures can hold 11 and 9 digits and 20 CLI digits. Module code 046 provides a new field. This field is source of charge number. Source of charge number can hold an entity that is not the BCD characters that table 155 specifies.

Refer to *Belcore Format Automatic Message Accounting Reference Guide*, 297-1001-830 for a detailed description of module code 046 and table 155.

AMA point of entry identification

A private network contains network entities. These network entities are both physical and virtual. Physical entities include trunks and lines. Virtual entities include virtual facility groups (VFG) and DISA. These network entities are considered charge points. A call can enter the public-switched telephone network (PSTN) at the charge points. The call can initiate a record of charges.

Note: The process of a call that enters in the PSTN can be *overflow* and *break-out*. This reference depends on the conditions in which the call traverses the network.

Bellcore LAMA Format (continued)

All calls that occur on a private network share the following two properties:

- The *point of charge* is the point in the private network where the call overflows or breaks out in the PSTN. The call begins the recording of charges for use of the PSTN.
- The *point of entry* is where the call first enters the private network or returns to the private network. The point of entry is equivalent to the *invoice point* for the call.

When a call requires charges to be billed, the system generates an AMA record. A call requires billing when a private network call breaks out in the PSTN. Currently, the AMA record contains the point of charge but not the point of entry. The *originating open digits* field indicates the point of charge. By default, the system recognizes the point of charge as the point of entry. The point of charge and the point of entry are not the same.

The actual point of entry is the actual originator of the call. The actual originator is not in the AMA record. The actual originator of the call is normally a line in the network.

When you enter the option ENTRYID for each VFG in table VIRTGRPS, this feature captures information for the AMA record. This feature captures the information for the AMA record on both the originator of the call and the point of entry. With datafill, the call originator is not the VFG. The VFG is a preceding node, like an IBN line, trunk billing number, or another VFG. You can identify this originator with module code 046 in the AMA record. When you enter option ENTRYID in table DNROUTE, the same function for DISA stations is available.

Call record sequence number

Call traffic causes call record sequence number (CSRN) to append the AMA records that the system generates. The CSRN remains with the record through the complete billing system. New module code 042 appends the CSRN to an AMA record. The activation of this new option occurs in the options field of table AMAOPTS.

Universal flexible AMA

Universal flexible AMA allows the telephone company to define custom AMA characteristics. The telephone company can equate the custom AMA

Bellcore LAMA Format (continued)

characteristics with the different tariffs the company uses. Universal flexible AMA allows the flexible assignment of the following:

- call type code
- service feature
- originating charge information

Operation

The following paragraphs describe the operation of Bellcore LAMA Format.

Creating call entries

During the stages of a call, the call process software records information about the call for automatic message accounting (AMA). The software allocates the resources needed to record this information. Descriptions of these call stages appear in the following table.

Call stages

Call stage	Description
Initial	During the first call stage, the call process software determines the originating and terminating agents and translations necessary to complete the call.
Identification	The identification stage determines if the call is billable for the originator. If the call is billable, software allocates the resources required to record the billing information.
Routing/terminating	During this stage, software determines if the call is billable to the terminator. If the call is billable, the software allocates the resources needed to record the billing information.
Recall	When the called party answers, software marks the call as answered and records the answer time.
Disconnect	When the call disconnects, the software computes the elapsed time and records the record time. The software makes the call information ready to process and format.
Error	When the system detects an error, the system indicates that the call data is in error. The software prepares the recording unit for processing and formatting.

Belcore LAMA Format (continued)

Media change entries

Two types of media change entries are possible, transfer-in and transfer-out.

- transfer-in—entries written at the start of the file each time a tape or disk file becomes active for the AMA stream
- transfer-out—entries written as the last entry in the file when the file becomes inactive

When the TIMECHANGE option is active, the system transfers an entry to the device for each time/date change that occurs. The TIMECHANGE option is in table AMAOPTS. The entry indicates the date and time before and after the time change.

Tracer records

The system generates tracer records periodically when the TRACER option is active in table AMAOPTS. Tracer records are measurements or counts of operational activities that call processing performs.

The system can generate tracer records each hour or each day. The datafill for table AMAOPTS determines the output frequency. Counts accumulate until midnight, when the system purges the counts.

Each tracer record refers to the events of one call. The system takes the data for the call in sequence as the call moves through the switching process. The system retrieves the data in the same sequence for assembly to a tracer record. The system generates a tracer record each hour. An event that increases an input count must increase an internal count or output count in the same tracer. The system uses the tracer counts to audit data transferral between components. The system uses tracer counts to mark the data stream.

Refer to *Operational Measurements Reference Manual* for additional information on the following:

- the scope and general contents of the tracer record
- the equations used to check the validity of the counts
- the audits that the system can perform through the tracer records

Treatment of calls

Long duration calls are AMA calls that remain connected through two successive midnights. On these types of calls, the call assembly process can output a maximum of three record types. These record types indicate the

Belcore LAMA Format (continued)

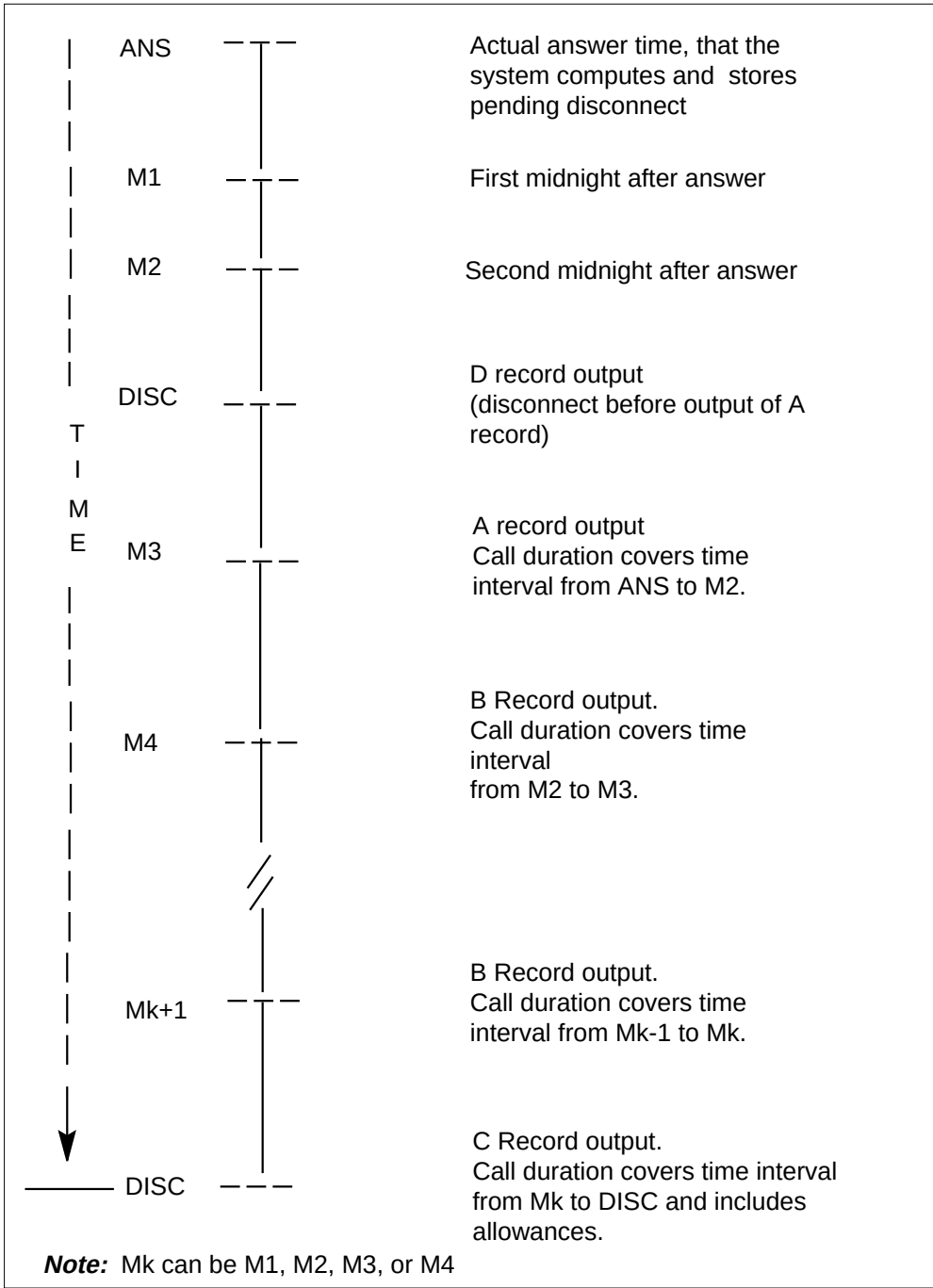
beginning, continuation or end of a long duration call. The system outputs the continuation records each day as long as the call remains connected.

Continuation records

Continuation record	Description
Record A	A call can originate on day 1 and continue to midnight of day 2. When this type of call occurs, the system recognizes the call as a long duration call. Refer to the following figure. If the call remains connected at midnight of day 3, the system outputs record A. The system marks the record with a character in field 7. This character is the timing indicator. This action indicates the start of a long duration call. The elapsed time field contains the elapsed time from answer until the second midnight.
Record B	The call can remain connected at midnight of day 4. When this condition occurs, the system outputs record B to indicate the continuation of the long duration call. The elapsed time field of the B record contains 24 h. If operating company personnel make time-of-day clock changes, the time field does not contain 24 h. This elapsed time accounts for the period from midnight of day 2 to midnight of day 3. The system outputs a B record for each midnight that the call remains connected.
Record C	After disconnect of the long duration call, the system computes the elapsed time. The system did not account for this time in records A and B that the system output earlier. The system outputs the time in a C record. The C record includes the time of day and date of disconnect. The original answer time and date appear in the three records.
Record D	When disconnect occurs after the second midnight, the system outputs a single record D. The system outputs this record before the A record on the third midnight. This record contains the elapsed time.

Bellcore LAMA Format (continued)

Bellcore AMA long duration call analysis



Belcore LAMA Format (continued)

Short supervisory transitions

A short supervisory transition (SST) is an off-hook signal from the called party that lasts for less than the minimum change duration (MCD). An SST can indicate fraudulent call attempts. The system records SSTs on AMA tape for analysis by the operating company. The system supports SSTs for incoming calls.

The peripheral equipment times the off-hook signals. The peripheral equipment reports the duration of the signals with a wink message or a clear-forward message. The system inspects the duration. If the duration is less than the MCD, the system creates an AMA call record that flags as an SST.

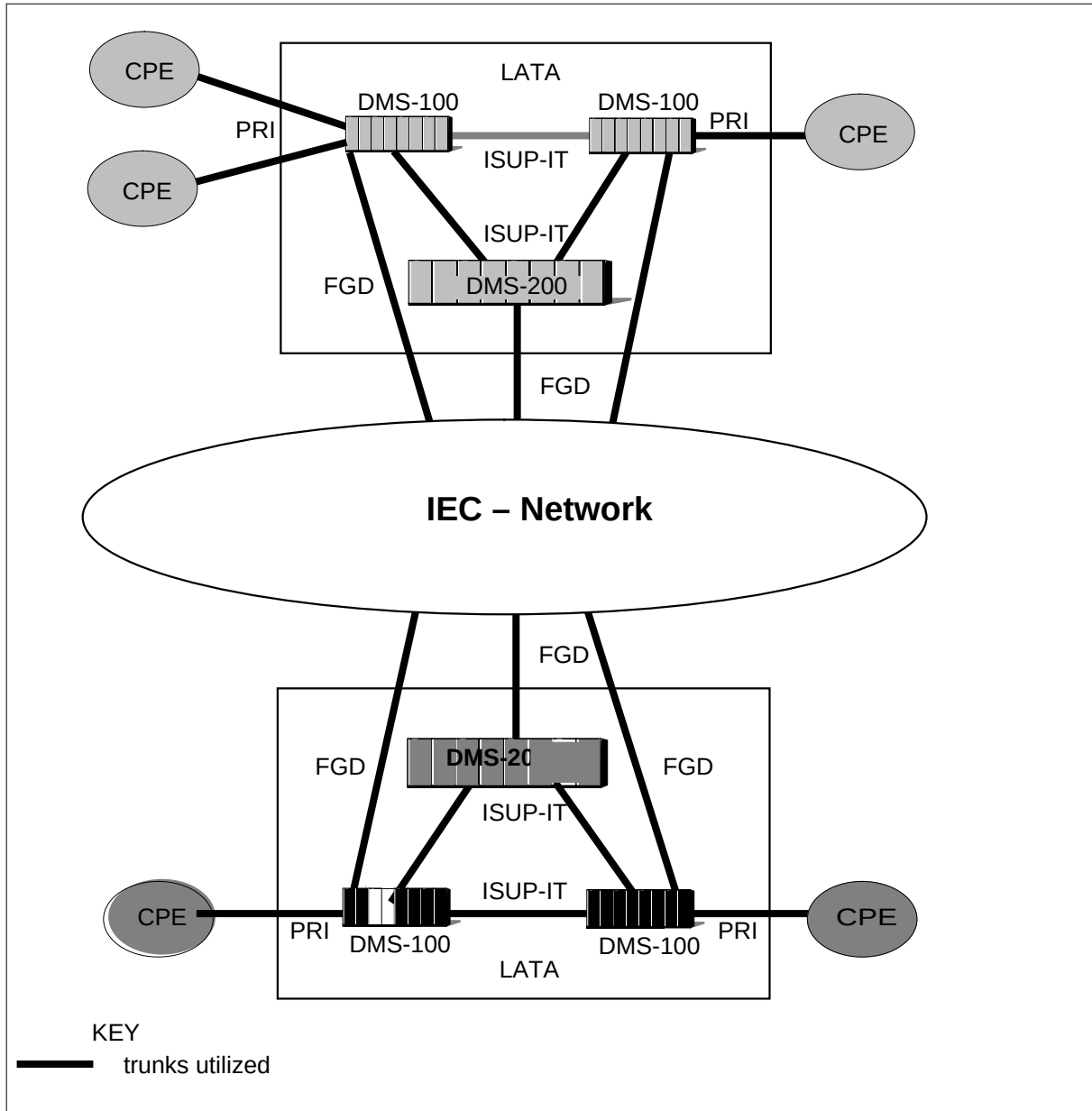
The system outputs a maximum of 17 AMA records when the system reports SSTs. The last records are not SST records. The SST records provide information on the SST. The last record is the call record that contains an SST recorded flag. This flag identifies the call on which the SST occurs.

Note: The SSTs on directory assistance calls cause the system to generate the directory assistance record when the AMAOPTS setting is AMAOPTS override.

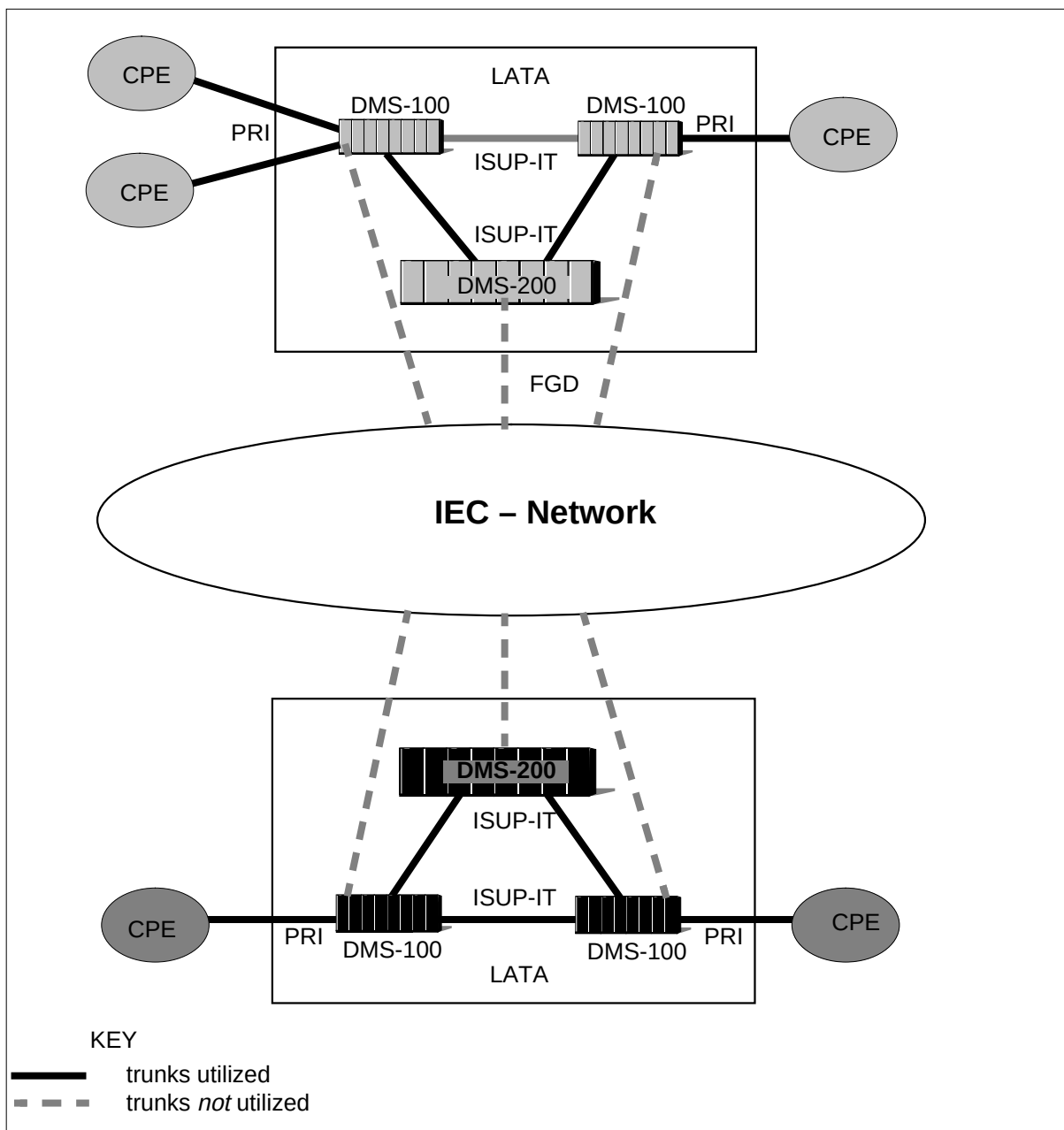
DWS 1203 AMA Billing (AD4733)

Feature AD4733 generates new intra-LATA and inter-LATA call codes. The feature generates call code 148 (intranetwork high bandwidth call) for an intranetwork DWS call. The feature generates this code when the call originates and completes at the originating switch complex in the LATA. The feature generates call code 149 (originating access high bandwidth call) for an internetwork DWS call. The feature generates this code when the call originates at the originating switch complex in the LATA that originated the call. The feature generates call code 150 (terminating access high bandwidth call) for an internetwork DWS call. The feature generates this code when the call completes at the point-of-presence switch complex in the LATA that terminates the call.

The following figure is a general summary of the telephony network configuration in which AD4733 provides Belcore AMA Format (BAF) recording for DWS.

Bellcore LAMA Format (continued)**General overview of the telephone network configuration**

A summary of the telephony network configuration appears in the following figure. In this configuration, AD4733 provides Bellcore AMA Format (BAF) recording for intranetwork circuit-switched calls.

Bellcore LAMA Format (continued)**Intranetwork circuit-switched calls**

A summary of the telephony network configuration appears in the following figure. In this configuration, AD4733 provides Bellcore AMA Format (BAF) recording for originating and terminating access circuit-switched calls.

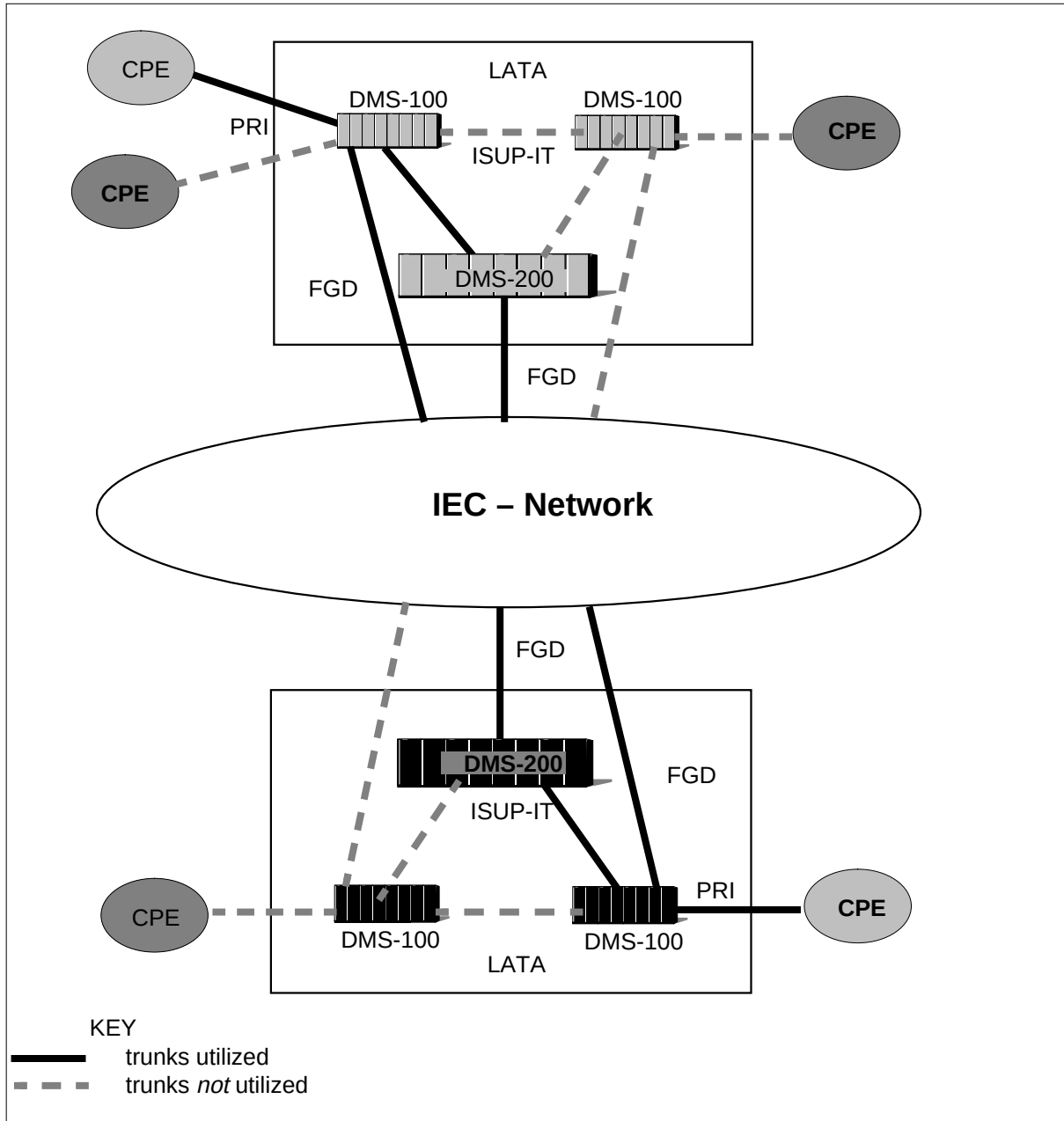
Bellcore LAMA Format (continued)**Originating and terminating access circuit-switched calls****Global EBAF AMA (Clone) (AE1275)**

Table AMAOPTS contains tuple TIMECHANGE. This tuple produces an AMA time change record when the system performs a *settime* or *setdate*. The AMA record that the call generates does not indicate that a time change occurred during the call.

Bellcore LAMA Format (continued)

Feature AE1275 allows new module code 504 to append to an AMA record if a time change occurs during a billable call. The feature can contain information on a maximum of three time changes that occurred during the call. Feature AE1275 produces a new option CALL_TIMECHG in table AMAOPTS. This option allows the system to record time change data in records for each call.

VFG AMA Support for FX and ETS Calls (AF1093)

Feature AF1093 allows the CENTREX customer to receive Bellcore AMA records for calls that the system routes over specified facilities. The operating company designates these facilities as foreign exchange (FX) or electronic tandem switched (ETS). This feature allows an operating company to designate specified incoming integrated business network virtual facility groups (IBN VFG) as members of an FX or ETS network. The system generates an AMA record for each non-billable (NP) call routed through a VFG designated as an ETS or FX facility. The system generates this record when other billing does not apply. The following codes identify the Bellcore AMA record:

call code 011

foreign exchange (FX)

call code 085

electronic tandem switched (ETS)

Feature AF1093 generates call codes 011 and 085 for VFGs when the VFGAMA option is assigned in tables VIRTGRPS and VFGDATA. The call must be an NP call. The VFGAMA option has the lowest priority when AMA determines the type of billing record to produce. The VFG originating call codes 011 and 085 identify the AMA record when the call does not have additional billing requirements. If an NP call terminates to an IBN trunk with one of the following designations, the trunk facility designation receives priority:

- FX
- ETS
- common control switching arrangement (CCSA)
- tandem tie trunk (TDMTT) facility

A summary of AMA records that the system generates routes through IBN trunks appears in the following table. The system generates these records for

Bellcore LAMA Format (continued)

terminations that the system routes through an IBN incoming VFG. The operating company designates this VFG as an FX facility.

Summary of AMA records routed through IBN trunks

VFG facility	Type call	Termination	Type of AMA record
FX	NP	Line/trunk	FX (011)
FX	NP	IBN trunk with ETS	ETS (085)
FX	DD	IBN trunk with ETS	ETS (085)
FX	DD	Line/trunk	DD (e.g. 006)

Facility types ETS and FX are correct facilities that the system assigns to the VFGAMA option in tables VIRTGRPS and VFGDATA.

Feature AF1093 generates call codes 011 and 085 on calls that come from VFGs. Before this feature, the system generated call codes 011 and 085 for the following calls:

- calls that terminate to IBN outgoing (IBNTO)
- calls that terminate to IBN two-way (IBNT2) trunks

The system supports the following structure codes for call code 011:

structure code 00001

answered

structure code 00002

unanswered

structure code 00101

long duration

structure code 00500

high runner, answered and unanswered

The system supports the following structure codes for call code 085:

structure code 00001

answered

structure code 00002

unanswered

Belcore LAMA Format (continued)

structure code 00101

long duration

AMA Test Call Capability (AF1462)

This feature contains two parts, the line option for the test call and the AMAB200 log.

The line option AMATEST functions on IBN and POTS lines. The AMATEST does not force the system to generate a billing record. If a call that does not have AMATEST does not produce a billing record, the call with AMATEST cannot produce a billing record. If a call to or from a line with AMATEST enabled produces a billing record, the system marks the record. The system marks the record with a 1 in the fourth character position of the study indicator field. The regional accounting office (RAO) recognizes these types of records as test calls.

The AMAB200 log is optional. The LOGTEST option in table AMAOPTS controls this log. If you enable LOGTEST, log generation does not affect AMA and does not interfere with the generation of other AMAB logs. One call can generate two AMAB logs. These logs are AMAB117 and AMAB200. The first part of the AMAB200 log contains the structure code, call code, originator, and terminator. The last part of the log contains the billing record. The system writes the code to the active AMA stream. The system performs a complete hex dump of the AMA record.

A line with the AMATEST option enabled produces a billing record. If this event occurs, the fourth character position of the Study Indicator field contains a 1.

VFG AMA Support for FX and ETS Calls (AF1981)

Feature AF1981 is an extension of the AMA Test Call Capability feature. With AMA Test Call Capability, you can verify AMA data that associate with a specified line. To verify AMA data, place the AMATEST option on the line. Place a call that originates or terminates to this line. The AMATEST makes sure a specified translations path produces an AMA record. This option verifies that the record fields contain the correct information. The system marks the Bellcore AMA records that lines with the AMATEST option generate. The system marks the records with a 1 in the fourth character position of the Study Indicator field. These test calls produce the AMAB200 log.

This feature allows the AMATEST option on business sets, data units, residential enhanced services (RES) lines, and trunk groups. You can apply the AMATEST option to a trunk group. To apply the AMATEST option enter

Bellcore LAMA Format (continued)

the option. Enter the desired trunk group common language location identifier (CLLI), in table AMATKOPT.

You can apply the AMATEST option to business set and data unit lines. To apply AMATEST, use SERVORD or enter the option in table KSETLINE. Use SERVORD to apply AMATEST to RES lines. This feature allows the AMATEST option on the following RES line class codes (LCC):

- IVD ARIES asynchronous data option (ADATA1)
- IVD ARIES 8 key set (A2008)
- IVD ARIES 16 key, H/F optional (A2016)
- IVD ARIES 16 key secure set (A2016S)
- IVD ARIES 2216 ACD-A set (A2216A)
- IVD ARIES 2216 ACD-B set (A2216B)
- data unit (DATA)
- ISDN terminal (ISDNKSET)
- Meridian Asynchronous Data Option (MADO)
- Meridian 9 key set (M2009)
- Meridian 12 key set with H/F (M2112)
- Meridian 18 key set (M2018)
- Meridian 17 key set with H/F and display (M2317)
- Meridian 3000 touch set (M3000)
- Meridian 9 key set (M5009)
- Meridian 18 key set (M5018)
- Meridian 12 key with IHSF (M5112)
- Meridian 9 key with Display (M5209)
- Meridian 12 key set with IHSF and display (M5312)
- Meridian 9 Key Set with 5 Soft Keys (M5317)
- POTS data unit (PDATA)
- proprietary business set (PSET)
- residential enhanced services (RES)

Specified AMA records are like AMA Test Call Capability for lines. Specified AMA records contain a 1 in the fourth character position of the study indicator field. Calls that originate or terminate on a trunk, business set or data unit with

Belcore LAMA Format (continued)

the AMATEST option enabled generate these AMA records. The RAO must recognize these types of records as AMA test records.

This feature can produce the AMAB200 log if the LOGTEST tuple in table AMAOPTS enables this feature. Refer to *Log Report Reference Manual* for additional information on AMAB200.

This feature does not produce additional AMA records. This feature marks records that calls generate as AMA test records. This feature marks records if AMATEST is enabled on the trunk group, business set, or data unit.

The AMATEST is a new trunk group option that you can apply in table AMATKOPT. The occurrence of this option on a trunk group indicates that the system marks each billing record, as AMA test records. Calls produce billing records with this trunk group.

Feature AF1981 adds one bit of store for each trunk group entry in table AMATKOPT.

Table KSETLINE accepts the AMATEST option for the following business set and data unit LCCs:

- ADATA1
- A2008
- A2016
- A2016S
- A2216A
- A2216B
- DATA
- ISDNKSET
- MADO
- M2009
- M2112
- M2018
- M2317
- M3000
- M5009
- M5018

Bellcore LAMA Format (continued)

- M5112
- M5209
- M5312
- M5317
- PDATA
- PSET

Feature AF1981 allows you to use SERVORD to apply the AMATEST option on business sets, data units and RES lines. With this feature, you can apply AMATEST on the following LCCs:

- ADATA1
- A2008
- A2016
- A2016S
- A2216A
- A2216B
- DATA
- ISDNKSET
- MADO
- M2009
- M2112
- M2018
- M2317
- M3000
- M5009
- M5018
- M5112
- M5209
- M5312
- M5317
- PDATA

Bellcore LAMA Format (continued)

- PSET
- RES

This feature allows the AMATEST option on lines with the PSET or RES LCC.

A call can originate or terminate on a trunk group or line that has the AMATEST option. If this call produces a Bellcore AMA record, the fourth character position of the study indicator field contains a 1.

For example:

```
*HEX ID AA  STRUCTURE CODE 00001C  CALL CODE:800C ...  
... STUDY IND 0001000C ...
```

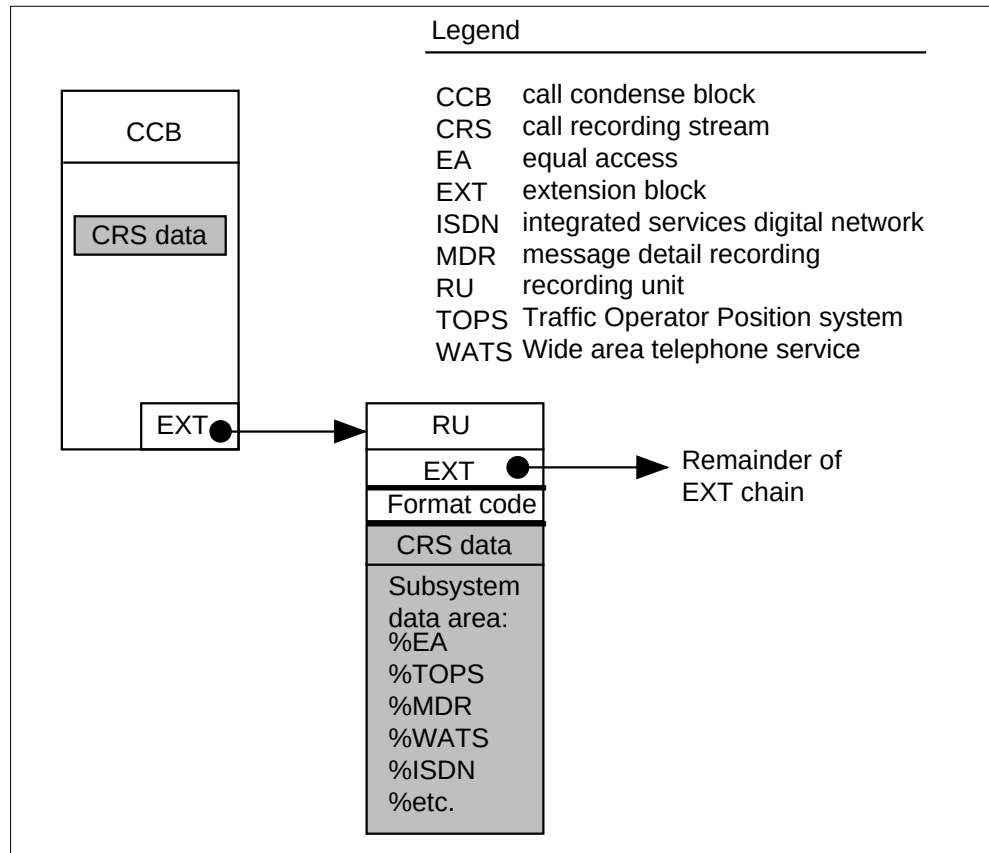
Increase Flexibility of AMA Software Configuration (AF2755)

Before BCS32, the system collected call recording stream (CRS) data in the call condense block (CCB) or the recording unit (RU). The CCB contains CRS data. This data stores CRS-specified billing information for basic call types. The CCB contains information required for call translation. A small number of subsystems use the CRS data area of the CCB for recording. Most recording streams use an RU for the duration of the billable call. The AMA stream does not use an RU.

Through the RU, call processing activities communicate with the CRS processes of the billing system. Specified calls use the RU from call setup until call disconnect in all billing record generation that follows. Other calls do not require the RU until data is reported to the billing system.

Bellcore LAMA Format (continued)

Call recording stream configuration before BCS32



In BCS32 and later versions, the system creates a new configuration. The system continues to record CRS information. The system records information through the CRS data part of the CCB and through extension blocks chained off the CCB.

In the CRS data part the CCB, maintenance of recording data in the active connection of a recordable call does not change. This method applies when the call is active. When the system releases the call, the system uses the extension blocks chained off the CCB.

The system maintains recording data in extension blocks that branch off the CCB. The difference between the earlier and the BCS32 is in the framework of the RU structure. In the BCS32, the system must not maintain recording data in a single extension block.

Belcore LAMA Format (continued)

The system can distribute data across the following RU structures:

- primary recording unit (PRU)
- extended recording unit (XRU)
- modular recording unit (MRU)

Primary recording unit

A PRU is the one RU element that the system accesses directly from the CCB EXT chain. The presence of a PRU in the extension chain indicates that a call produces one billing record. The call produces this billing record when the system releases the call. In this configuration, the PRU is the best RU structure. The system must maintain high-priority CRS data in the PRU. Access times for the retrieval data are shorter than for the other RU structures.

Extended recording units

An XRU records call data optionally in segments. An XRU is not directly in the CCB extension chain. An XRU provides recording functions like the functions that the PRU provides. An XRU distributes call data across several XRU structures. This process is like the way an extension block expands the abilities of call processing and the associated CCB.

Modular recording units

A modular recording unit (MRU) records call data as required in the framework of a current PRU. Multiple instances of an MRU can appear off a PRU. The MRU definitions can target specified pieces of recording data. The MRU definitions are normally smaller than the standard XRU. More MRU types have definitions than XRU or PRU types. The MRUs have narrower use.

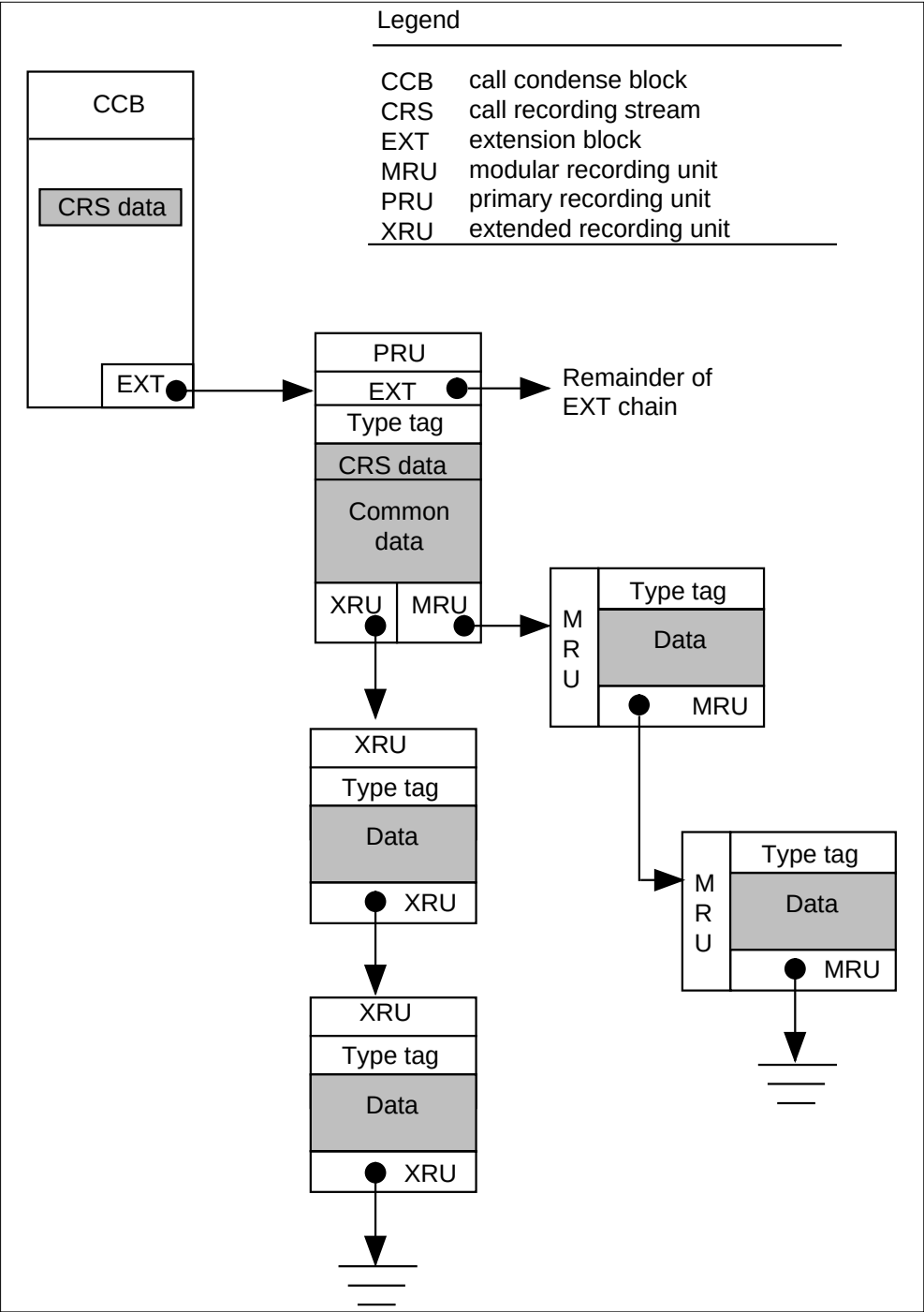
The new recording unit pools

Feature AF2755 creates six new extension blocks. The system uses these extensions to implement the PRU, XRU, and MRU recording unit structures. The system uses these extension blocks as double extension blocks. These blocks allow the provisioning of large pools.

See the following figure for an illustration of the new call recording stream configuration.

Bellcore LAMA Format (continued)

Call recording stream configuration with BCS32



Belcore LAMA Format (continued)

The extension blocks are:

- CRS_SUBRU_POOL1

This RU is the smallest recording unit. The system uses this RU as an MRU, because the RU is small in size. The XRU or PRU cannot use this RU.

- CRS_SUBRU_POOL2

The system uses this RU in the MRU chain. The system cannot use this RU in the XRU or PRU mechanisms.

- CRS_SUBRU_POOL3

The XRU or the MRU can use this RU. The recording unit that uses this RU determines the treatment of the RU.

- CRS_SUBRU_POOL4

The XRU or the MRU can use this RU. The recording unit that uses this RU determines the treatment of the RU.

- CRS_PRU_POOL2

The PRU uses this pool to record Bellcore CAMA and LAMA.

When call processing claims an RU for recording, the CRS determines the extension type the system must use. If call processing claims an AMA PRU, the CRS_PRU_POOL2 recording unit pool provides an extension block. Another application can claim an extension from the same CRS_PRU_POOL2 pool for billing types other than AMA. The size of the data that the PRU records determines which RU pool provides the extension block. The size of the data also determines which pool provides the extension block for the XRU and MRU.

Note: Bellcore AMA uses this configuration in BCS32.

AMA Compliance—TR-508 (AF3078)

The following paragraphs describe the operation of tables that this feature creates and modifies.

Removal of MCD timing

Before BCS34, the system did not consider calls answered until the following two conditions occurred:

- The terminating party went off-hook.
- The two parties remained off-hook for a continuous two second period.

Bellcore LAMA Format (continued)

This two second period was called MCD. The AMA records that specified calls generated, contained the value 1 (unanswered) in the answer field. The elapsed time field in the answer field contained zeroes. These calls connected for less than the MCD period of 2 s.

Before BCS34, if two calls were not off-hook at the same time for a minimum of 2 s, the elapsed time of these calls was not measured. This action does not apply any longer. When the user uses Bellcore AMA format, the user does not use office parameter `minimum_charge_duration`. If the user changes from non-Bellcore format to Bellcore format in table CRSFMT, a message appears. This message states that a reload restart must occur. The line and trunk peripherals must have the exec loads reloaded.

The operating company renamed the answer field of the AMA to called party off-hook (cld pty offhk). The operating company renamed field answer time to connect time. The operating company made these changes because the system does not use MCD timing to determine how to populate these fields. Cld pty offhk has a value of 0 if the terminating party of a billable call goes off-hook to establish connection with the originator. The system marks cld pty offhk with a value of 1 if the terminating party does not go off-hook.

The system considers a call connected when the system detects the terminating party off-hook for the call. Answer occurs when the terminating party goes off-hook and the two parties remain off-hook for a minimum of 2 s. The AMA records if a call is connected. The AMA does not record if a called party answers the call.

Elapsed time field measures the amount of time that calling and called parties are off-hook at the same time. Elapsed time includes the time when the calling party is off-hook and the system applies timed release disconnect (TRD) timing. The system applies TRD timing for the terminating end of the call.

Note: The removal of MCD timing does not apply to BCS34. This process applies to BCS34 if the system uses the non-resident command interpreter (CI). The CI is NOMCD. The system uses this interpreter to activate the removal of MCD. Refer to Activation/deactivation of MCD through use of NOMCD for instructions on how to deactivate MCD.

Recording of short duration events

A short duration event is an on-hook to off-hook to on-hook transition. The system detects this transmission at the terminating end of a call. The on-hook to off-hook has a transition duration less than 2 s. A short duration event occurs if A calls B. B goes off-hook for less than two seconds, and goes back on-hook. A short duration event does not occur if the calling party goes

Belcore LAMA Format (continued)

on-hook first, when the call is connected. The speed with which the calling party goes on-hook does not determine if a short duration event occurs.

The second character of the timing ind field contains a value of 1 in an AMA record. A call that experiences a short duration event generates the AMA record. A value of 0 is for calls that do not experience a short duration event.

Note: The system sets the second character of the timing indicator field to value of 1. The system sets the character to 1 for calls that experience a short duration event that does not apply to BCS34. If NOMCD activates the removal of MCD in this feature, the system does not set the value to 1. Refer to Activation/deactivation of MCD through use of NOMCD for instructions on how to activate MCD.

A short supervisory transition (SST) is a short duration event. A call generates the AMA records with call code 034 for each instance of an SST. Call code 034 is no longer in use. The system cannot generate this call code. If SSTs occur for a billable record, the call generates a single billing record. The system marks the record to indicate that a short duration event occurs during the call. The system marks the timing ind field to indicate that a short duration event occurs during the call.

Note: The SST events can set the short duration event flag.

Recording static answer and carrier connections

The AMA record fields answer, time, and date record the time of date in which the terminating party answers a call. Before BCS34, if the time of day and/or date of the switch changed, the switch did not compensate for the change. The time of day and/or date changed when answered calls were in the talking state. The switch did not compensate for the change when the switch placed data in the AMA records when the calls disconnected. The switch placed the answer time and/or date fields in the AMA records. The values in the answer time/date fields in the previous records distorted the amount of time difference in the time/date change.

Time of day and date changes had the same effect on AMA fields cc time and cc date as on answer time and date. Field cc time is carrier connect time. Field cc date is carrier connect date. Time date changes did not affect elapsed time and cc elapsed fields.

For BCS34, time of day and date changes do not affect the values that the switch places in AMA fields. The AMA fields are answer time, connect time date, cc time, and cc date. The switch places values in these fields for active calls that establish connect and/or carrier connect. The AMA records record the time and date of connect and/or carrier connect. Calls generate these AMA

Bellcore LAMA Format (continued)

records at disconnect time for these calls. The AMA records record the time and date of connect/carrier connect by the time and date that the event occurs.

Note: The previous statement is true for an AMA record that a specified call generates. The call generates this record as long as a minimum of 16 time changes and/or date changes occur. The changes occur between a connect event and disconnect event of a call. More than 16 time/date changes can occur between a connect event and disconnect event of a call. If this event occurs, the 16 most recent time/date changes do not cause an adjustment of the connect time and date in the AMA record. The system can adjust the connect time and date forward or backward by the same amount of time as the time/date change specifies. These actions also apply to the values in fields *cc time* and *cc date*.

AMA recording of timing irregularities

When a timing irregularity occurs, the connect time and/or the disconnect time for a call is not known or is of questionable accuracy. This condition does not allow the AMA billing system to accurately determine the elapsed time for the call. A billing record records an elapsed time of zero. A call that experiences a timing irregularity generates this billing record. The system marks the record as a single time line record in the timing indicator field.

An attempt to determine an elapsed time for billing records occurs. Calls that experience a timing irregularity generate these billing records. An unknown or questionable connect time can cause the timing irregularity. For this occurrence, an attempt occurs to determine the earliest time for which the switch knows the call is connected. The system uses this estimated connect time to calculate an estimated elapsed time for the call.

An unknown or questionable disconnect time can cause the timing irregularity. An attempt occurs to determine the latest point in time for which the switch knows the call was connected. The system uses this estimated disconnect time to calculate an estimated elapsed time for the call.

Billing records with elapsed time fields that contain an estimated elapsed time or zero also contain a value of 2. The elapsed time field contains the first two values because a timing irregularity occurred. The elapsed time field contains the value of 2 in the first character of the timing indicator field. The value indicates to the downstream processor that a timing guard conditions is present. This information indicates that the elapsed time field or connect field contains an estimated or zeroed value.

Bellcore LAMA Format (continued)

The following examples represent calls that have the billing records of these calls marked with a timing guard condition.

- A call in which the terminating party answers during a warm restart. The billing record of this call contains an estimated connect time and elapsed time. The time of day at the end of the warm restart acts as the connect time if this condition occurs.
- The system takes a call down because of a cold SwAct on a peripheral. This process is an example of a call for which the billing record that results contains an estimated elapsed time.
- A call which is manually force released. The billing record of this call contains a zeroed elapsed time. The switch cannot estimate how long the speech path is down for the call.

The system can take down a call because of carrier failure. This type of call has a billing record that is not marked as timing guard. The system knows when the failure occurs. The system can calculate the elapsed time accurately.

TR-862 AMA Compliance: Circuit (AF3556)

The following paragraphs discuss the operation of tables that this feature creates and modifies.

Creation of table ISDNBILL by feature AF3556

The new table ISDNBILL allows the telephone company to define groups of integrated services digital network (ISDN) signaling and supplementary services. The system must record these services during use in Bellcore format AMA. In BCS34, the system supports the following services in table ISDNBILL.

- calling party subaddress delivery (CGS)
- called party subaddress delivery (CDS)
- low-layer compatibility delivery (LLC)
- high-layer compatibility delivery (HLC)

These services are signaling capabilities.

Note: The CDS, LLC, and HLC are services that bill to the associated DN/CT for use as an originator. The CGS is billed to the associated DN/CT when the CGS receives the calling party subaddress information as a terminator.

Bellcore LAMA Format (continued)

Modification of table DNATTRS by feature AF3556

Table DNATTRS allows for each DN and call type subscription parameter settings for BRI functional terminals. The CT selector specifies the subscription parameter settings for a DN. The CT selector specifies circuit-mode voice or circuit-mode data. Feature AF3556 modifies this table to allow the telephone company to specify the circuit-mode billing profile from table ISDNBILL. The telephone company specifies the profile that the DN/CT pair must use. The telephone company specifies the circuit-mode billing profile after specification of the call type. The new subscription parameter allows the telephone company to associate an ISDN group name from table ISDNBILL with a DN/CT pair.

The services list for the ISDN AMA group name in table ISDNBILL determines signaling capability use. The AMA reflects this use for the associated DN/CT. If an ISDNBILL group that contains HLC associates with a specified DN/CT, AMA reflects the use. The ISDNBILL group can associate with a DN/CT that uses high-layer compatibility information delivery during call setup.

Modification of table AMAOPTS by feature AF3556

Table AMAOPTS allows operating companies to control how the system records calls or call data in Bellcore format AMA. Feature AF3556 modifies table AMAOPTS to allow the option of ISDNCIRCUIT. The ISDNCIRCUIT option controls the production of the following ISDN circuit-mode structures and philosophies that this feature introduces:

- ISDN core module 070/071
- ISDN terminating user service module 073
- billing based on signaling capabilities

This feature increases the use of the extension blocks that CRS_PRU_POOL2_SIZE and CRS_SUBRU_POOL3_SIZE control through the Bellcore format AMA application.

Information on the use of the CRS_PRU_POOL2_SIZE and CRS_SUBRU_POOL3_SIZE parameters appears in the following paragraphs.

CRS_PRU_POOL2_SIZE

Use of the extension blocks can increase. Use can increase when billing by signaling capability use forces an AMA record that uses call code 045 or 184. This type of billing can force an AMA record for a call that does not normally require a record. If an office records signaling capability use, the increase in

Belcore LAMA Format (continued)

extensions block use can be substantial. The following conditions can determine the extent of the increase:

- the number of ISDN DN/CT combinations in an office recording signaling capability use
- the percentage of nonbillable calls that use billable signaling capabilities

If ISDN billing applies, record generation requires a CRS_PRU_POOL2_SIZE recording unit from billing determination to the completion of the call. Alternate storage methods are not available if ISDN billing applies.

Note: If ISDNCIRCUIT in table AMAOPTS is OFF, this feature does not affect the CRS_PRU_POOL2_SIZE.

CRS_SUBRU_POOL3_SIZE

Table OFCENG controls the provisioning for the CRS_SUBRU_POOL3_SIZE extension block. The increased use of the extension blocks occurs when a need to capture the ISDN service delivered to the subscriber is present. The ISDN core module 070, abbreviated core module 071, and ISDN terminating user service module 073 capture the ISDN service. The telephone company delivers this service to the subscriber.

Note: If ISDNCIRCUIT in table AMAOPTS is OFF, this feature does not affect the CRS_SUBRU_POOL3_SIZE.

AMA TR-508 Compliance II (AN0101)

Before BCS34, long duration calls were AMA calls that remained connected through two midnights. The call assembly process produced a maximum of three record types. These record types indicated the start, continuation, or end of a long duration call. The software generated the continuation records each day as long as the call remained connected. Long duration software generated four types of AMA records. The third BCD character of the timing indicator

Bellcore LAMA Format (continued)

field donated the records. Refer to the following table for information on record types.

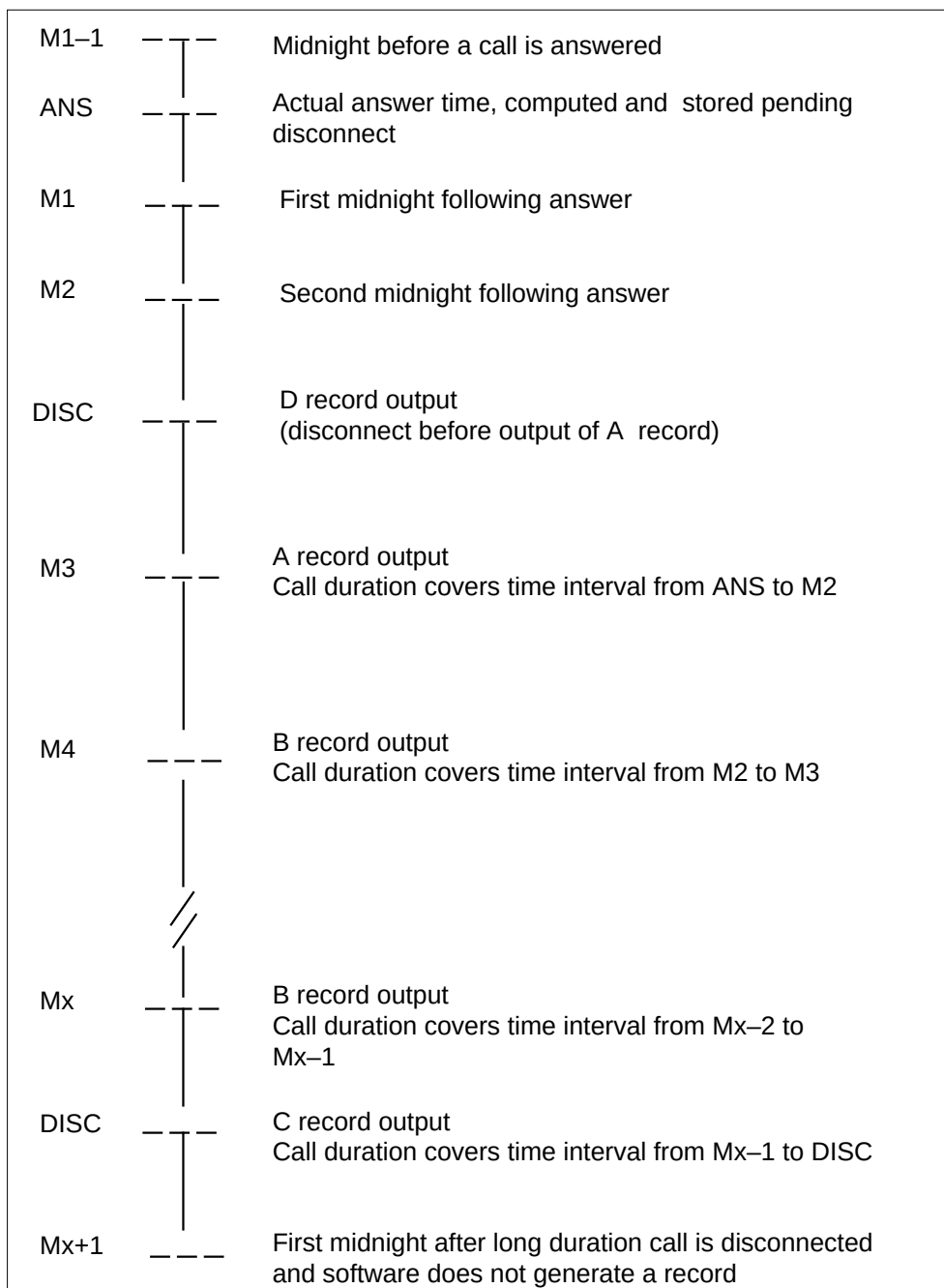
Record types

Record type	Description
Record A	The value 1 denotes this record. The software generates this record on the third midnight of a call. The elapsed time field contains the elapsed time from answer until the second midnight.
Record B	The value 2 denotes this record. The software generates this record on the fourth midnight. The elapsed time field contains the elapsed time from the second midnight to the third midnight. The elapsed time field contains the time interval from each midnight that the software generated the record until the disconnect.
Record C	The value 3 denotes this record. The software generates this record at call disconnect. The software does not generate this record when the software generates a D record. The elapsed time field contains the time interval from the last midnight that the system generated the record to the disconnect time.
Record D	The value 4 denotes this record. The software generates this record for a call that was connected through two successive midnights, but is currently disconnected. The call disconnected before the software generated an A record.

The type of long duration record generated before BCS34 appears in the following figure.

Belcore LAMA Format (continued)

Long duration call



Feature AN0101 defines a long duration call as a call that connects for more than 24 h. A long duration call is a call for which a scheduled long duration record generation time occurs. The scheduled record generation time defaults

Bellcore LAMA Format (continued)

to midnight. The operating company can use the BCLONGCALL tuple in table AMAOPTS to specify this time.

Note 1: Each option in table AMAOPTS is set to the Northern Telecom first value when the system applies the new BCS. A dump and restore puts the Bellcore format value of the option from the previous BCS in each option in the current BCS. The current BCS does not include options that did not appear in the previous BCSs. The BCLONGCALL option was not in pre-BCS34 loads. When the system applies the BCS34 software, BCLONGCALL option contains the Northern Telecom first value of OFF. The telephone company must set this value to the options that suit current needs.

Note 2: Tuple LONGCALL does not apply to Bellcore format records. Tuple LONGCALL applies to Northern Telecom format records and call forwarding long duration records.

Feature AN0101 allows AMA to create two types of long duration call records. These types are first record and continuation record.

For intranetwork calls, the elapsed time determines how long the call is connected. For internetwork calls, the carrier elapsed time determines how long the call is connected.

First record

Software creates a first record if a call connects for more than 24 h and record generation time occurs. A first record contains the following information for an intranetwork call:

- The connect time field contains the time the call connects. The connect time field is the time the called party goes off-hook.
- The connect date field contains the date the call connects.
- The elapsed time field contains the time interval from the call connect time to the record generation time.

A first record contains the following information for an internetwork call:

- The carrier connect time field contains the time the call connects to the carrier. Definition of carrier connect time depends on call type. For Feature Group B calls, carrier connect time is established when the carrier goes off-hook. For Feature Group D calls, carrier connect time is established when the system receives the first wink from the carrier.
- The carrier connect date field contains the date the call connects to the carrier.

Belcore LAMA Format (continued)

- The carrier elapsed time field contains the time interval from when the call connects to the carrier, to the record generation time.
- The elapsed time field contains the time interval from when the call connects to the called party, to the record generation time.

Continuation record

Software creates a continuation record for each record generation time that follows. Software creates the last continuation record at disconnect time. A continuation record contains the following information for an internetwork call:

- The connect time field contains the time the call connects. The connect time field is the time the called party goes off-hook.
- The connect date field contains the date the call connects.
- The present time field contains the time the system formats the record.
- The present date field contains the date the system formats the record.
- The elapsed time field contains the amount of time from the generation of the last record to the current record generation time. This field can contain the amount of time from the generation of the last record to the call disconnect time.

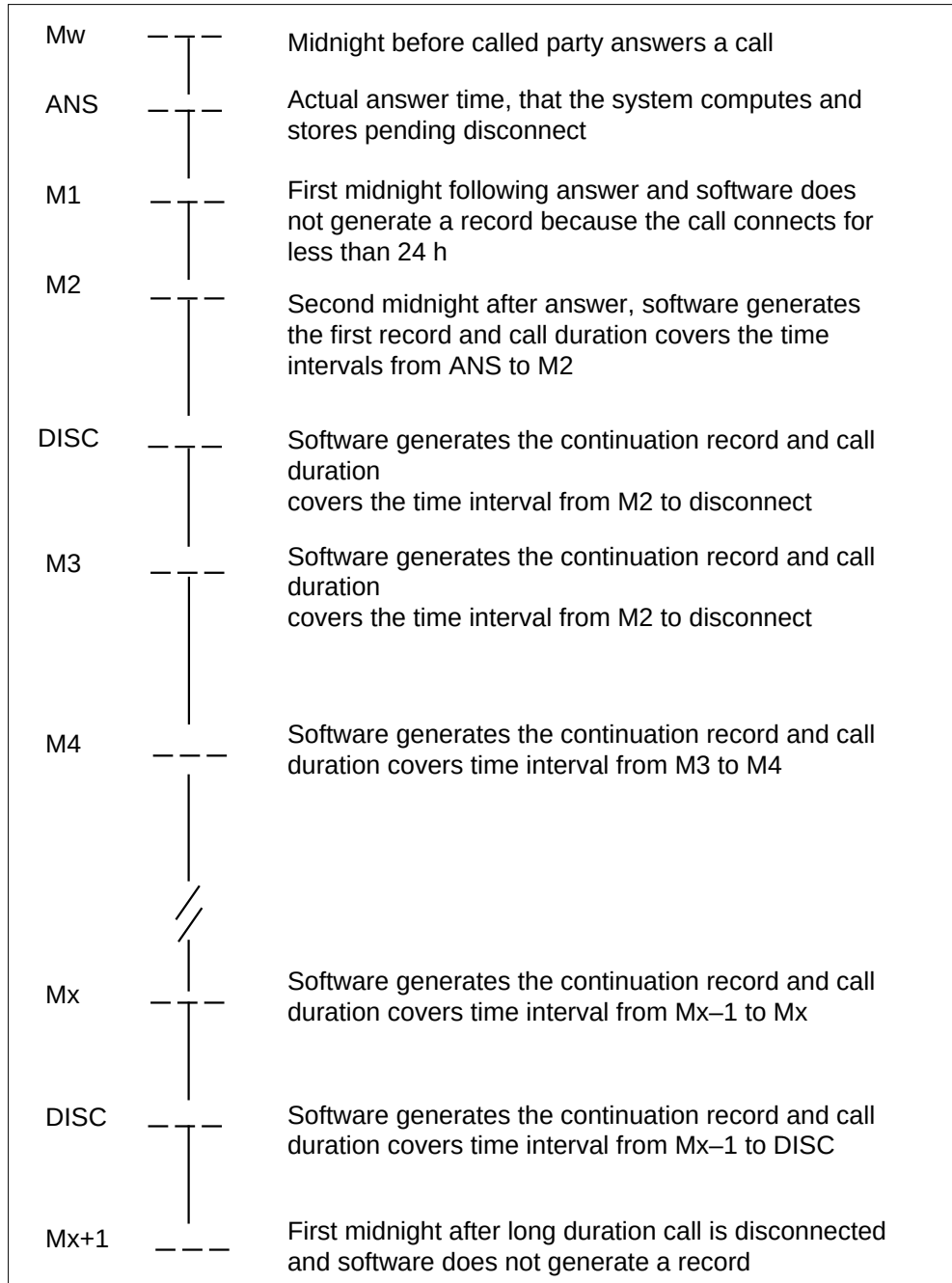
A continuation record contains the following information for an internetwork call:

- The carrier connect time field contains the time the call connects to the carrier. Definition of carrier connect time depends on call type. For Feature Group B calls, carrier connect time is established when the carrier goes off-hook. For Feature Group D calls, carrier connect time is established when the system receives the first wink from the carrier.
- The carrier connect date field contains the date the call connects to the carrier.
- The present time field contains the time the system formats the record.
- The present date field contains the date the system formats the record.
- The carrier elapsed time field can contain the amount of time from the generation of the last record to the generation of the current record. This field can contain the amount of time from the generation of the last record to the call disconnect time.
- The elapsed time field contains the amount of time from the generation of the last record to the generation of the current record. This field can contain the amount of time from the generation of the last record to the call disconnect time.

Bellcore LAMA Format (continued)

The following figure describes how AMA TR-508 Compliance II implements specified requirements. Bellcore specifications outline these requirements.

Long duration call with feature AN0101

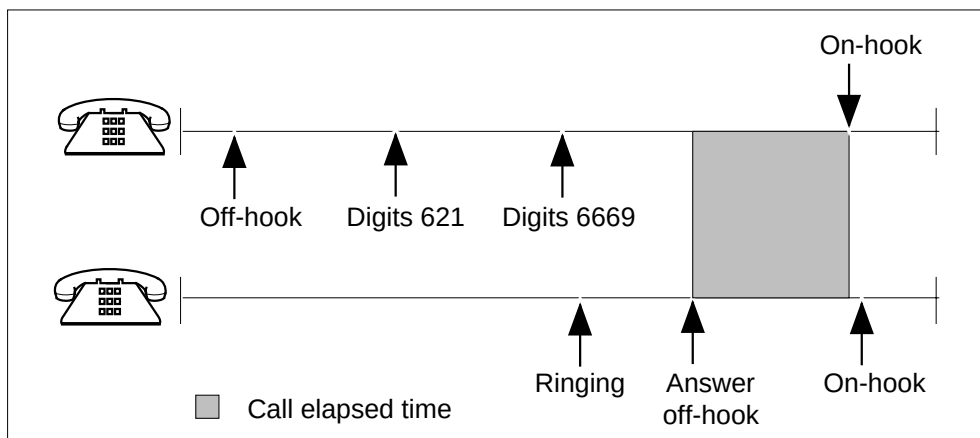


Belcore LAMA Format (continued)

AMA Base Re-engineering II (AN0319)

An example of a line-to-line call that has an elapsed time in which 621-6667 calls 621-6669 appears in the following figure. The shaded area indicates an elapsed time from answer to disconnection of the originator.

Call elapsed time



BC AMA inter-LATA WATS Call Code 111 (BC1698)

Different call codes that the system supports for inter-LATA and intra-LATA OUTWATS calls appear in the following table.

OUTWATS call codes

Type of call	Intra-LATA	Inter-LATA
OUTWATS call not routed through a VFG	Call code 068 WATS billing number	Call code 114 inter-LATA WATS billing number
OUTWATS call with a VFG with WATS billing	Call code 068 with WATS billing number	Call code 114 inter-LATA WATS billing number
OUTWATS call with a VFG without WATS billing number	Call code 007 WATS, station detail	Call code 111 inter-LATA WATS station detail

When an inter-LATA carrier/intra-LATA carrier provides OUTWATS service, a call generates the appropriate call codes (111, 114). An inter-LATA OUTWATS call from an IBN station generates call code 111. If IBN translations can bill the call to a special number, the call does not generate these call codes. If a special billing number is entered, the system generates a 114 AMA record. The system generates this record when the OUTWATS call

Bellcore LAMA Format (continued)

originates at the IBN station. The special billing number is entered in tables VFGDATA and VIRTGRPS.

The system uses virtual facilities to route an IBN originated OUTWATS call. The system uses VFG to translate the call. These VFG simulate loop-around trunks and provide virtual loop-around capability. The VFGs provide the number of successful, failed, and total attempts to perform this simulation.

If a special billing number is not assigned in the VFG datafill, the system records call code 111. The system records this code in the associated AMA record. The billing number that associates with the call is the number of the originating station. If a special billing number is assigned in the VFG datafill, the system records call code 114. The system records this call code in the associated AMA record.

Note: Call code 111 like call code 007. A call generates call code 111 for an inter-LATA OUTWATS station call. A call generates call code 007 for an intra-LATA OUTWATS station call. A 111 AMA record provides the additional connect details for the carrier that routes the call.

The structure codes that the system records for call code 111 are:

00629

inter-LATA

00633

inter-LATA, long duration

Note: If the IC/INC does not provide OUTWATS service, the system generates an inter-LATA station paid record. Call code 110 identifies this record.

Datapath AMA Format—Call codes 072 and 117 (BR0793)

This feature affects the following call codes:

Call code 072 (intra-LATA Datapath)

An AMA record provides details for Datapath calls from a data unit. Call code 072 identifies this AMA record. The system records the 072 AMA record when a data unit originates an intra-LATA station paid call. A data unit is a modem with dialing capability. A data unit is the hardware that implements Datapath.

The system records the following structure codes for call code 072:

00190

answered

Belcore LAMA Format (continued)

00191

unanswered

00194

long duration

Call code 117 (inter-LATA Datapath)

Equal access billing requires an AMA record that call code 117 identifies. Equal Access billing provides originating LATA access records. When a Datapath call from a data unit uses an inter-LATA/international carrier (IC/INC), the system generates an AMA record. Call code 117 identifies this AMA record. This record provides connect details. The system uses these details to route the call.

The system records the following structure codes for call code 117:

00645

inter-LATA

00647

inter-LATA, long duration

Universal Bellcore Centrex Billing (NC0267)**Table AMAGRPID**

Table AMAGRPID creates AMA group identifiers that table LINEATTR can reference. The translations NET DOD or NET GEN in table IBNXLAT translate the call for IBN lines and trunks. The call retrieves a LINEATTR index. POTS lines have a LINEATTR index assigned against the line.

Table AMAXLAID

Table AMAXLAID specifies flexible call types (FLEXCTYP) and service features (FLEXSF). Table AMAXLAID accepts groups of a maximum of eight characters that the operating company defines. Many call types that the FLEXCTYP assigns can override all (OVRDALL) predefined DMS call types. The call types that FLEXCTYP assigns can grant precedence (PRCDENCE) to specified DMS call types. The following calls types are calls that can grant precedence in the FLEXCTYP:

LOCAL

Local calls receive precedence. These calls include calls set to NP in table STDPRTCT. These calls include calls set to LCL in tuple CLASS of the Universal HEAD and CODE tables.

TOLL

Toll calls receive precedence. Toll calls include calls set to DD in table STDPRTCT. Toll calls can include calls set to NATL or INTL in tuple CLASS of universal translations.

Bellcore LAMA Format (continued)

IC

Equal access receives precedence

VPN

VPN call receives precedence

Table AMAXLAID defines translation identifiers. The translation system can be North American or Universal. The type of translation system determines if the system translates an AMA translation identifier. In North American offices, subtable AMAPRT changes to include an AMAXLAID option. This option points to a name that table AMAXLAID identifies.

In universal offices, option AMAXLAID is added to the CONT, RTE, and DNRTE selectors of the following tables:

- ACHEAD
- AMHEAD
- CTHEAD
- FAHEAD
- FTHEAD
- OFCHEAD
- NSCHEAD
- PXHEAD
- ACCODE
- AMCODE
- CTCODE
- FACODE
- FTCODE
- OFCCODE
- OFCCODE
- NSCCODE
- PXC CODE

The information in option AMAXLAID points to a name that table AMAXLAID identifies.

Belcore LAMA Format (continued)

Table FLEXAMA

Table FLEXAMA allows for the definition of a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned against the table determine the definition of the set. The system can use this table when a call retrieves an AMAGRPID through table LINEATTR and an AMAXLAID through translations.

Note: If the AMAGRPID and AMAXLAID combination does not have a tuple in table FLEXAMA, the system uses defaults. The defaults are in tables AMAGRPID and AMAXLAID.

Table LINEATTR

Feature NC0267 creates a new option field, AMAGRPID for table LINEATTR. The NCO267 removes fields LCABILL and HOT and places these fields as options in the options field.

Translations table flow for POTS Belcore LAMA

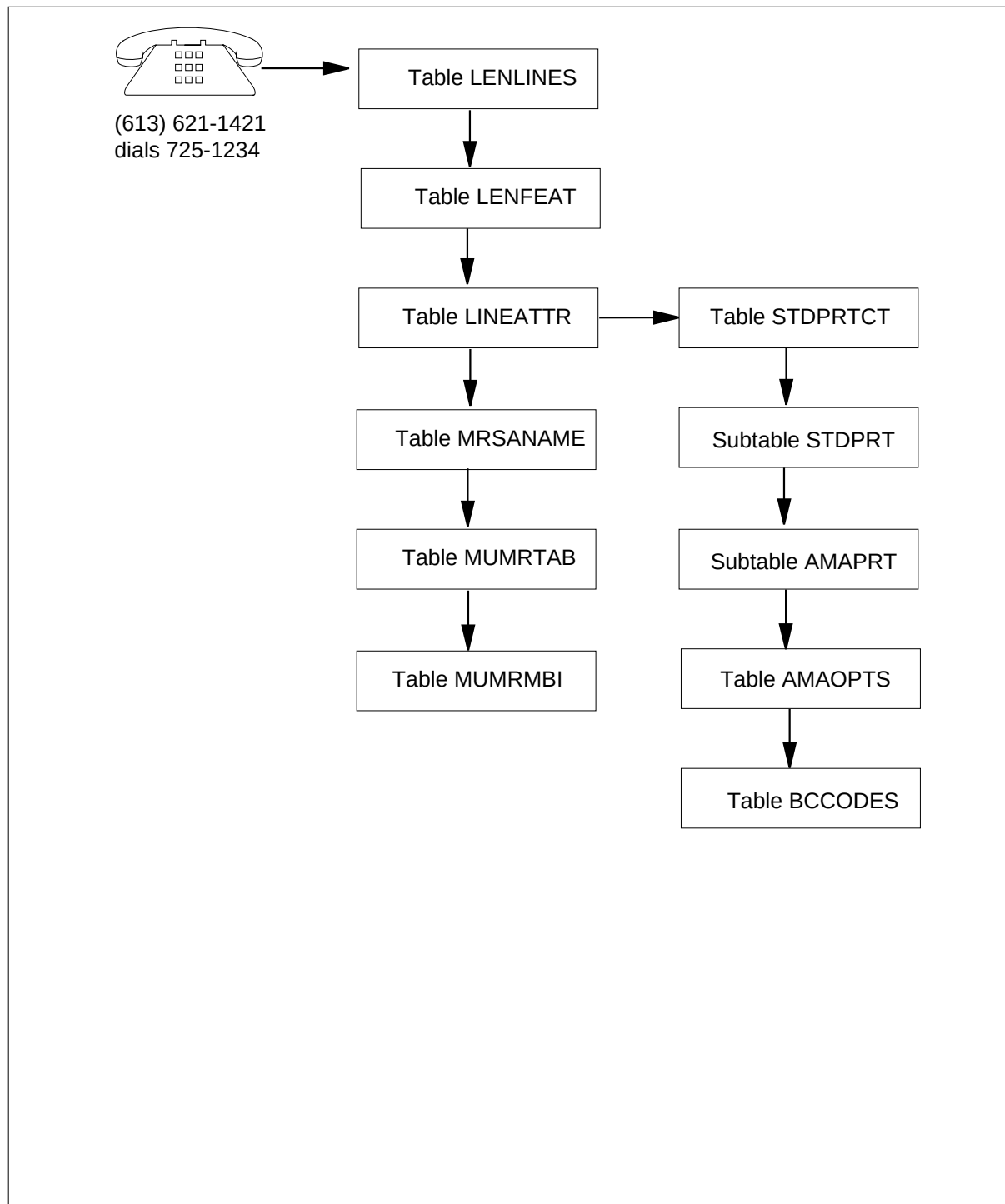
Descriptions of the POTS Belcore LAMA translations tables appear in the following list:

- Table LENLINES contains the hardware assignments of all lines that operate, and the options assigned to the lines.
- Table LINEATTR determines how the system indexes screening tables. This table first defines the type of line that generates the call.
- Table STDPRTCT sets the type of call that the system processes. The call type can be NP, DD, OA. This table performs other functions that relate to the way the system routes and screens calls. Field PRTNM in table LINEATTR originate screening to table STDORTCT.
- Subtable STDPRT- The leading digits of the number that the subscriber dials determine how the system indexes this subtable. If the system detects leading digits, call type is set. The system strips leading digits if appropriate, and sets routing to continue translations.
- Subtable AMAPRT generates call codes 009, 033, 088, 121, and 800 to 999 through AMA pretranslation.
- The MRSA names that generate call codes 001 to 005 appear in table MRSANAME. The MRSA names generate the call codes for calls that are outside the 1FR local calling area.
- Table MUMRTAB determines the index for table MUMRMBI.
- Table MUMRMBI determines if the system records the called number, the timing data, or the MBI on an AMA device.

Bellcore LAMA Format (continued)

- Table AMAOPTS controls the activation and scheduling of the recording options for local, toll, and high-revenue calls.
- Table BCCODES allows the operating company to specify the unanswered calls that create billing records.

The POTS Bellcore LAMA translations process appears in the following flowchart.

Belcore LAMA Format (continued)**Table flow for POTS Belcore LAMA Format**

Bellcore LAMA Format (continued)

Datafill content for the flowchart appears in the following example. In the datafill example, the calling number is (613) 621-1421 and the called number is 725-1234.

Datafill example for POTS Bellcore LAMA Format

Datafill table	Example data
LENLINES	HOST LM 0 0 19 02 S 0 6211421 DT 0 3WC
LENFEAT	HOST 00 0 19 02 S CFW CFW C 613 6211421 NSCR 1 HOST 00 0 19 02
LINEATTR	0 1FR NONE NT NSCR 0 613 PRT1 L613 CTOP 0 OTWA NILSFC LATA1 0 NIL NIL 00 N \$
STDPRTCT	PRT1 (1) (1)
STDPRTCT. STDPRT	600 779 N NP 0 NA
STDPRTCT .AMAPRT	725 725 DA411
MRSANAME	OTWA
MUMRTAB	OTWA 411 1
MUMRMBI	1 Y Y Y 1
AMAOPTS	DA411 ON
BCCODES	LOCAL (036) (009) (067) (074) (041)

Translations table flow for MDC Bellcore LAMA

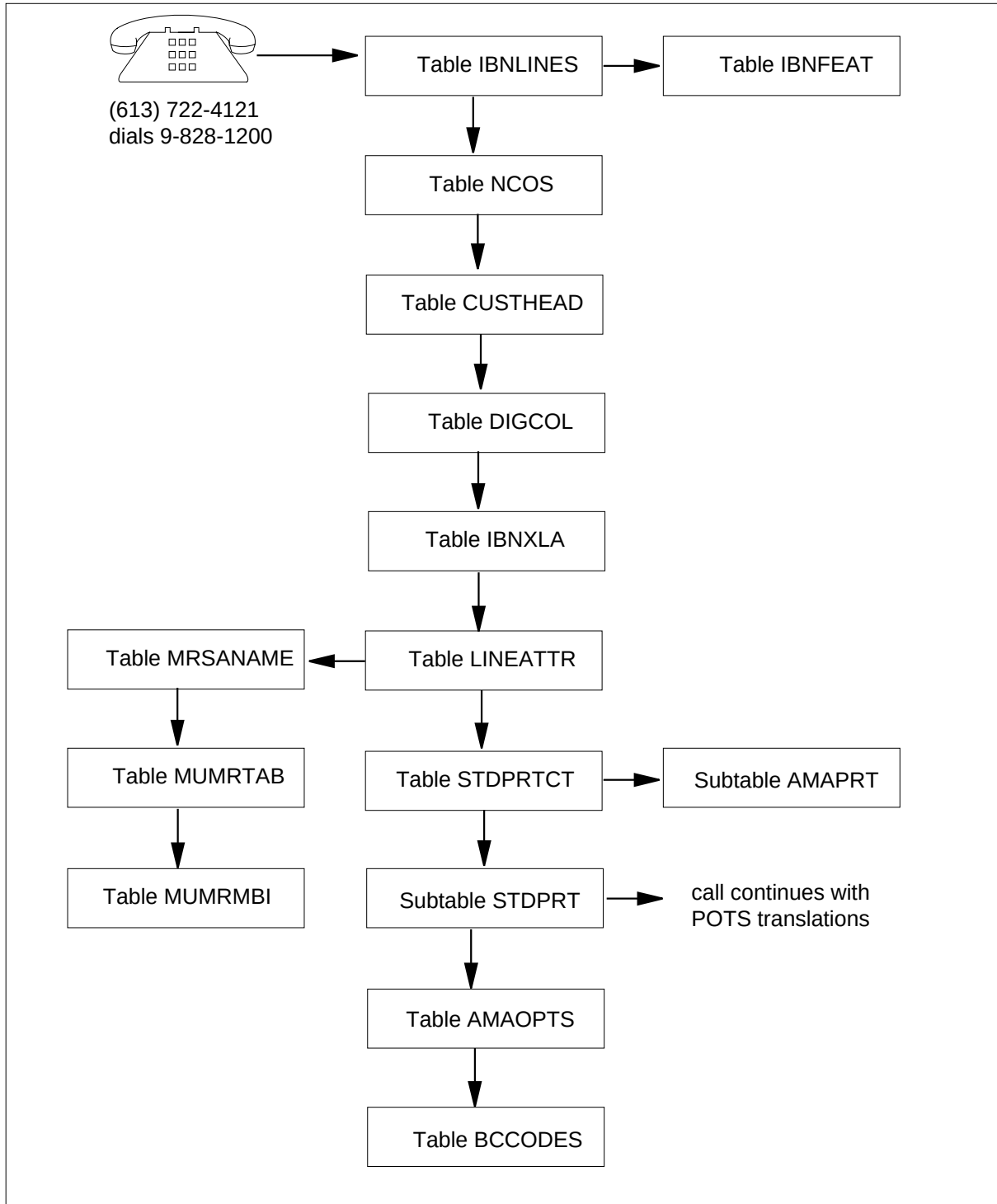
Descriptions of the MDC Bellcore LAMA translations tables appear in the following list:

- Table IBNLINES defines the IBN station numbers, attendant consoles, and Multiple Appearance Directory numbers that the switch and associated hardware options support.
- The software features assigned to each IBN station number, attendant console, and Multiple Appearance Directory number that the switch supports, appear in table IBNFEAT.
- Table NCOS describes the class of service assigned to:
 - attendant consoles
 - IBN stations
 - incoming or two-way IBN trunk groups

Belcore LAMA Format (continued)

- authorized codes
- customer groups
- The values and options assigned to customer groups appear in table CUSTHEAD.
- Table DIGCOL specifies to the line module the action to take based on the first digit that the subscriber dials.
- Table IBNXLA provides the instructions that translate the OUTWATS call through a VFG.
- Table LINEATTR determines how the system indexes screening tables. This table first defines the type of line that generates the call.
- The MRSA names appear table MRSANAME. These MRSA names generate call codes 001 to 005 for calls that are outside the 1FR local calling area.
- Table MUMRTAB determines the index for table MUMRMBI.
- Table MUMRMBI determines if the system records the called number, the timing data, or the MBI on an AMA device.
- Table STDPRTCT sets the type of call that the system processes NP, DD, OA. This table performs other functions that relate to call routing and screening. Field PRTNM in table LINEATTR originates screening for table STDPRTCT.
- Subtable STDPRT - The leading digits of the number that the subscriber dials determine how the system indexes this subtable. If the system detects the leading digits, call type is set. The system strips leading digits if this action is appropriate. The system sets routing to continue translations.
- Subtable AMAPRT generates call codes 009, 033, 088, 121, and 800 to 999 through AMA pretranslation.
- Table AMAOPTS controls the activation and scheduling of the recording options for local, toll, and high-revenue calls.
- Table BCCODES allows the operating company to specify the unanswered calls that create billing records.

The MDC Belcore LAMA translation process appears in the following flowchart.

Bellcore LAMA Format (continued)**Table flow for MDC Bellcore LAMA Format**

Belcore LAMA Format (continued)

The datafill content for the flowchart appears in the following example. In the datafill example, the calling number is (613) 722-4121 and the called number is 9-828-1200.

Datafill example for MDC Belcore LAMA format

Datafill table	Example data
IBNLINES	HOST 0 0 05 07 0 DT STN IBN 7224121 COMKODAK 0 0 613 (CCSA) \$
IBNFEAT	HOST 0 0 05 07 CFX CFX CFU N
NCOS	COMKODAK 0 COMKO 0 0 \$
CUSTHEAD	COMKODAK COMKOXLA COMKODIG NIL FETXLA FXCOMKO \$
DIGCOL	COMKODIG 9 POTS N
IBNXLA	COMKOXLA 9 NET N N 1 N POTS N N GEN LATTR 0 \$
LINEATTR	0 1FR NONE NT NSCR 0 613 PRT1 L613 CTOP 0 OTWA NILSFC LATA1 0 NIL NIL 00 N \$
MRSANAME	OTWA
MUMRTAB	OTWA 828 1
MUMRMBI	1 Y Y Y 1
STDPRCT	PRT1 (1) (1)
STDPRCT .STDPR	822 828 N NP 0 NA
STDPRCT .AMAPRT	725 725 DA411
AMAOPTS	DA411 ON
BCCODES	LOCAL (036) (009) (067) (074) (041)

Bellcore LAMA Format (continued)

Translations table flow for OUTWATS Bellcore LAMA

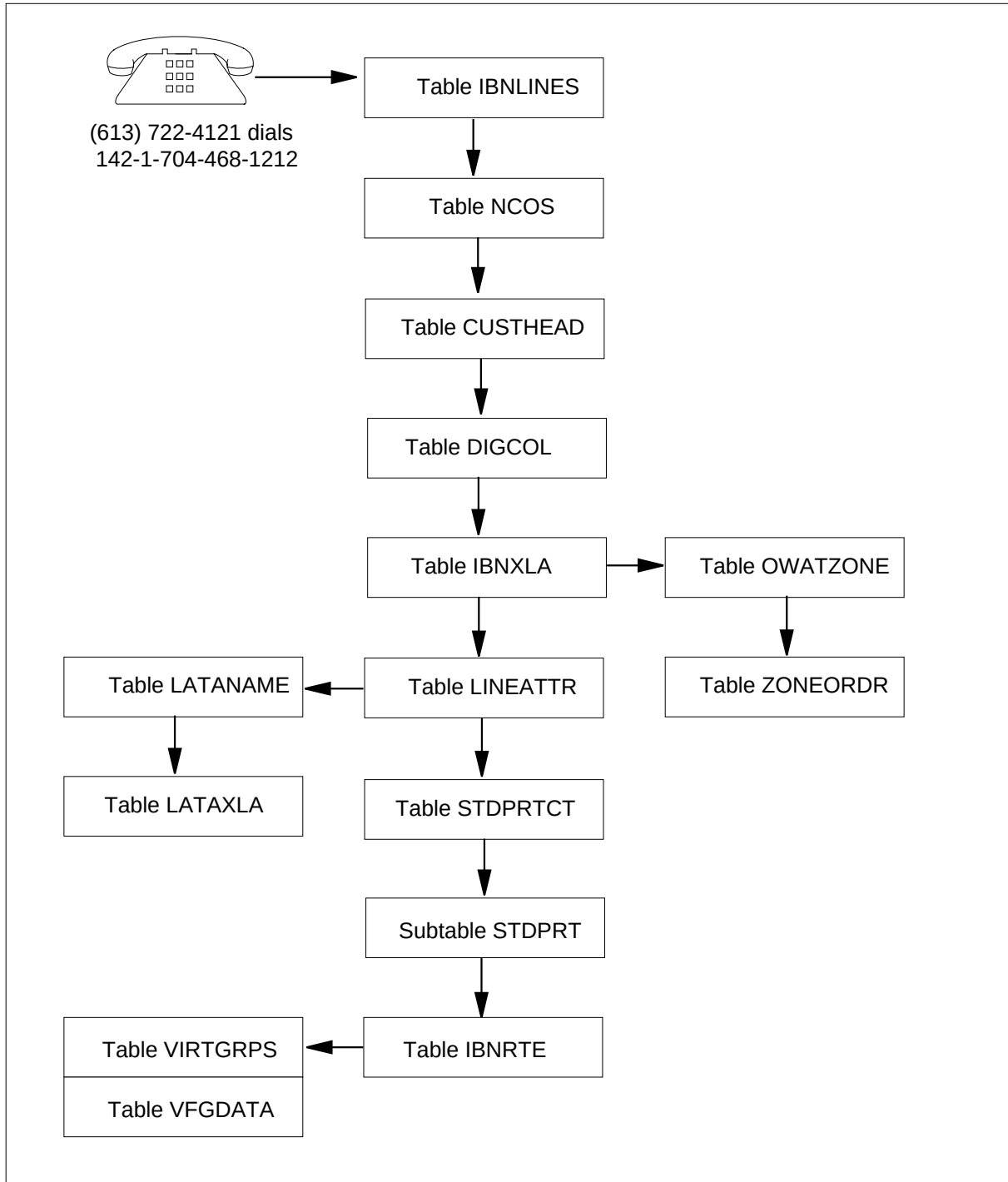
Descriptions of the OUTWATS Bellcore LAMA translations tables appear in the following list:

- Table IBNLINES defines the IBN station numbers, attendant consoles, and Multiple Appearance Directory numbers that the switch and associated hardware options support.
- Table IBNFEAT lists the software features assigned to each IBN station number, attendant console, and Multiple Appearance Directory number that the switch supports.
- Table NCOS describes the class of service assigned to:
 - attendant consoles
 - IBN stations
 - incoming or two-way IBN trunk groups
 - authorized codes
 - customer groups
- The values and options assigned to customer groups appear in table CUSTHEAD.
- Table DIGCOL specifies to the line module the action to take. The first digit that the subscriber dials determines the action to take.
- Table IBNXLA provides the instructions that translate the OUTWATS call through a VFG.
- Table OWATZONE provides the OUTWATS zone for each FNPA for each SNPA.
- Table ZONEORDR identifies if a call from one zone is correct in another zone.
- Table LINEATTR determines how the system indexes screening tables. This table first defines the type of line that generates the call.
- Each operating company name of the LATA that the switch serves appears in table LATANAME.
- Table LATAXLA defines the attributes of domestic calls as inter-LATA or IntraLATA and as Interstate or Intrastate.
- Table STDPRTCT sets the type of call that the system processes. The types of calls are NP, DD, and OA. This table performs other functions that relate to how the system routes and screens calls. Field PRTNM in table LINEATTR originates screening for table STDPRTCT.

Bellcore LAMA Format (continued)

- Subtable STDPRT - The leading digits of the number that the subscriber dials determine how the system indexes this subtable. If the system detects the leading digits, the call type is set. The system strips leading digits if this action is appropriate. The system sets routing to continue translations.
- Table IBNRTE contains route lists.
- Table VIRTGRPS provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS, and provide Equal Access capabilities.
- Table VFCDATA allows non-company user access to enter data in table VIRTGRPS. Changes to data in table VFCDATA affect data in table VIRTGRPS.

The OUTWATS Bellcore LAMA translation process appears in the following flowchart.

Bellcore LAMA Format (continued)**Table flow for OUTWATS Bellcore LAMA Format**

Belcore LAMA Format (continued)

The datafill content for the flowchart appears in the following example. In the datafill example, the calling number is (613) 722-4121 and the called number is 142-1-704-468-1212.

Datafill example for OUTWATS Bellcore LAMA Format

Datafill table	Example data
IBNLINES	HOST 0 0 05 07 0 DT STN IBN 7224121 COMKODAK 0 0 613 \$
NCOS	COMKODAK 0 KDKO 0 0 (OHQ 0 TONE_OHQ) (CBQ 0 3 N 2) \$
CUSTHEAD	COMKODAK CXDK KDK NIL (VACTRMT 0) (EXTNCOS 0) (ACCT 5) (FETXLA CUSTFEAT) (PLMXLA PXDK) (ERDT 7) (AUTH COMKODAK N N) (SUPERCNF) (ACR AUTH 1) (CUTPAUSE 1) (CUTMOUT 10)
DIGCOL	COMKODIG 4 POTS N
OWATZONE	613 9182411111 1
ZONEORDR	613 (0123456789ABC) \$
LINEATTR	8 OWT NONE NT FR01 0 613 OWT1 NLCA TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N \$
LATANAME	LATA1 000
LATA1	LATA1 918 INTER INTER STD
VIRTGRPS	OWZNE4 SIZE 2 POTS N 8 Y (EA ABC Y) \$
STDPRTCT	OWT1 (1) (0)
STDPRTCT .STDPRT	17 19 T DD IBNRTE 130 7 11 NONE
IBNRTE	130 OW N Y N 0 V VOWDM1 0

Translation table flow for TR-862 AMA Compliance: Circuit (AF3556)

The TR-862 AMA Compliance: descriptions of the Circuit translation tables appear in the following list:

- Table AMAOPTS controls the activation and schedule of the recording options for local, toll, and high-revenue calls. One tuple is available for each option. A schedule associates with each option. The schedule defines if an option is active, active at specified times, or not active.
- Table DNATTRS enables per DN and call type subscription parameter settings for BRI functional terminals. The DN is the key to the table. The DN is the key to the CT selector. This selector associates with the

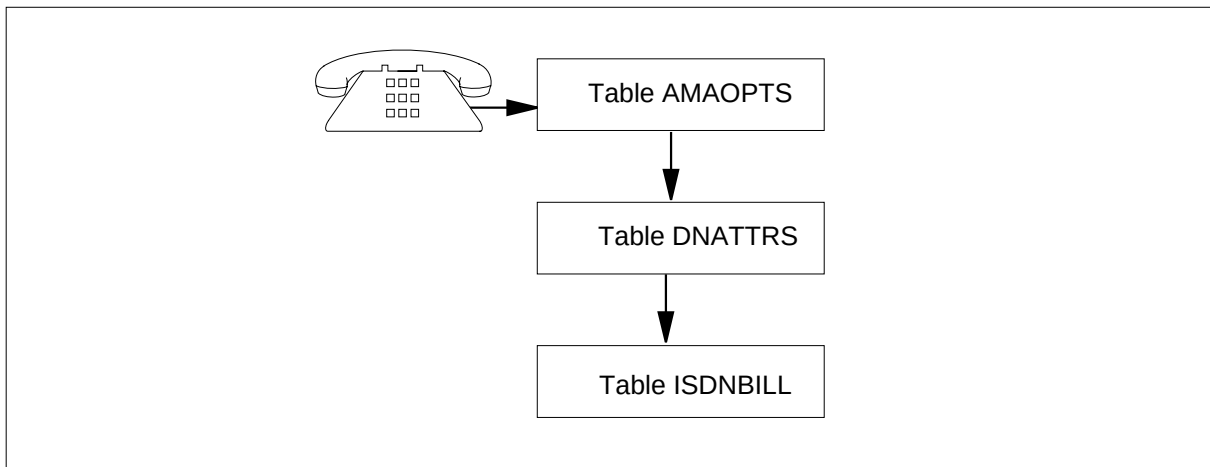
--- **Bellcore LAMA Format** (continued) ---

circuit-mode voice and/or data call types. These calls types have subscription parameters that include the ISDN service use to be billed.

- Table ISDNBILL allows the telephone company to define groups of ISDN signaling and supplementary services. The system must record these services on use in Bellcore format AMA.

The order in which the system accesses tables during the TR-862 AMA Compliance: Circuit (AF3556) translation process appears in the following flowchart.

Table flow for Bellcore LAMA Format



The datafill content for the flowchart appears in the following example.

Note: In the datafill example, the calling number is (613) 722-5070.

Datafill example for TR-862 AMA Compliance: Circuit (AF3556)

Datafill table	Example data
AMAOPTS	ISDNCIRCUIT ON
DNATTRS	613 722 5070 \$ (CT (VBINFO (PROVCDS) (PROVLLC) (ISDNAMA RECORDALL) \$) (CMDATA (PROVCDS) \$) \$) \$
ISDNBILL	RECORDALL (CGS) (CDS) (LLC) (HLC) \$

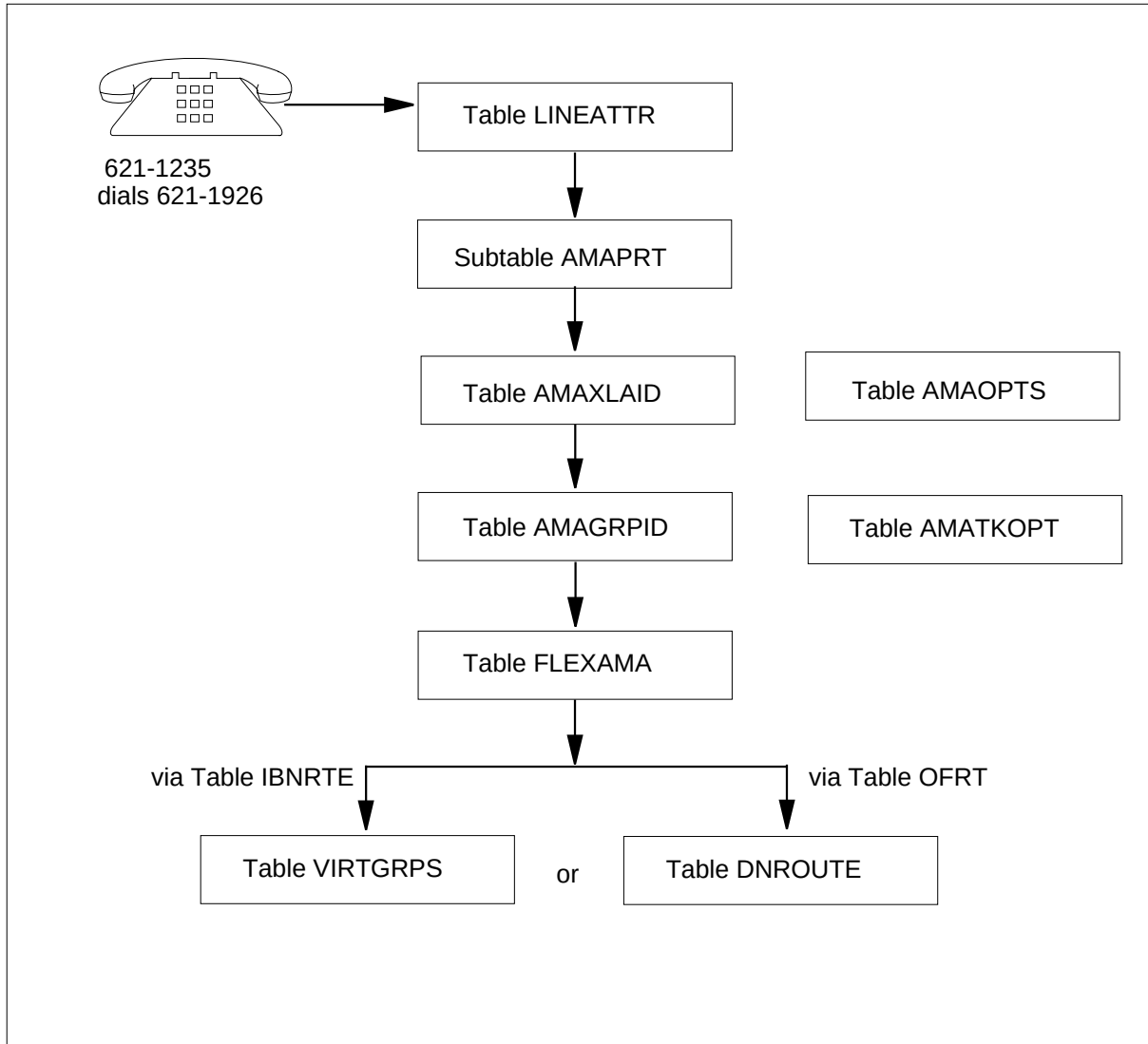
Bellcore LAMA Format (continued)

Translations table flow for Universal Bellcore Centrex Billing (NC0267)

Descriptions of the Universal Bellcore Centrex Billing tables for North American offices appear in the following list.

- Subtable AMAPRT Generates call codes 009, 033, 088, 121, and 800 to 999 through AMA pretranslation.
- Table AMAGRPID identifies the AMA group.
- Table AMAXLAID defines the AMA translation identifiers.
- Table FLEXAMA allows for the definition of a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned against the table determine the definition of the set.
- Table VIRTGRPS provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS. Loop-around trunks provide equal access capabilities.
- The information for DNs that identify a route appear in table DNROUTE.
- Table AMAOPTS controls the activation and schedule of the recording options for local, toll, and high-revenue calls.
- Table AMATKOPT allows for the application of AMA Bellcore format specified options. You can apply the options on a trunk group or to specified members of the trunk group.

The Bellcore LAMA Format translation process for North American offices appears in the following flowchart.

Bellcore LAMA Format (continued)**Table flow for North American offices**

Note 1: For VFGs, the system routes the translations process to table VIRTGRPS if ENTRYID is entered in table VIRTGRPS. For DISA stations, the system routes the translations process to table DNROUTE if ENTRYID is entered in table DNROUTE.

Note 2: Tables AMAOPTS and AMATKOPT are not part of the translations flow. These tables serve as triggers. Table AMAOPTS triggers CRSEQNUM and table AMATKOPT triggers AMACLID.

Belcore LAMA Format (continued)

The items and examples the flowchart uses appear in the following list. The calling number is 621-1235 and the called number is 621-1926. The datafill content for the flowchart appears in the following list.

Datafill example for

Datafill table	Example data
LINEATTR	15 IBN NONE NT NSCR 0 071 NPRT NLCA NONE 0 NIL NILSFC NILLATA 0 PX CG5 NIL 00 N (HOT) \$
Subtable AMAPRT	782 782 AMAXLAID GENERIC2
AMAGRPID	GROUP2 DFLT (FLEXOCI 100) \$
AMAXLAID	XLA2 DFLT (FLEXCTYP STNPAID OVERDALL)(FLEXSF 800) \$
FLEXAMA	GROUP2 XLA2 GRPDATA (FLEXOCI 150) \$
VIRTGRPS	VFG1 SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N (ENTRYID) \$
DNROUTE	062 879 4390 FEAT DISA CUSTOMER1 0 N N N N (ENTRYID) \$
AMAOPTS	CRSEQNUM ON
AMATKOPT	ISUP2W (AMACLID) \$

Translations table flow for Universal Belcore Centrex Billing (NC0267) (Universal offices)

Descriptions of the Universal Belcore Centrex Billing tables for Universal offices appear in the following paragraphs.

- Table PXHEAD defines the instance of code and route tables and the associated characteristics.
- Table PXCDEF defines the instance of code and route tables and the associated characteristics.
- Table AMAGRPID identifies the AMA group.
- Table AMAXLAID defines the AMA translation identifiers.
- Table FLEXAMA allows for the definition of a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned against the table determine the definition of the set.
- The information for DNs that identify a route appears in table DNROUTE.

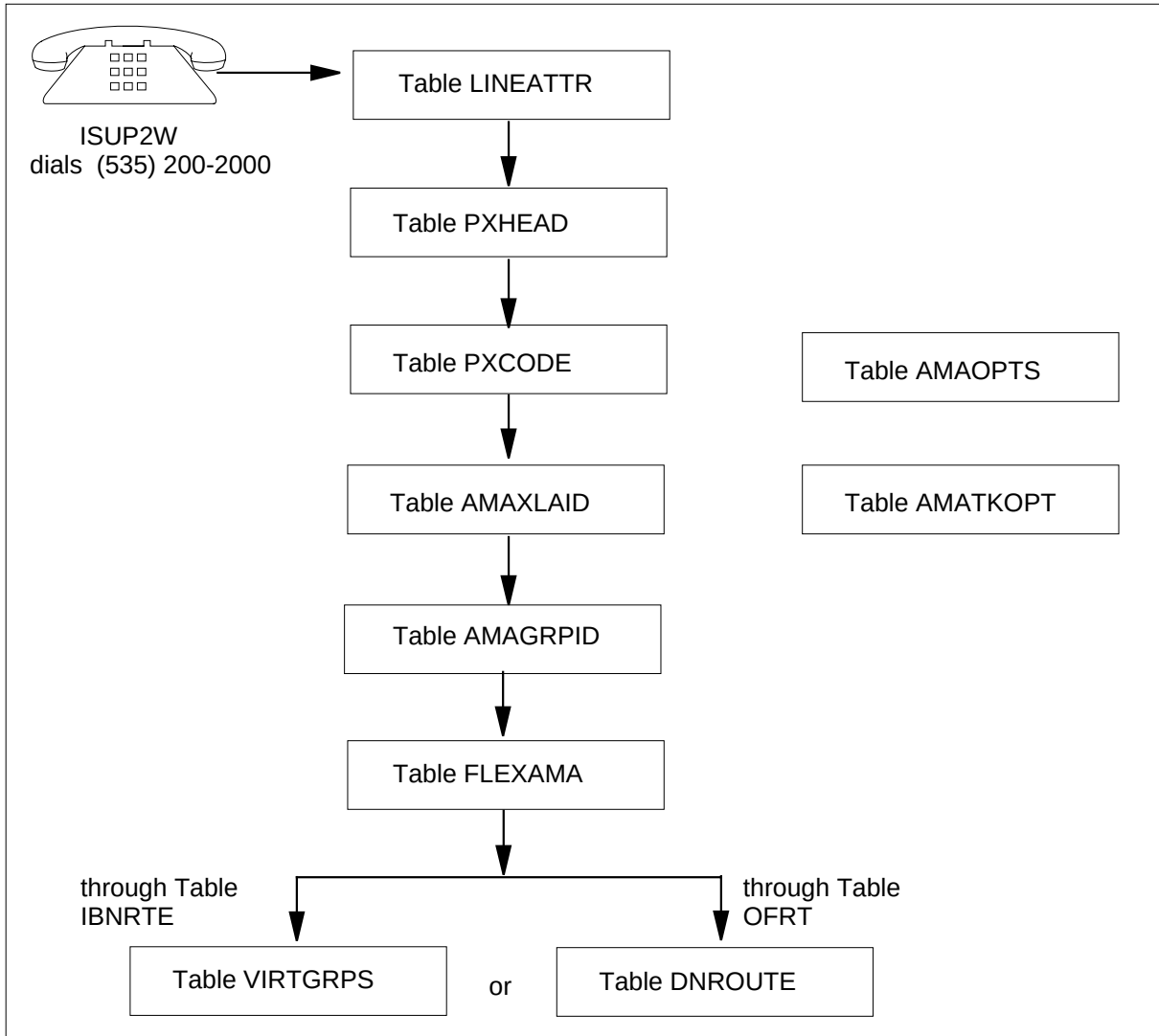
Bellcore LAMA Format (continued)

- Table VIRTGRPS provides a mechanism to eliminate the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS. Loop-around trunks provide equal access capabilities.
- Table AMAOPTS controls the activation and scheduling of the recording options for local, toll, and high-revenue calls.
- Table AMATKOPT allows for the application of AMA Bellcore format specified options. You can apply these options on a trunk group or to specified members of the trunk group.

The Bellcore LAMA translations process for Universal offices appears in the following flowchart.

Belcore LAMA Format (continued)

Table flow for Universal offices



Note 1: For VFGs, the system routes the translations process to table VIRTGRPS if ENTRYID is entered in table VIRTGRPS. For DISA stations, the system routes the translations process to table DNROUTE if ENTRYID is entered in table DNROUTE.

Note 2: Tables AMAOPTS and AMATKOPT are not part of the translations flow. These tables act as triggers. Table AMAOPTS triggers CRSEQNUM and table AMATKOPT triggers AMACLID.

Bellcore LAMA Format (continued)

The items and examples for the flowchart appear in the following list:

- Calling number is ISUP2W
- Called number is (535) 200-2000.

The datafill content for the flowchart appears in the following example.

Datafill example for

Datafill table	Example data
LINEATTR	15 IBN NONE NT NSCR 0 071 NPRT NLCA NONE 0 NIL NILSFC NILLATA 0 PX CG5 NIL 00 N (HOT) \$
PXHEAD	LCLXLA SDFLT DFOP DFOP (MM 7 10) (XLT PX CG1) (AMAXLAID XLA1) & NOCON STD
PXCODE	CG2 200 200 CONT (MM 10 10) (XLT PX CG2) (AMAXLAID XLA1) \$
AMAGRPID	GROUP2 DFLT (FLEXOCI 100) \$
AMAXLAID	XLA2 DFLT (FLEXCTYP STNPAID OVERDALL)(FLEXSF 800) \$
FLEXAMA	GROUP2 XLA2 GRPDATA (FLEXOCI 150) \$
VIRTGRPS	VFG1 SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N (ENTRYID) \$
DNROUTE	062 879 4390 FEAT DISA CUSTOMER1 0 N N N N (ENTRYID) \$
AMAOPTS	CRSEQNUM ON
AMATKOPT	ISUP2W (AMACLID) \$

Limits

The following limits apply to Bellcore LAMA Format.

DWS 1203 AMA Billing (AD4733)

The following limits apply to this feature:

- DWS calls on DMS-100 and DMS-200 Canadian telephone networks use only call code 148 and structure code 0190.
- Outgoing wideband calls on ATC trunks generate call code 149 instead of call code 110. Incoming wideband calls on ATC trunks generate call code 150 instead of call code 119.

Note: Call code 110 and 119 are generated for narrowband calls.

Bellcore LAMA Format (continued)

- LAMA_OFFICE in table OFCOPT must be set to YES to start LAMA recording.
- UNIVERSAL_AMA_BILLING in table OFCENG must be N to allow North American AMA billing.
- Field KEY must be entered AMA and field FORMAT must be entered BCFMT in table CRSFMT to start Bellcore AMA.

Global EBAF AMA (Clone) (AE1275)

The following limits apply to this feature:

- A maximum of three time changes are recorded for each AMA record.
 - Module code 504 adds to an AMA record produced after the call was released and is not produced when the change occurred.
 - Module code 504 does not add to AMA records that unanswered call recording produces.
 - A time change does not impact the recording of *connect* or *elapsed* times.
 - Module code 504 adds to the next record a LONGCALL system produces if a time change occurs during a LONGCALL.
- Recording of time changes applies only if:
 - CALL_TIMECHG in table AMAOPTS is ON
 - UNIVERSAL_AMA_BILLING in table OFCENG is ON
 - TIMECHANGE in table AMAOPTS is OFF

VFG AMA Support for FX and ETS Calls (AF1093)

The following limits apply to this feature:

- Table VIRTGRPS option VFGAMA facility types only apply to incoming IBN VFGs. These facility types are ETS, FX, CCSA, and TDMTT.
- The application of the FX and ETS options is the only way that the DMS switch can identify a VFG as an ETS or FX facility.
- When the FX or ETS option and the call detail recording (CDR) option are assigned to a VFG, the VFGAMA option is more important than the CDR option. Billing basis occurs on the VFGAMA option datafill. If CDR is on, FX is assigned to a VFG for NP type calls. If MDRRAO feature is activated for the call, call code 011 generates.
- This feature applies only to Bellcore AMA format.

Bellcore LAMA Format (continued)

AMA Test Call Capability (AF1462)

The following limits apply to this feature:

- This feature can only operate in a switch configured for Bellcore AMA format. While this feature is in switches configured for other formats, to enable the feature does not have any effect.
- AMATEST is not compatible with the ONI option and the following line class codes: CSD, 8FR, 10FR.
- This feature only operates on IBN and POTS lines.

AMA Test Call Enhancements (AF1981)

The following limits apply to this feature:

- This feature only operates in a switch configured for Bellcore AMA format. While this feature is in switches configured for other formats, to enable the feature does not have any effect.
- For long duration calls, AMATEST must be on the originator, not the terminator, for this feature to become enabled. Long duration calls are calls in progress for a minimum of 24 h.

Note: The AMATEST can be applied on a trunk group or line. When this event occurs, all Bellcore AMA records calls that originate or terminate to this line generate are marked as study record.

- In the study indicator field, a default calling number can be recorded and a called number is not available. When this event occurs, the study indicator field records a value of four (4). The value of 4 indicates the no calling and no called number, instead of value six (6).

AMA Compliance—TR-508 (AF3078)

The following limits apply to this feature:

- A switch recording Bellcore Format AMA data does not use MCD timing. Any other billing (SMDR) on this switch does not use MCD timing if the switch records in Bellcore Format.
- On the current DMS switch, timed release disconnect (TRD) timing is active if the terminating party goes on-hook when the originating party is off-hook. The activation occurs even if the two parties are simultaneously off-hook for two continuous seconds. This functionality does not comply with Bellcore specifications. These specifications state the TRD must not be active unless both parties are off-hook for two continuous seconds. This failure to meet standards, indicates that all of TRD time can overbill short

Belcore LAMA Format (continued)

duration calls on the DMS switch. A part of TRD time can overbill these calls on the switch when the called party goes on-hook first.

Note: The earlier limits apply only if non-resident CI command NOMCD activates the removal of MCD. See Activation/deactivation of MCD using NOMCD for instructions on how to deactivate MCD.

- An elapsed time cannot be measured for calls taken down. These calls are taken down because of a cold SwAct on a SMR, SMS, or SMU because of the specified limits of this peripheral type. The AMA record generated for this call indicates the timing guard flag set and a zero elapsed time.

TR-862 AMA Compliance: Circuit (AF3556)

The following limits apply to this feature.

Virtual facility group interaction

The first leg from an ISDN subscriber to a VFG is considered for ISDN recording. One exception involves originating interLATA recording where the required ISDN services are sent to a carrier in the record for the leg of the call. Terminations to VFG are not considered for ISDN terminating billing.

Release cause

This feature does not change the DMS switch plan for record production. This record production involves a call sent to treatment. The recording of a release cause can indicate this treatment. The release cause is captured and recorded where available. For example, ISDN billable calls that terminate on a trunk, with use of the SS7 protocol, a release message is returned to the originating switch. The following limits do apply for this feature:

- ISDN billing that occur in tandem switches does not capture the release cause value returned to the originator.
- If the far end switch provides the appropriate treatment, the cause value is not returned to the originator. The cause value is not available for recording.

Network interworking

This feature only considers basic rate interface (BRI) functional terminals as an ISDN. The feature does not consider BRI Meridian functional terminals and BRI Stimulus terminals as an ISDN.

Signaling capability usage

If the switch receives and accepts a service, the service is in use. Exceptions to this rule involve the condition of the carrier. This condition occurs with regard to the access transport parameter (ATP) information element (IE) and

Bellcore LAMA Format (continued)

the consideration of interworking and release cause value to force a record. This is call code 045 and 184 production. The following paragraphs explain why these services are exceptions to this rule.

Condition of the carrier on the ATP IE is entered in table OCCINFO. If datafill indicates that ATP IE must not go to the carrier, the inter-LATA billing record is updated. This update indicates that the ISDN services are not in use.

The ISDN service recording can be the reason to produce a record. In this occurrence, the interworking condition and release cause value are considered in an attempt to produce recording information that is of use. If a detailed record is in progress for a call, the interworking condition and release cause value are not considered. The ISDN information is added to the record.

If interworking occurred during a call that forces the creation of a record that captures ISDN services, this feature does not generate that record. For example, call code 045. If interworking was not present, this feature checks the release cause value for one of the following values. This check occurs before this feature allows the generation of the ISDN services record (for example, call code 045):

- normal clearing
- user not responding
- user alerting no answer
- call rejected
- incompatible destination
- recovery on timer expiry

Note: Any services that table ATPIES discards are not marked as not used in earlier offices.

AMA TR-508 Compliance II (AN0101)

Feature activation and deactivation of long duration software continue to function according to earlier Bellcore specifications. Long duration software are records produced with call code 031. A D record is not produced. For D records, the timing indicator field was set to 5. This value is not appropriate any longer. Value 3 replaces value 5.

The setting of each option in table AMAOPTS is the NT initial value of the option for application of the new BCS. A dump and restore transfers the Bellcore format value of the option from the earlier BCS to each option in the current BCS. The exception to this rule are the option that did not appear in the earlier BCSs. Before this feature, LONGCALL in table AMAOPTS

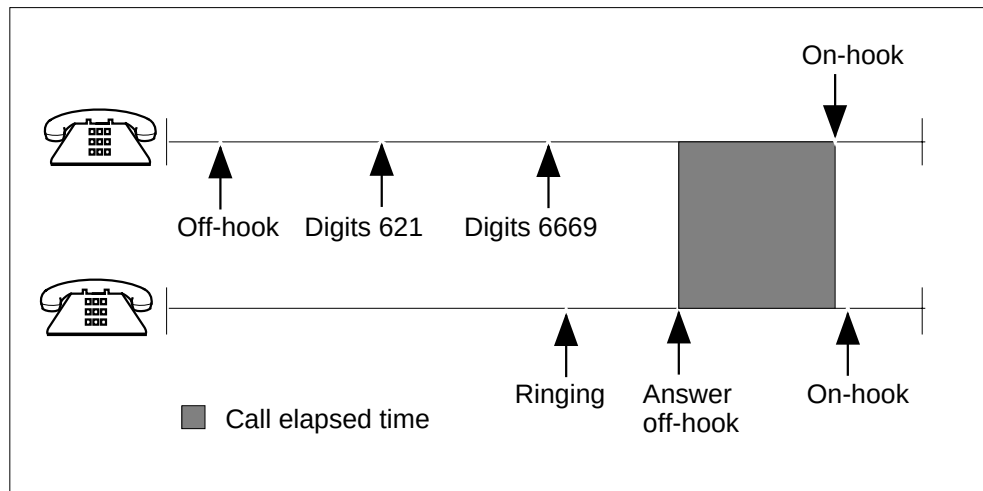
Belcore LAMA Format (continued)

controlled Bellcore Format long duration record generation. The LONGCALL value gives the first value for BCLONGCALL from the earlier BCS. The BCLONGCALL option was not in loads that occurred before BCS34. When the BCS34 software was applied, BCLONGCALL option contains the NT initial value of OFF. The operating company must set this value to the most appropriate options.

AMA Base Re-engineering II (AN0319)

An example of a line-to-line call with an elapsed time in which 621-6667 calls 621-6669 appears in the following figure. An elapsed time from answer to disconnection of the originator appears in the shaded area.

Call elapsed time



Belcore LAMA Format Enhancements (BC0683), Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512)

A distributed processing peripheral (DPP) does not support AMADUMP for stored data.

BC AMA inter-LATA WATS Call Code 111 (BC1698)

The following limits apply to this feature.

- Only feature BC1698 supports 00629 and 00633 structure codes.
- Identification and WATS administration information are not available.

Bellcore LAMA Format (continued)

- When an MDC station originates an OUTWATS call routed with use of VFGs, call codes 111 and 007 generate.
 - The 007 record is for intra-LATA OUTWATS.
 - The 111 record is for inter-LATA OUTWATS.
- To assign a special billing number to the VFG datafill generates 068 and 114 billing records.
 - Call code 068 is recorded for intra-LATA calls.
 - Call code 114 is recorded for inter-LATA calls.
- OUTWATS is also for POTS. If POTS OUTWATS is available, this feature generates call codes 068 and 114 in the AMA data recorded.

Call Codes 009, 033, 121 Assignment Via Translation (BR0759)

Feature BR0759 does not support all call codes. Call code 121 Datapath terminating access record is an interLATA call code. Feature BR0759 only generates this call code for incoming calls from an Equal Access carrier. Feature BR0759 does not generate call code 121 for intraLATA Datapath calls.

Call codes entered for AMA pretranslation cannot be generated for the following reasons:

- Table LINEATTR or table TRKGRP do not specify a pretranslator in the PRTNM field.
- The leading digits of the called number are altered before indexing in subtable STDPRT.
- Other attributes, like equal access, cause BR0759 to generate a call code before the call code specified in subtable AMAPRT. The equal access call codes are more important than call codes 088 and 800 to 805. Refer to the Equal Access document suite for additional information on Equal Access translations.

BR0759 supports the following trunk groups:

- SuperCAMA (SC) and CAMA (OC)
- Access To Carrier (ATC)
- P2 trunk (P2)

Bellcore LAMA Format (continued)

- PX trunk (PX)
- IBN trunks (IBNTI and IBNT2)

Note: Feature BR0759 can apply AMATEST on a trunk group or line. When this event occurs, all Bellcore AMA records that originating or terminating calls generate to this line are marked as study records.

Datapath AMA Format—Call Codes 072 and 117 (BR0793)

Feature BR0793 does not currently support structure codes that provide customer identification.

Universal Bellcore Centrex Billing (NC0267)

The following limits apply to this feature:

- Feature NC0267 provides AMA calling line identification on calls where the originating port is an ISUP trunk with AMACLID entered against the trunk.
- Feature NC0267 permits the entry of AMACLID only on incoming or two-way ISUP trunks.
- The count (0000000 to 9999999) of the call record sequence number rolls-over to 0000001 and not 0000000 to distinguish this event. This action occurs from those restart types that cause the count to reset to 0000000.

Note: An attempt to enter the AMACLID option on a trunk other than an incoming or two-way ISUP results in tuple rejection. This action also causes the generation of a warning message.

Interactions

The interactions between Bellcore LAMA Format and other functionalities appear in the following paragraphs.

DWS 1203 AMA Billing (AD4733)

Feature AD4733 interacts with the following features:

- AD3936 - LEC Wideband Call Processing
- AD4433 - LEC WSS ISUP to PRI Interworking
- AD4449 - LEC WSS PRI
- AD4732 - LEC DWS FGD ISUP

Bellcore LAMA Format (continued)

Global EBAF AMA (AE1124)

If feature AE1124 equips a switch with Global EBAF AMA (AE1124), feature AE1124 records SMDR and authorization code in AMA. This feature records if MDRRAO and new option AUTHAMA are entered in field OPTIONS of table CUSTSMDR.

VFG AMA Support for FX and ETS Calls (AF1093)

Feature AF1093 equips the switch with the MDR Data in the AMA Stream feature package (NTXA88AA). The Message Detail Recording Revenue Accounting Office (MDRRAO) feature is active on a customer group. If this information is available the following billing interactions occur when the VFG has a facility indication:

- The NP calls that customer groups originate with the MDRRAO feature active generate call code 159 for the first leg of the call. For the second leg of the call (VFG to terminator), the call code generated is call code 011 or 085. Feature AF1093 adds module code 100 to these records. The incoming facility type in the module appears 011 (FX) or 085 (ETS). The VFGs datafill determines the incoming facility type.
- Direct dial (DD) calls that customer groups originate with the MDRRAO feature active do not generate call codes 011 or 085. Feature AF1093 adds module code 100 to the record generated. The facility type assigned to the VFG, FX or ETS appears an 011 or 085 in the incoming facility type field.

The following table summarizes the different AMA records produced. This summary occurs when IBN incoming VFGs that route are assigned to customer groups with the MDRRAO feature active (module code 100).

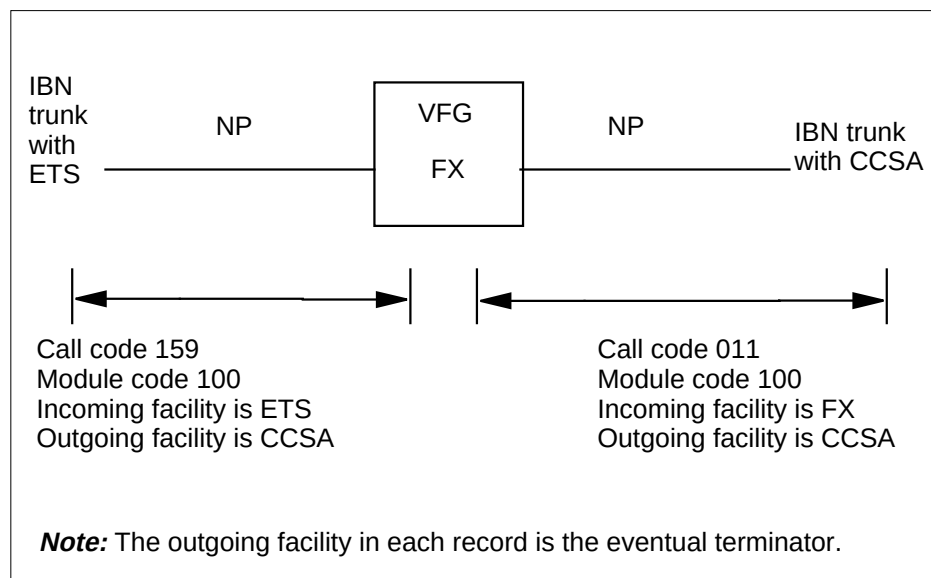
Summary of AMA records produced with IBN trunks when the MDRRAO feature is active

VFG	Call type	Termination	Type of AMA record	Incoming facility	Outgoing facility
FX	NP	Line/trunk	FX (011)	FX (011)	Line or unknown
FX	NP	IBN trunk with ETS	FX (011)	FX (011)	ETS (085)
FX	DD	Line/trunk	DD (006)	FX (011)	Line or unknown
FX	DD	IBM trunk with ETS	DD (006)	FX (011)	ETS (085)

Belcore LAMA Format (continued)

If feature AF1093 assigns the MDRRAO option to customer groups that originate calls in the following figure, the result is two AMA records. The first leg of the call generates a call code 159 AMA record with module 100 added. In this module, the incoming facility is an ETS incoming trunk. The call goes to a CCSA trunk. The outgoing facility type is marked as CCSA. The call continues the terminator and marks the outgoing facility in both records. In this event, as CCSA. For the second leg of the call, feature AF1093 generates a call code 011 AMA record. This action occurs because the second leg of the call originates from an FX facility. The call does not generate a different AMA record. Feature AF1093 marks the incoming facility type in module 100 as 011 (FX). Feature AF1093 marks the outgoing facility as 021 (CCSA).

Billing for the MDRRAO feature



AMA Compliance—TR-508 (AF3078)

Feature AF3078 replaces the need for feature UMCD Indicator in AMA Record (AF1665). Feature AF1665 provides the ability to distinguish between two types of calls classified as unanswered. These calls are calls that were not answered and calls that were answered. The calls that were answered had a duration under the minimum charge duration (MCD). Feature AF1665 is not a requirement. Total elapsed time for a call is currently recorded. The elapsed time, a minimum of 2 s, is not important.

Note: For AF1665 customers who want to use AF3078, use the NOMCD command to activate the removal of MCD. Refer to Activation/deactivation of MCD using NOMCD for instructions on how to deactivate MCD.

Bellcore LAMA Format (continued)

AMA TR-508 Compliance II (AN0101)

This feature modifies the current long duration AMA software to comply with Bellcore specification.

BC AMA inter-LATA WATS Call Code 111 (BC1698)

The following additional software feature packages are required to generate 111 AMA records:

- NTX112AB - Virtual Facility Groups
- NTX100AA - Basic IBN
- NTX186AA - Equal Access End Office

Activation/deactivation by the end user

Bellcore LAMA Format does not require activation or deactivation by the end user.

Billing**DWS 1203 AMA Billing (AD4733)**

The following structure codes are associated with the new call codes in feature AD4733:

- Structure code 00190 associates with call code 148.
- Structure code 00645 associates with call code 149 and 150.

The following call codes are associated with feature AD473:

- call code 148 - Intranetwork high bandwidth call
- call code 149 - Originating access high bandwidth call
- call code 150 - Terminating access high bandwidth call

Feature AD4733 generates call code 148 when an intranetwork DWS call originates and completes at the originating switch complex in the LATA. An example of a wideband call generating call code 148 appears in the following figure.

Call code 148

```
HEX ID:AA STRUCT CODE:00190C CALL TYPE:148C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:21208C TIMING IND:00000C STUDY IND:0000000C CLD PTY OFF-HK:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C ORIG NPA:214C ORIG
NO:6315555C OVERSEAS IND: 0C TERM NPA:00944 TERM NO:6316666C CONN
TIME:1707492C ELAPSED TIME:000000169C SERV IND:003C DATA RATE
IND:003C TERMINATING COMPANY:000C
```

Belcore LAMA Format (continued)

Feature AD4733 generates call code 149 when an internetwork DWS call originates at the originating switch complex in the LATA that originates the call. An example of a wideband call that generates call code 149 appears in the following figure.

Call code 149

```
HEX ID:AA STRUCT CODE:00645C CALL TYPE:149C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:21208C TIMING IND:00000C STUDY IND:0000000C CLD PTY
OFF-HK:0C SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C ORIG
NPA:214C ORIG NO:6403333C OVERSEAS IND: 0C TERM NPA:00822 TERM
NO:6843333C CONN TIME:1705250C ELAPSED TIME:000000147C IC/INC
PREFIX:01251C CC DATE:21208C CC TIME:1705188C ELAPSED
CC:000000209C IC/INC EVENT STATUS:010C TRUNK GROUP NUMBER:41066C
ROUTING IND:1C DIALING IND:5C ANI IND:1C SERV IND:003C DATA RATE
IND:003C TERMINATING COMPANY:000C
```

Feature AD4733 generates call code 150 when an internetwork DWS call completes at the point-of-presence switch complex in the LATA that terminates the call. An example of a wideband call that generates call code 150 appears in the following figure.

Call code 150

```
HEX ID:AA STRUCT CODE:00645C CALL TYPE:149C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:21208C TIMING IND:00000C STUDY IND:0000000C CLD PTY
OFF-HK:0C SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C ORIG
NPA:214C ORIG NO:6403333C OVERSEAS IND: 0C TERM NPA:00822 TERM
NO:6843333C CONN TIME:1705246C ELAPSED TIME:000000153C IC/INC
PREFIX:01252C CC DATE:21208C CC TIME:1705183C ELAPSED
CC:000000216C IC/INC EVENT STATUS:010C TRUNK GROUP NUMBER:61065C
ROUTING IND:1C DIALING IND:FF ANI IND:1C SERV IND:003C DATA RATE
IND:003C TERMINATING COMPANY:000C
```

Global EBAF AMA (Clone) (AE1275)

Global EBAF AMA adds time change information (module code 504) to Bellcore AMA. An example of module code 504 added to an AMA record appears in the following figure.

Bellcore LAMA Format (continued)

Module code 504

```

HEX ID:AA STRUCT CODE:40510C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0250250C REC OFC TYPE:036C REC OFC ID:0250250C
DATE:20225C TIMING IND:00000C STUDY IND:0000000C CLD PTY
OFF-HK:0C SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE
FEATURE:000C SIG DIGITS NEXT FIE0LD:010C ORIG OPEN DIGITS
1:00212002000C ORIG OPEN DIGITS 2:FFFFFFFFF ORIGINATING CHARGE
INFO:FFFF DOMESTIC/INTL INDICATOR:1C SIG DIGITS NEXT FIELD:004C
TERM OPEN DIGITS 1:00000002001C TERM OPEN DIGITS 2:FFFFFFFFF
CONNECT TIME:0930059C ELAPSED TIME:000000144C MODULE CODE:504C
TIME BEFORE CHANGE:0930170C TIME AFTER CHANGE:0935004C DATE
BEFORE CHANGE:20225C DATE AFTER CHANGE:20225C MODULE CODE:000C

```

The following table is an example of call time change data.

Call time change data

Information	Field number	Number of characters
Module code 504	88	4
Time before change	18	8
Time after change	18	8
Date before change	6	8
Date after change	6	8

AMA Compliance—TR-508 (AF3078)

The billing format changed in the meaning of the correct values which can be populated to fields timing indicator and cold pty offhk. Cold pty offhk was earlier named answer. These fields are not optional and have not changed in size. Changes in fields timing indicator and cold party off-hook appear in the following tables.

Timing indicator (Sheet 1 of 2)

Character	Value	Meaning
1	0	Timing guard condition is not present
	2	Timing guard condition is present
2	0	Short called off-hook not detected
	1	Short called off-hook detected
3	0	Not long duration call

Bellcore LAMA Format (continued)

Timing indicator (Sheet 2 of 2)

Character	Value	Meaning
	1	First record (long duration connection or feature activation)
	2	Continuation record (long duration connection)
	3	Service deactivation
5	0	This character is not in use
6	SIGN	Hex C

Timing guard condition is present when the connect time, connect date, carrier connect time is not known or is not accurate. The timing guard condition is present when the following are not known or not accurate for an AMA billing record:

- carrier connect date
- elapsed time
- carrier elapsed time

The elapsed time field, and/or carrier elapsed time field can contain a measured value.

Feature AF3078 records short called off-hook condition when the called party of an unconnected call experiences an on-hook to off-hook to on-hook change. The off-hook part of the change is a maximum of 2 s in duration.

Feature AF3078 defines long duration call as a continuous call connection for a minimum of 24 h and record generation time occurs. This character is set to 1 when call connection occurred for a minimum of 24 h and record generation time occurs. This character is set to 2 for each long duration record that follows when call connection occurred at record generation time. The BCD character is also set to 2 when a long duration call is disconnected. Called party off-hook indicators appear in the following table.

Called party off-hook indicator (Sheet 1 of 2)

Character	Value	Meaning
1	0	Called party off-hook not detected

Bellcore LAMA Format (continued)

Called party off-hook indicator (Sheet 2 of 2)

Character	Value	Meaning
	1	Called party off-hook detected
2	SIGN	Hex C

Called party off-hook detection occurs when the called party goes off-hook to connect to the originator.

TR-862 AMA Compliance: Circuit (AF3556)

The following describes the billing abilities of feature AF3556:

- Feature AF3556 provides full support of how to add the ISDN core module 070/071 to currently defined record structures. These structures occur to originate detailed billed calls associated with an ISDN directory number. This feature adds the ISDN core module 070/071 to interLATA billing records for ISDN originated calls.
- Feature AF3556 provides first support for the ISDN terminating user service module 073. This feature adds the module to current structures when the feature terminates user billing applies.
- Feature AF3556 allows the telephone company to specify signaling abilities that the feature must consider a basis for originating or terminating detailed billing. This action occurs when the feature does not consider a call billable.

Module code 070

Feature AF3556 considers ISDN core module (module code 070) additional ISDN information to originating billing for an ISDN subscriber. TR-862 states one other application for the module that is the terminating interLATA access record.

The exchange to generate the Bellcore format AMA record can or may not be the originating switch. For BCS34, a DMS switch exchange to produce the billing for a call considers the following two plans that require the ISDN core module:

- The ISDN originator is on the DMS switch.
- An ISUP origination that services an ISDN call.

The switch that services an ISDN BRI line origination can generate a record for the call. When this event occurs, the feature adds ISDN core module to capture the specified ISDN information. The ISDN originator must be a functional set.

Belcore LAMA Format (continued)

A DMS switch can receive a billable incoming SS7 ISUP call that involves ISDN. When this event occurs, the feature adds ISDN core module to the record. The SS7 ISUP originated calls do not force records to record signaling abilities. The feature records signaling abilities for information only.

The following figure is an example of a station paid record produced from an ISDN directory number with module code 070 added. The example indicates a circuit-mode speech call, no interworking, called party subaddress, high and low layer compatibility information delivery. The example indicates normal call clearing.

Station paid record with module code 070

```
HEX ID:AA STRUCT CODE:40500C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:01001C ANSWER:0C SERVICE FEATURE:000C ORIG NPA:613C ORIG
NUMBER: 6215901C OVERSEAS IND:1C TERM NPA:00613 TERM NO:6601235C
CONNECT TIME:1942372C ELAPSED TIME:000000021C MODULE CODE:070C
BEARER CAPABILITY:001C NETWORK INTERWORKING:0C SIG OR SUP SERVICE
CAPABILITIES USAGE:112221111111100C RELEASE CAUSE INDICATOR:00016C
MODULE CODE:000C
```

A call that is not billable can use signaling abilities that the Telco wants to record for the originator. When this event occurs, the DMS switch produces new call code 045—ISDN User Service. This service contains the detailed structure that records the billable signaling abilities. The feature adds ISDN core module 070 that contains the signaling abilities used to this record. The AMA generated for a call plan that does not produce a record appears in the following example. The exception is the use of a billable signaling ability. The billable signaling ability is called party subaddress delivery.

Station paid record with module code 070

```
HEX ID:AA STRUCT CODE:40500C CALL CODE:045C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:90712C TIMING IND:00000C STUDY ND:0200000C ANSWER:0C SERVICE
OBSERVED:0C OPER ACTION:0C SERVICE FEATURE:000C ORIG NPA:613C ORIG NUMBER:
6215901C OVERSEAS IND:1C TERM NPA:00613 TERM NO:6215911C CONNECT
TIME:1049386C ELAPSED TIME:000006291C MODULE CODE:070C BEARER
CAPABILITY:002C NETWORK INTERWORKING:0C SIG OR SUP SERVICE CAPABILITIES
USAGE:112111111111100C RELEASE CAUSE INDICATOR:00016C MODULE CODE:000C
```

Module code 071

This feature introduces the abbreviated core module (module code 071) is a new module code. When billable signaling or supplementary service abilities

Bellcore LAMA Format (continued)

are not recorded and the ISDN core module applies, this feature adds module code 071. An example of a station paid record from an ISDN directory number with module code 071 added appears in the following figure. The example indicates the following:

- a circuit-mode speech call, not end-to-end ISDN
- no billable signaling or supplementary services used
- normal call clearing

Station paid record with module code 071

```
HEX ID:AA STRUCT CODE:40500C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:01001C ANSWER:0C SERVICE FEATURE:000C ORIG NPA:613C ORIG NUMBER: 6211233C
OVERSEAS IND:1C TERM NPA:00819 TERM NO:6221235C CONNECT TIME:1942372C ELAPSED
TIME:000000021C
MODULE CODE:071C BEARER CAPABILITY:001C NETWORK INTERWORKING:2C RELEASE
CAUSE INDICATOR:00016C MODULE CODE:000C
```

Module code 073

This feature introduces ISDN Terminating User service module (module code 073) is a new module code. For BCS34, this feature adds module code 073 to defined record structures for ISDN terminating detailed billed calls. This feature uses module code 073 to record the use of supplementary services delivered to the called user.

This feature introduces the first allowed use of call code 184—ISDN Terminating User Service. This feature did not introduce this feature to the DMS switch.

If this feature does not generate associated terminating call record and billable terminating services must be recorded, the feature produces call code 184. Call code 184 represents ISDN terminating services are to be billed. Call code 184 represents an associated call code that adds module code 073.

The following figure is an example of a terminating user service record that uses call code 184 with module code 073 added. Module code 073 records the delivery of calling party subaddress.

Belcore LAMA Format (continued)

Terminating user service record using call code 184 with module code 073

```
HEX ID:AA STRUCT CODE:40001C CALL CODE:184C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:90712C TIMING IND:00000C STUDY IND:0200000C ANSWER:0C SERV
OBSERVED:0C OPER ACTION:0C SERVICE FEAT:000C ORIG NPA:613C ORIG
NUMBER:6211233C OVERSEAS IND:1C TERM NPA:00613 TERM NO:6215901C
CONNECT TIME:1049386C ELAPSED TIME:000006291C MODULE CODE:073C
TERM SIG OR SUP SERVICE USAGE:112111000000000C IC/INC
PREFIX:02222C BEARER CAPABILITY:002C MODULE CODE:000C
```

An example of a subscriber line usage termination (SLUS) record that uses call code 036 with module code 073 appears in the following figure.

Subscriber line usage termination record using call code 036 with module code 073

```
HEX ID:AA STRUCT CODE:40079C CALL CODE:036C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:90712C TIMING IND:00000C STUDY IND:0200000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERVICE FEAT:000C ORIG NPA:613C ORIG
NUMBER:6211233C CONNECT TIME:1049386C ELAPSED TIME:000006291C MODULE
CODE:073C TERM SIG OR SUP SERVICE USAGE:112111000000000C IC/INC
PREFIX:FFFFFF BEARER CAPABILITY: 002C MODULE CODE:000C
```

Recording signaling ability use

The ISDN core module 070 and the ISDN terminating user service module 073 are the two modules that record signaling capability use in BCS34. According to the type of billing and the involved parties, a different method determines if signaling abilities must be recorded.

- **Originating intra-LATA.** This category accepts all billing that does not cross LATA limits. These limits range from station-paid call code 006 to local call detail recording call code 067.

Note: Signaling ability calling party subaddress delivery does not apply in this category of billing. Delivery does not apply because the delivery service billing goes to the terminator.

The following paragraphs discuss the origination of the ISDN functional terminal and the ISUP.

- **ISDN functional terminal originations.** The signaling abilities recorded in the ISDN core module 070 depends on the signaling

Bellcore LAMA Format (continued)

abilities used. The telco must consider the signaling abilities billable through table DNATTRS for the appropriate DN/CT.

A billable call uses an originating signaling ability that the telco considers billable through table DNATTRS for the DN/CT associated with the origination. If this information is correct, the ISDN core module added to the AMA record indicates the use of the signaling ability. The following station paid record example indicates the use of called party subaddress, low-layer compatibility, and high-layer compatibility. The telco considers subaddress and both compatibilities as billable.

Station paid record

```
HEX ID:AA STRUCT CODE:40500C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:01001C ANSWER:0C SERVICE FEATURE:000C ORIG NPA:613C ORIG
NUMBER: 6215901C OVERSEAS IND:1C TERM NPA:00819 TERM NO:6221235C
CONNECT TIME:1942372C ELAPSED TIME:000000021C
MODULE CODE:070C BEARER CAPABILITY:002C NETWORK INTERWORKING:0C SIG
OR SUP SERVICE CAPABILITIES USAGE:11222111111100C RELEASE CAUSE
INDICATOR:00016C MODULE CODE:000C
```

If a call that cannot be billed uses signaling abilities that the operating company wants to record, the DMS switch produces new call code 045. The call code 045 contains appropriate structure to record the billable signaling abilities. The ISDN core module 070 with the signaling abilities in use is added to this record. The following example demonstrates AMA generated for a call plan that can produce a record. This call plan cannot produce a billable signaling ability. The billable signaling ability is called party subaddress delivery.

Station-paid record

```
HEX ID:AA STRUCT CODE:40001C CALL CODE:045C SENSOR TYPE:036C SENSOR
ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C DATE:90712C TIMING
IND:00000C STUDY ND:0200000C ANSWER:0C SERVICE OBSERVED:0C OPER
ACTION:0C SERVICE FEATURE:000C ORIG NPA:613C ORIG NUMBER: 6215901C
OVERSEAS IND:1C TERM NPA:00613 TERM NO:6215911C CONNECT TIME:1049386C
ELAPSED TIME:000006291C MODULE CODE:070C BEARER CAPABILITY:002C
NETWORK INTERWORKING:0C SIG OR SUP SERVICE CAPABILITIES
USAGE:11211111111100C RELEASE CAUSE INDICATOR:00016C MODULE
CODE:000C
```

- ISUP originations. The signaling abilities recorded in the ISDN core module 070 depends on the signaling abilities that ISUP transports. If the DMS switch decides that a call that originates over an ISUP trunk needs billing, the switch adds the ISDN core module. The switch must also determine if the call has ISDN access before the switch adds the module. The switch adds the module to capture the ISDN service the call uses. The

Belcore LAMA Format (continued)

switch provides the signaling abilities for information only. The switch cannot determine if the telco deemed the signaling abilities as billable or not.

Billing does not record the signaling abilities if an ISDN call started in ISUP. Billing does not record signaling abilities if the DMS switch does not need to create a record for the call according to beginning and destination. Billing does not have to record the signal abilities transported for this condition.

- **Originating inter-LATA.** The DMS switch generates an originating access AMA record for each inter-LATA call. For calls with access to a trunk to the IC, the associated call record contains signaling abilities used in an ISDN originated call. The signaling abilities are in an added ISDN core module 070.

Table DNATTRS datafill is not considered for originating interLATA billing. If the signaling capability was used, the use is reflected in the ISDN core module. The condition of the carrier on the ATP IE is entered in table OCCINFO. If datafill indicates that ATP IE must not go to the carrier, the inter-LATA billing record is updated. This update indicates that the ISDN services were not used. Table OCCINFO datafill can terminate the delivery of the signaling abilities to the carrier. If table OCCINFO is entered to stop signaling ability delivery, the signaling abilities are not marked as used in the billing record.

Inter-LATA station-paid call code 110 appears in the following example record. The originator was ISDN and sent call party subaddress information, and low-layer compatibility information.

Originating inter-LATA record

```
HEX ID:AA STRUCT CODE:40625C CALL CODE:110C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60101C TIMING IND:00000C STUDY ND:0000000C ANSWER:0C SERVICE
OBSERVED:0C OPER ACTION:0C SERVICE FEATURE:000C ORIG NPA:613C ORIG
NUMBER: 6215002C OVERSEAS IND:1C TERM NPA:00613 TERM NO:6215001C
ANSWER TIME:1941368C ELAPSED TIME:000000056C IC/INC PREFIX:02222C CC
DATE:60101C CC TIME:1941346C ELAPSED CC: 000000079C IC/INC EVENT
STATUS:010C TRUNK GROUP NUMBER:30638C ROUTING INDICATOR:0C DIALING
INDICATOR:1C ANI INDICATOR:3C MODULE CODE:070C BEARER
CAPABILITY:002C NETWORK INTERWORKING:0C SIG OR SUP SERVICE
CAPABILITIES USAGE:11221111111100C RELEASE CAUSE INDICATOR:00016C
MODULE CODE:000C
```

- **Terminating inter-LATA.** The AF3556 adds the ISDN core module 070 to a terminating interLATA access records associated with an ISDN originated call. This call uses a minimum of one signaling ability. The incoming ATC trunk group in the terminating LATA must be ISUP to

Bellcore LAMA Format (continued)

receive any signaling ability information to record. The following is an example of how to terminate inter-LATA billing for an ISDN call.

Terminating inter-LATA record

```
HEX ID:AA STRUCT CODE:40625C CALL CODE:119C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C DATE:60101C
TIMING IND:00000C STUDY ND:0000000C ANSWER:0C SERVICE OBSERVED:0C OPER
ACTION:0C SERVICE FEATURE:000C ORIG NPA:613C ORIG NUMBER: 6215002C
OVERSEAS IND:1C TERM NPA:00613 TERM NO:6215001C ANSWER TIME:1941368C
ELAPSED TIME:000000056C IC/INC PREFIX:02222C CC DATE:60101C CC
TIME:1941346C ELAPSED CC: 000000079C IC/INC EVENT STATUS:010C TRUNK
GROUP NUMBER:30638C ROUTING INDICATOR:0C DIALING INDICATOR:1C ANI
INDICATOR:3C MODULE CODE:070C BEARER CAPABILITY:002C NETWORK
INTERWORKING:0C SIG OR SUP SERVICE CAPABILITIES USAGE:11222111111100C
RELEASE CAUSE INDICATOR:00016C MODULE CODE:000C
```

- Terminating intra-LATA. AF3556 adds the ISDN terminating user service module 073 to record use of terminating signaling abilities. A terminating user service record that uses call code 184 with module code 073 appears in the following example.

Terminating intra-LATA record

```
HEX ID:AA STRUCT CODE:40001C CALL CODE:184C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C DATE:90712C
TIMING IND:00000C STUDY IND:0200000C ANSWER:0C SERV OBSERVED:0C OPER
ACTION:0C SERVICE FEAT:000C ORIG NPA:613C ORIG NUMBER:6211233C
OVERSEAS IND:1C TERM NPA:00613 TERM NO:6215901C CONNECT TIME:1049386C
ELAPSED TIME:000006291C MODULE CODE:073C TERM SIG OR SUP SERVICE
USAGE:112111000000000C IC/INC PREFIX:02222C BEARER CAPABILITY:002C
MODULE CODE:000C
```

Effects on billing of circuit-mode data calls

Before AF3556, ISDN originated circuit-mode data calls used the public switched data service (PSDS) call codes 072 and 117. Because the ISDN core module contains the bearer ability, PSDS call codes are not necessary. The appropriate non-PSDS call codes are for ISDN originated circuit-mode calls with the ISDN core module added to indicate the data bearer ability. For example, a station paid data call can generate a call code 006 instead of a call code 072.

AMA TR-508 Compliance II (AN0101)

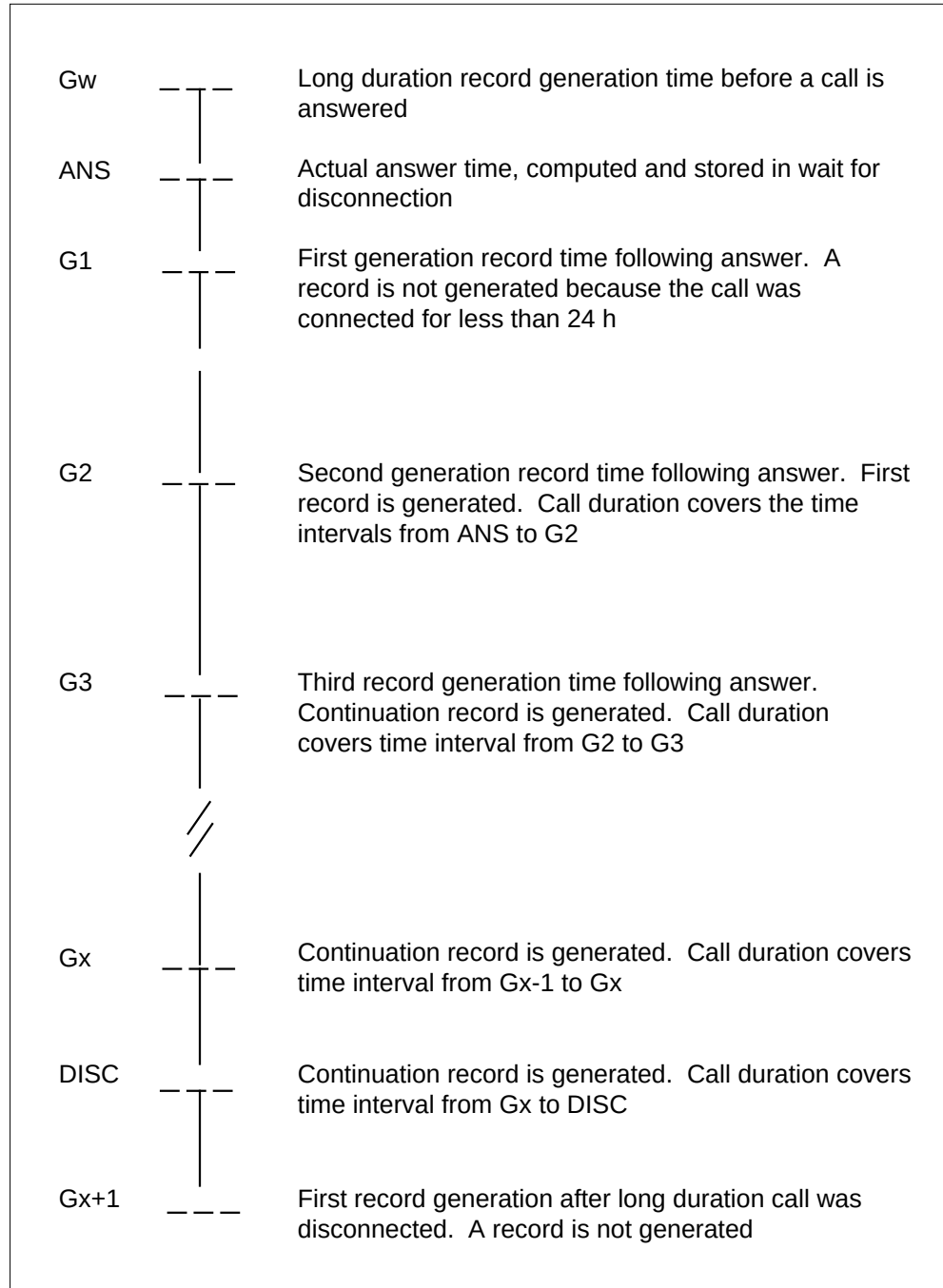
Long duration record generation is in AMA. Feature AMA TR-508 Compliance II (AN0101) defines a long duration call as a call with a continuous connection for 24 h and the record generation time was encountered. This feature also adds the ability to schedule the record

Bellcore LAMA Format (continued)

generation time. The operating company can specify the time of day that long duration records can be generated.

Note: See the table Timing indicator for a description of the meanings of a BCD character for a long duration call.

An easy version of a long duration call appears in the following figure.

Bellcore LAMA Format (continued)**Long duration call**

Belcore LAMA Format (continued)

Long duration values and the records the values produce appear in the following table.

Long duration value

Value	Time	Date	Example record
Gw	11 pm	May 7	not produced
Answer	9 pm	May 8	not produced
G1	11 pm	May 8	not produced
G2	11 pm	May 9	First record generated at G2
G3	11 pm	May 10	Continuation record generated at G3
Gx	11 pm	May 11	Continuation record generated at Gx
Disconnect	9 pm	May 12	Continuation record generated at disconnect
Gx + 1	11 pm	May 12	not produced

An example of a first record generated at G2 appears in the following figure. The third BCD character in the timing indicator is set to 1. The elapsed time is a minimum of 24 h.

First record generated at G2

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10509C TIMING IND:00100C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001560000C
```

An example of a continuation record generated at G3 appears in the following figure. The third BCD character in the timing indicator is set to 2. The elapsed time is 24 h.

Bellcore LAMA Format (continued)

Continuation record generated at G3

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10508C TIMING IND:00200C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001440000C PRESENT DATE:10510C PRESENT TIME:2300000C
```

An example of a continuation record generated at Gx appears in the following figure. The third BCD character in the timing indicator is set to 2. The elapsed time is 24 h.

Continuation record generated at Gx

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C, .
DATE:10508C TIMING IND:00200C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001440000C PRESENT DATE:10511C PRESENT TIME:2100000C
```

An example of a continuation record generated at disconnect appears in the following figure. The third BCD character in the timing indicator is set to 2. The elapsed time is less than 24 h because the call disconnected before the record generation time.

Continuation record generated at disconnect

```
HEX ID:AA STRUCT CODE:00001C CALL CODE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10508C TIMING IND:00200C STUDY IND:0200000C ANSWER:0C
SERVICE OBSERVED: 0C OPER ACTION:0C SERVICE FEATURE:000C
ORIG NPA:613C ORIG NUMBER: 6211233C OVERSEAS IND:1C TERM
NPA:00613 TERM N0:6221235C CONNECT TIME:2100000C ELAPSED
TIME:001440000C PRESENT DATE:10511C PRESENT TIME:2300000C
```

AMA Base Re-engineering II (AN0319)

An example of an AMA record in Bellcore format generating call code 006 with call details for a direct-dialed, station-paid toll call occurs. This example

Bellcore LAMA Format (continued)

appears in the following figure. This feature records field elapsed time in the AMA record in units of minutes, seconds, and tenths of seconds.

Module code 006

```
HEX ID:AA STRUCT CODE:00500C CALL TYPE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:60114C CLD PTY OFF-HK:1C SERV FEAT:000C ORIG NPA:613C
ORIG NO:6215981C OVERSEAS IND: 1C TERM NPA:00613 TERM
NO:6635989C CONN TIME:0059345C ELAPSED TIME:000000212C
```

Universal Bellcore Centrex Billing (NC0267)

This feature adds call record sequence number (module code 042) and alternate billing number for open numbering (module code 046) to Bellcore AMA. To have module code 042 added to the AMA record, option CRSEQNUM must be entered in table AMAOPTS. An example of call record sequence number module code 042 appears in the following figure.

Module code 042

```
HEX ID:AA STRUCT CODE:40510C CALL TYPE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C
DATE:10611C TIMING IND:00000C STUDY IND:0000000C ANSWER:0C
SERV OBSERVED:0C OPER ACTION:0C SERV FEAT:000C SIG DIGITS
NEXT FIELD:01C ORIG OPEN DIGITS 1:00012364101C ORIG OPEN
DIGITS 2:FFFFFFFF ORIGINATING CHARGE INFO:FFFF
DOMESTIC/INTL INDICATOR:1C SIG DIGITS NEXT FIELD:004C TERM
OPEN DIGITS 1:00000004104C TERM OPEN DIGITS 2:FFFFFFFF
CONNECT TIME:1408363C ELAPSED TIME:000000045C MODULE
CODE:042C CALL RECORD SEQUENCE NUMBER:0000123C MODULE
CODE:000C
```

An alternate billing number for open numbering (module code 046) allows an obtained CLI to be in the AMA record of calls. This obtained CLI is in the AMA record of calls where the originating port is a trunk. An example of module code 046 appears in the following figure.

Bellcore LAMA Format (continued)

Module code 046

```

HEX ID:AA STRUCT CODE:40510C CALL TYPE:006C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:0000000C DATE:10611C
TIMING IND:00000C STUDY IND:0000000C ANSWER:0C SERV OBSERVED:0C OPER
ACTION:0C SERV FEAT:000C SIG DIGITS NEXT FIELD:01C ORIG OPEN DIGITS
1:00012364101C ORIG OPEN DIGITS 2:FFFFFFFF ORIGINATING CHARGE INFO:FFFF
DOMESTIC/INTL INDICATOR:1C SIG DIGITS NEXT FIELD:004C TERM OPEN DIGITS
1:00000004104C TERM OPEN DIGITS 2:FFFFFFFF CONNECT TIME:1408363C ELAPSED
TIME:000000045C MODULE CODE:046C SOURCE OF CHARGE NUMBER:1C SIG DIGITS
NEXT FIELD:009C ORIG OPEN DIGITS 1:00628770770C ORIG OPEN DIGITS
2:FFFFFFFF MODULE CODE:000C

```

Note: This feature can add this module two times on one AMA call record. This feature can add one module to hold CLI if the originating trunk has AMACLID entered. The feature adds the other module to identify the point of entry. The point of entry is billing incurred during the same call on an entity that has ENTRYID entered. The source of charge number indicates if AMACLID or ENTRYID generated module code 046.

Station Message Detailed Recording

In tables VIRTGRPS and VFGDATA, assign the VFGAMA option to an IBN incoming VFG. Specify the facility type as FX or ETS. The call can be a no prefix (NP) call and the call can route through the designated VFG. When these events occur, the system generates call code 011 or 085 for the call. This action occurs if other billing does not apply for that call.

A call can route through a VFG assigned the VFGAMA option FX. When this action occurs, a SMDR record and an AMA record (call code 011) are assigned to the first half of the call. Another SMDR record is assigned to the second half of the call. The two SMDR records are generated because SMDR record generation is turned on in table IBNXLA.

In switches where the MDRRAO feature is active, the call with the same datafill described in the earlier paragraph generates call code 011 or 085. These codes are for the second leg of the call. Module code 100 is added to the record. In module code 100, the incoming facility type is 011 (FX) or 085 (ETS). Module code 100 is added to the AMA record generated. Module code 100 always reflects the incoming facility type for calls routed through VFGs assigned facility types. Call type is not important.

Belcore LAMA Format (continued)

Datafilling office parameters

The office parameters that DWS 1203 AMA Billing (AD4733) uses appears in the following table. For additional information about office parameters, refer to *Office Parameters Reference Manual*.

Office parameters for DWS 1203 AMA Billing

Table name	Parameter name	Explanation and action
OFCENG	UNIVERSAL_AMA_BILLING	This parameter specifies if billing structures must use Open Numbering schemes where possible in the Belcore Format AMA subsystem.
OFCOPT	LAMA_OFFICE	This parameter specifies if the switching unit has the LAMA feature.

Datafilling office parameters for Increase Flexibility of AMA Software Configuration (AF2755)

The office parameters that Increase Flexibility of AMA Software Configuration (AF2755) uses appears in the following table. For additional information about office parameters, refer to *Office Parameters Reference Manual*.

Office parameters for Increased Flexibility of AMA Software Configuration (Sheet 1 of 2)

Table name	Parameter name	Explanation and action
OFCENG	CRS_SUBRU_POOL1_SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL1 extension block.
OFCENG	CRS_SUBRU_POOL2_SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL2 extension block.
OFCENG	CRS_SUBRU_POOL3_SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL3 extension block. This extension block is required to generate Bellcore AMA structures specified to MDC functions and Bellcore AMA structures specified to number service code functions (PVN and E800). Not like CRS_SUBRU_POOL1_SIZE and CRS_SUBRU_POOL2_SIZE values, any Bellcore AMA billing record requires a maximum of one block from this pool.

Bellcore LAMA Format (continued)**Office parameters for Increased Flexibility of AMA Software Configuration (Sheet 2 of 2)**

Table name	Parameter name	Explanation and action
OFCENG	CRS_SUBRU_POOL4_SIZE	This parameter controls the provisioning for the CRS_SUBRU_POOL4 extension block. This extension block is required for billing any TOPS traffic that uses Bellcore AMA call recording. All TOPS billing requires a block from this pool.
OFCENG	CRS_PRU_POOL1_SIZE	BCS32 application are not identified for this parameter.
OFCENG	CRS_PRU_POOL2_SIZE	Most of Bellcore AMA RU data is ported in this RU pool in the form of PRU structure. The pool must be provisioned to include the total of the values of the following office parameters: • NUM_OF_BC_LAMA_UNITS • NUM_OF_BC_AMA_UNITS Provisioning RUs is an continuous process. This feature adds because new extension block types, the EXT OMs are changed to include the block types. The EXT OMs must monitor the RU pool use. To establish appropriate sizes for each RU pool requires a monitor of the available OMs.

Increase Flexibility of AMA Software Configuration (AF2755)

The office parameters in table OFCENG (Office engineering) control the size of each RU pool. The Office parameters table describes each one. Module codes for appropriate office parameters follow.

The module codes for office parameter CRS_SUBRU_POOL1_SIZE are:

- module codes 100 and 101 MDR RAO AMA
- module code 120 centrex customer group identification
- module code 111 class display AMA
- module code 059 TOPS EA service time
- module code 312 TOPS guest name and room number
- module code 055 TOPS listing services

Belcore LAMA Format (continued)

The module and structure codes for office parameter CRS_SUBRU_POOL2_SIZE are:

- module code 102 and 20XXX structure codes — authcode/account code recording
- call code 136, structure codes 00140 and 00141 — revenue allocation recording
- module code 309 — TOPS E800 service
- module codes 314 and 315 — TOPS overwritten number data

AMA-specific to number service code (NSC) functions

The PVN and E800 calls that use Bellcore AMA billing require a block from pool CRS_SUBRU_POOL3_SIZE.

Provisioning RUs is an continuous process. This feature adds new extension block types. The EXT OMs are changed to include the block types. The EXT OMs must monitor the RU pool use. To establish appropriate sizes for each RU pool requires a monitor of the available OMs.

Bellcore format AMA migration and provisioning requirement

This feature alters the method RUs are provisioned for Bellcore format AMA offices. This OMs configuration makes extension blocks current. The extension blocks that are not in use any longer with BCS32 and later versions appears in the following table.

Obsolete extension blocks

Extension block	Feature subject	Size	Stream	RU pool	Comments
BC_RECORDING_UNIT	NUM_OF_BC_AMA_UNITS	98	BC AMA	CRS_PRU_POOL1	The base Bellcore CAMA record unit
BC_LAMA_REC_UNIT	NUM_OF_BC_LAMA_UNITS	98	BC AMA	CRS_PRU_POOL1	The base Bellcore LAMA record unit
REAL_EXTENSION_BLOCK	REVALL_NUMBER_OF_EXT_BLOCKS	9	BC AMA	CRS_SUPRU_POOL2	Introduced by feature AF1400 in BCS29
MDR_EXT_BLOCK	NUMBER_OF_MDR_EXT_BLOCKS	13	BC AMA	CRS_SUPRU_POOL2	Introduced by feature AF1980 in BCS29

Bellcore LAMA Format (continued)

Datafilling office parameters for AMA Compliance—TR-508 (AF3078)

The office parameter that AMA Compliance (TR-508) uses appears in the following table. For additional information about office parameters, refer to *Office Parameters Reference Manual*.

Office parameters for AMA Compliance—TR-508 (AF3078)

Table name	Parameter name	Explanation and action
OFCENG	MINIMUM_CHARGE_DURATION	This parameter specifies the time in 10 ms intervals for which a call is considered answered when the called party off-hook exceeds this value.

Note: Feature AMA Compliance—TR-508 (AF3078) changes the default value of office parameter MINIMUM_CHARGE_DURATION. The default value is now 16 (160 ms) instead of 208 (2.08 s).

Datafilling office parameters for TR-862 AMA Compliance: Circuit (AF3556)

CRS_SUBRU_POOL3_SIZE and CRS_PRU_POOL2_SIZE are the office parameters that feature TR-862 AMA Compliance: Circuit (AF3556) uses. Refer to table Office parameters that Increased Flexibility of AMA Software Configuration uses for descriptions of these office parameters.

Bellcore LAMA Format (continued)

Datafilling office parameters for Bellcore CAMA Format (BR0378)

The office parameters that Bellcore CAMA Format (BR0378) uses appears in the following table. For additional information about office parameters, refer to *Office Parameters Reference Manual*

Office parameters for Bellcore CAMA format (BR0378)

Table name	Parameter name	Explanation and action
OFCSTD	BCS_NUMBER	This parameter indicates the batch change supplement (BCS) load number of the load image. The load image is recorded on the Bellcore AMA tape header that Device Independent Recording Package (DIRP) labels. Two fields are present: an issue number to indicate the BCS number and a subissue number to indicate special BCS releases.
OFCENG	INWATS_ON_AMA	This parameter is Y. The INWATS option in table AMAOPTS turned on to record INWATS calls that terminate in the local office on an AMA device.

Datafilling office parameters for Datapath AMA Format—Call Codes 072 and 117 (BR0793)

The office parameter that Datapath AMA Format—Call Codes 072 and 117 (BR0793) uses for Datapath call datafill appears in the following table. For additional information about office parameters, refer to *Office Parameters Reference Manual*.

Office parameters for Datapath AMA Format—Call Codes 072 and 117 (BR0793)

Table name	Parameter name	Explanation and action
OFCENG	ACTIVE_DN_SYSTEM	This parameter defines the translations environment of the switch. Set the value to NORTH_AMERICAN to limit the appropriate datafill to the North American dialing plan.

Bellcore LAMA Format (continued)

Datafill sequence for DWS 1203 AMA Billing (AD4733)

The following table lists the tables that require datafill to implement DWS 1203 AMA Billing. The tables appear in the correct entry order.

Datafill tables required for DWS 1203 AMA Billing (AD4733)

Table	Purpose of table
OFCENG	Office Engineering. This table contains data on engineering parameters for the office. Refer to How to enter office parameters for how Bellcore LAMA Format affects office parameters.
OFCOPT	Office Option. This table contains data on engineering options for the office. Refer to <i>Office Parameters Reference Manual</i> for how Bellcore LAMA Format affects office parameters.
CRSFMT	Call Record Stream Format. This table defines format characteristics for specified data streams.

Datafilling table CRSFMT

The datafill for Bellcore LAMA Format for table CRSFMT appears in the following table. Only the fields that apply directly to the Bellcore LAMA Format appear in this table. For a description of the other fields, refer to the data schema section of this document.

Datafilling table CRSFMT

Field	Subfield or refinement	Entry	Explanation and action
KEY		AMA	Key. Enter AMA as the call data stream name.
FORMAT		BCFMT	Format. Enter BCFMT for Bellcore toll offices.

Datafill example for table CRSFMT

Sample datafill for table CRSFMT appears in the following example.

MAP example for table CRSFMT

KEY	FORMAT	DATADUMP	CDRSRCH	ALARMS	TIMERDMP	TIMERVAL
AMA	BCFMT	N	NIL_FM	Y	N	0

Belcore LAMA Format (continued)

Datafill sequence for Global EBAF AMA (Clone) (AE1275)

The table that requires datafill to start Global EBAF AMA (Clone) (AE1275) appears in the following table. The tables appear in the correct entry order.

Datafill tables required for Global EBAF AMA (Clone) (AE1275)

Table	Purpose of table
AMAOPTS	AMA Option. This table controls the activation and schedules of the recording options for local, toll, and high-revenue calls.

Datafilling table AMAOPTS

Datafill for Global EBAF AMA for Table AMAOPTS appears in the following table. Only fields that apply to the Belcore LAMA Format appear in this table. For a description of the other fields, refer to the data schema section of this document.

Datafill table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		CALL_TIMEC HG	Option. Enter CALL_TIMECHG.
SCHEDULE		refer to subfield	Schedule. This field contains the following subfields: AMASEL, ONDATE, ONTIME, OFFDATE, and OFFTIME. A description of AMASEL follows.
	AMASEL	ON, OFF	AMA selector. Enter ON to add the time change module to an AMA record if a time change (settime/setdate) occurs during a call. Enter OFF to not allow the time change module to add to an AMA record if a time change (settime/setdate) occurs during a call.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table AMAOPTS**

OPTION	SCHEDULE
CALL_TIMECHG	ON
TIMECHANGE	OFF

Datafill sequence for VFG AMA Support for EX and ETS Calls (AF1093)

The tables that require datafill to start the VFG AMA Support for EX and ETS Calls feature appear in the following table. The tables appear in the correct entry order.

Datafill requirements for Bellcore LAMA Format

Table	Purpose of table
VIRTGRPS	Virtual Facility Group. This table provides a mechanism to terminate the loop-around trunks. Loop-around trunks start IBN INWATS and OUTWATS and provide equal access abilities.
VFGDATA	Virtual Facility Group Data. This table gives non-operating company personnel access to the data in table VIRTGRPS. Non-operating company personnel can only access tables VFGDATA and VFGENG. A change to data in tables VFGDATA and VFGENG affects the data in table VIRTGRPS.

Datafilling table VIRTGRPS

Datafill for VFG AMA Support for EX and ETS Calls for table VIRTGRPS appears in the following table. Only fields that apply to Bellcore LAMA Format appear. For a description of the other fields, refer to the data schema section of this document.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see to subfields	Options. Enter the list of options and associated subfields assigned to the VFG. Separate each option and the subfield option with a space.
	OPTION	VFGAMA	Option. Enter VFGAMA.
	FACILITY	CCSA, TDMTT, FX, or ETS	Facility. Enter CCSA, TDMTT, FX, or ETS.

Belcore LAMA Format (continued)

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example.

MAP example for table VIRTGRPS

KEY	DATA
	OPTIONS
PXXVFG SIZE 1 IBN 6137224000 IBNTST 0 0 0 N Y N	(VFGAMA FX) \$

For IBN incoming VFGs, the VFGAMA entry in the OPTION subfield designates a VFG as a CCSA, a TDMTT, an FX, or an ETS facility. This indication generates Bellcore AMA billing records that call code 011 (FX), 021 (CCSA), 032 (TDMTT), or 085 (ETS) identify. Four facility types are present. Facility types FX and ETS were not supported before. When you attempted to add these options, a processing error occurred in table software. This feature now supports these options.

An NP routes through an IBN incoming VFG designated as ETS or FX facility. A call code 011 (FX) AMA record or a call code 085 (ETS) AMA record is generated when other billing does not apply. An ETS or FX facility has VFGAMA option assigned and facility specified.

Note: This feature supports FX and ETS. This feature earlier supported TDMTT and CCSA.

Datafilling table VFGDATA

Datafill for VFG AMA Support for EX and ETS Calls for table VFGDATA appears in the following table. Only fields that apply to Bellcore LAMA Format appear in this table. For a description of the other fields, see the data schema section of this document.

Datafill table VFGDATA

Field	Subfield or refinement	Entry	Explanation and action
	OPTIONS	VFGAMA	Options. Enter VFGAMA.
	FACILITY	data from option VFGAMA	Facility. Enter the data in field FACILITY for the option VFGAMA of table VIRTGRPS.

Bellcore LAMA Format (continued)

Datafill example for table VFGDATA

Sample datafill for table VFGDATA appears in the following example.

MAP example for table VFGDATA

KEY	DATA
PXVFG IBNVI	
IBNVI 6137221111 COMDODAK 0 0 0 Y Y N (VFGAMA ETS) \$	

This feature supports ETS and FX facility types when assigned to the VFGAMA option for incoming IBN VFGs when TYPEDIR is IBNVI. The VFGAMA option does not change.

Datafill sequence for AMA Test Call Capability (AF1462)

The tables that require datafill to start AMA Test Call Capability (AF1462) appears in the following table. The tables appear in the correct entry order.

Datafill requirements for AMA Test Call Capability (AF1462)

Table	Purpose of table
AMAOPTS	AMA Options. This table controls the activation and schedules of the recording options not automatically recorded on AMA tape. TheAMAOPTS contains one tuple for each option.
IBNLINES (Note)	IBN Line Assignment. This table lists the line equipment number (LEN), the directory number (DN), the signal type, the customer group, and the options assigned. This information is assigned to each IBN station number, attendant console, and multiple appearance directory number.
LENLINES (Note)	Line Assignment. This table contains information about LEN, the associated DNs of the LEN, and options that apply to the lines of the DN and LEN.
LCCOPT (Note)	Line Class Code Compatible Options. This table lists compatible line options for each line class code (LCC). When you add lines through SERVORD, these tables are referenced to make sure the compatibility between line class codes and options. These tables are referenced to make sure that you do not add options that are not compatible to the same line.
OPTOPT (Note)	Incompatible Options. This table lists line options that are not compatible for each line option. Line options are in tables IBNLINES and LENLINES.
Note: Enter this table through SERVORD. A datafill procedure or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Bellcore LAMA Format (continued)

Datafilling table AMAOPTS

Datafill for VFG AMA Support for EX and ETS Calls for table AMAOPTS appears in the following table. Only fields that apply to Bellcore LAMA Format appear in this table. For a description of the other fields, refer to the data schema section of this document.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		LOGTEST	Option. Enter the option LOGTEST.
SCHEDULE		see subfield	Schedule. This field contains the following subfields: AMASEL, ONDATE, ONTIME, OFFDATE, OFFTIME, SCHED, TV, and TU. A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON in the LOGTEST option to activate the generation of AMAB200 log reports.

When LOGTEST is ON, the system generates AMAB200 log reports for AMA billable calls to or from a line. The line must have with the AMATEST line option enabled. The default value is OFF.

Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS because the function of these tuples is now in base AMA.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
LOGTEST	OFF

Bellcore LAMA Format (continued)

Datafill sequence for AMA Test Call Enhancements (AF1981)

The tables that require datafill to start the AMA Test Call Enhancements feature appears in the following table. The tables appear in the correct entry order.

Datafill requirements for Bellcore LAMA Format

Table	Purpose of table
AMATKOPT	AMA Trunk Group Option Table. Allows AMA Bellcore Format specified options for application on a trunk group or to specified members of the trunk group.
KSETLINE	Business Set and Data-Unit Line Assignment Table. Contains data of DN appearances on Business sets and Data units. One entry is required for each number relate key on a business set and Data unit. Note: Enter this table through SERVORD. A datafill procedure or example is not available. Refer to SERVORD for an example of how to use SERVORD to datafill this table.

Datafilling table AMATKOPT

Use table AMATKOPT to apply AMA options to trunk groups. Each entry contains a common language location identifier (CLLI) and a list of options applied the trunk group. Use Table AMATKOPT to apply AMATEST to a trunk group when the OPTION prompt appears when you change or add an entry. When enabled on a trunk group, all Bellcore AMA records that calls originating or terminating produce on this trunk group are marked as study records.

Datafill for AMA Test Call Enhancements (AF1981) for table AMATKOPT appears in the following table. Only fields that apply to Bellcore LAMA Format appear in this table. For a description of the other fields, refer to the data schema section of this document.

Datafilling table AMATKOPT

Field	Subfield or refinement	Entry	Explanation and action
CLLI		alphanumeric	Common language location identifier. Enter one line option for each record.
OPTIONS		AMATEST ALL, \$	Options. Enter AMATEST ALL. Enter \$ to terminate.

Belcore LAMA Format (continued)

Datafill example for table AMATKOPT

Sample datafill for table AMATKOPT appears in the following example.

MAP example for table AMATKOPT

CLLI	OPTIONS
ICTRUNK	(AMATEST ALL) \$

Note: New option TERMNPA in table AMATKOPT allows the table to specify the terminating NPA of a trunk for offices. These offices serve two or more NPAs when a seven-digit or less office code is dialed. If a seven digit or less office code is dialed, the NPA entered in field CONNGNPA of table AMATKOPT is for the NPA of the called number.

KSETKEY	FORMAT	DNRESULT
HOST 00 0 08 05 2	DN Y 6215800	
IBNTST	0	0 613
		(AMATEST) \$

Datafill sequence for TR-862 AMA Compliance: Circuit (AF3556)

The tables that require datafill to start the TR-862 AMA Compliance appear in the following table: Circuit (AF3556) feature. The tables appear in the correct entry order.

Datafill requirements for Bellcore LAMA Format (Sheet 1 of 2)

Table	Purpose of table
ISDNBILL	ISDN Services Billing Table. Allows the telephone company to define groups of ISDN signaling and supplementary services that must be recorded on usage in Bellcore format AMA.

Bellcore LAMA Format (continued)

Datafill requirements for Bellcore LAMA Format (Sheet 2 of 2)

Table	Purpose of table
DNATTRS	Directory Number Attributes Table. Allows per DN and call type subscription parameter settings for a BRI functional terminal. These settings are for a specified DN that uses CT selector to specify circuit-mode voice or circuit-mode data. A billing profile from table ISDNBILL associates with a DN/CT through the ISDNAMA parameter.
AMAOPTS	AMA Options Table. Controls the activation and schedules of the recording options for local, toll, and high-revenue calls. The ISDNCIRCUIT option controls ISDN billing.

Note: Table AMAOPTS can be entered at any time.

Datafilling table ISDNBILL

Datafill for TR-862 AMA Compliance: Circuit (AF3556) for table ISDNBILL appear in the following table. Only fields that apply to Bellcore LAMA Format appear in this table. For a description of the other fields, see the data schema section of this document.

Datafilling table ISDNBILL

Field	Subfield or refinement	Entry	Explanation and action
GRPNAME		1 to 16 characters	ISDN AMA group name. Enter the ISDN AMA group name the telephone company defines.
SERVICES		CGS, CDS, LLC, HLC	Services. Enter the list of signaling abilities services associated with the group name that result in detailed billing on use. • CGS calling party subaddress delivery • CDS called party subaddress delivery • LLC low-layer compatibility delivery • HLC high-layer compatibility delivery See the data schema section of this document for a detailed description of the lists of services. Note: An empty list is allowed for field SERVICES. An empty list is not recommended.

Datafill example for table ISDNBILL

Sample datafill for table ISDNBILL appears in the following example.

Bellcore LAMA Format (continued)

MAP example for table ISDNBILL

GRPNAME	SERVICES
RECORDALL	(CGS) (CDS) (LLC) (HLC) \$

Datafilling table DNATTRS

Datafill for TR-862 AMA Compliance: Circuit (AF3556) for table DNATTRS appear in the following table. Only fields that apply to Bellcore LAMA Format appear in this table. For a description of the other fields, see the data schema section of this document.

Datafilling table DNATTRS

Field	Subfield or refinement	Entry	Explanation and action
OPTDATA		refer to subfields	Options data. This field contains subfields SEL, CTDATA, BCDATA and CONT5. This vector contains a maximum of two selector names and their attributes.
	SEL	CT	Selector field. This subfield contains the selector field of the OPTDATA area. Enter CT so that the optional data is based on the DN and call type.
	CTDATA	refer to subfields	Call type data. This subfield contains subfields CALLTYPE and CTOPTS. CALLTYPE gives the option of voice band information (VBINFO) or circuit-mode data (CMDATA). CTOPTS gives the option of ISDNAMA which associates with a services billing profile from table ISDNBILL. Refer to the data schema section of this document for a detailed description of these subfields.

Datafill example for table DNATTRS

Sample datafill for table DNATTRS appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table DNATTRS**

KEY	DATA OPTDATA
613 722 5070	\$ (CT (VBINFO (PROVCDS) (PROVLLC) (ISDNAMA RECORDALL) \$) (CMDATA (PROVCDS) \$) \$) \$

Datafilling table AMAOPTS

Datafill for TR-862 AMA Compliance: Circuit (AF3556) for table AMAOPTS appear in the following table. Only fields that apply to Bellcore LAMA Format appear in this table. For a description of the other fields, see the data schema section of this document.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		ISDNCIRCUIT	Option. Enter the option ISDNCIRCUIT.
SCHEDULE		refer to subfield	Schedule. This field contains the following subfields: AMASEL, ONDATE, OFFDATE, SCHED, ONTIME, and OFFTIME. A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate the ISDNCIRCUIT option immediately. Leave the other subfields blank.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
ISDNCIRCUIT	ON

Belcore LAMA Format (continued)

Datafill sequence for TR-508 AMA Compliance II (AN0101)

The following table requires datafill to provide TR-508 AMA Compliance II (AN0101).

Datafill requirements for Belcore LAMA Format

Table	Function of table
	AMA Options Table. This table controls the activation and time of the recording options for local, toll, and high-revenue calls.

Datafilling table AMAOPTS

Datafill for TR-508 AMA Compliance II (AN1010) for table AMAOPTS appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		BCLONGCALL	Option. Enter BCLONGCALL.
SCHEDULE		see subfields	Schedule. This field contains subfields: AMASEL, ONDATE, ONTIME, OFFDATE, OFFTIME, SCHED, TV, and TU. Descriptions of these subfields follow.
	AMASEL	PERIODIC	AMA selector. Enter PERIODIC to activate BCLONGCALL at the specified date and time to perform the interval activity. Complete subfields ONDATE and ONTIME to specify the date and time for activation. Complete subfield SCHED for the time intervals to perform the activity.
	ONDATE	YYMMDD	Activation on date. Enter the year, month, and day that the system activates the option. The format is YYMMDD.
	ONTIME	HHMM	Activation on time. Enter the hour and minute the system activates the option. The format is HHMM.

Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS. Base AMA provides the function of these tuples.

Bellcore LAMA Format (continued)**Datafill example for table AMAOPTS**

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
BCLONGCALL PERIODIC 821215 0000 24	HRS

Datafill sequence of an OUTWATS station billing for BC AMA Inter-LATA WATS Call Code 111 (BC1698)

The tables that require datafill to provide BC AMA Inter-LATA WATS Call Code 111 (BC1698) feature appear in the following table. This feature is for an OUTWATS station billing. This feature affects data tables when an IBN line originates an OUTWATS call that uses inter-LATA carriers/international carriers (IC/INC). This table provides the datafill sequence for data tables affected. The tables appear in the correct entry order.

Datafill requirements for Bellcore LAMA Format (Sheet 1 of 3)

Table	Function of table
HNPACONT	List of HNPA Code Subtables Table. All the correct home or serving numbering plan areas (NPA) and serving translation schemes (STS) appear in this table.
STDPRTCT	List of Standard Pretranslation Tables Table. The names of the standard pretranslator subtable (STDPRTCT.STDPRT) that the operating company defines appear in this table.
VIRTGRPS	Virtual Facility Group Table. This table provides a mechanism to eliminate the loop-around trunks. Loop-around trunks provide IBN INWATS and OUTWATS, and to provide equal access abilities.
VFGDATA	Virtual Facility Group Data Table. This table allows non-operating company user to access data in table VIRTGRPS. Non-operating company users can only access tables VFGDATA and VFGENG. A change in the data in tables VFGDATA and VFGENG affects the data in table VIRTGRPS. A change in table VIRTGRPS affects the data in tables VFGDATA and VFGENG
DIGCOL	IBN Digit Collection Table. This table specifies the action that the line module must perform. The action depends on the first digit dialed. The IBN digit collection requires table DIGCOL.

Belcore LAMA Format (continued)

Datafill requirements for Bellcore LAMA Format (Sheet 2 of 3)

Table	Function of table
CUSTHEAD	Customer Group Head Table. The values and options assigned to groups appear in this table.
IBNRTE	IBN Route Table. This table contains route lists.
NCOS	Network Class of Service Table. This table describes the class of service assigned to attendant consoles, and IBN stations. This table describes the service assigned to incoming IBN trunk groups. This table describes the service assigned to the incoming side of two-way IBN trunk groups. This table describes the service assigned to authorization codes, and customer groups.
LINEATTR	Line Attribute Table. This table provides a list of features associated with the line index assigned to each subscriber line.
IBNLINES	IBN Line Assignment Table. This table contains the line assignments for each Integrated Business Station number, attendant console, and multiple appearance directory number.
IBNXLA	IBN Translation Table. This table provides the instructions that translate the OUTWATS call with a VFG.
OWATZONE	OUTWATS Zone Table. Provides the OUTWATS zone associated with each FNPA for each SNPA.
ZONEORDR	Zone Order Table. Identifies if a call from one zone is correct in another zone.
HNPACONT. RTEREF	Home NPA Route Reference Subtable. This table defines the routing for each NPA in table HNPACONT.
HNPACONT. HNPACODE	HNPA CODE Subtable. This table identifies the route, treatment or table to which translations must route. This condition occurs for each three-digit serving NPA (SNPA) or STS that table HNPACONT defines.
STDPRTCT. STDPRT	Standard Pretranslator Subtable. This table sets up the translations for a specified call type.
LATANAME	Equal Access Local Access and Transport Area Name Table. This table provides a list of all operating company names of the LATA that the switch serves.
LATAXLA	Equal Access Local Access and Transport Area Translation Table. This table defines the features of domestic calls as inter-LATA or intra-LATA as Interstate or Intrastate.

Bellcore LAMA Format (continued)

Datafill requirements for Bellcore LAMA Format (Sheet 3 of 3)

Table	Function of table
AMAOPTS	AMA Options Table. This table controls the activation and time of the recording options for local, toll, and high-revenue calls.
BCCODES	Bellcore Codes Table. This table allows the operating company to specify which calls that are not answered create billing records.

The following tables describe each data table accessed during call processing. These tables use a Virtual Facility Group (VFG) to translate an IBN OUTWATS call. This call generates AMA records that call codes 111 and 114 identify.

Datafilling table HNPACONT

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table HNPACONT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table HNPACONT

Field	Subfield or refinement	Entry	description and action
STS		numeric	Serving translation scheme. Enter the three-digit serving numbering plan areas (SNPA) or serving translations schemes (STS) code. Note: A home or serving NPA must have 1 or 0 as the center digit. A home or serving NPA must be in one of the first 16 positions. Only SNPAs are for line data, POTS VFG data, PBX trunk data, and tables DNINV, DNROUTE, and TOFCNAME.
NORTREFS		numeric	Number of route references. Enter 2 for the quantity of route reference numbers. This field automatically extends to the highest route index (a maximum of 1023) in use in subtable HNPACONT.RTEREF.
NOAMBIGC		0 to 1000	Number of ambiguous codes. Enter the number of ambiguous codes (0 to 1000) required.

Datafill example for table HNPACONT

Sample datafill for table HNPACONT appears in the following example.

Belcore LAMA Format (continued)

MAP example for table HNPACONT

STS	NORTREFS	NOAMBIGC	RTREF	HNPACODE	ATTRIB	RTEMAP
613	127	1	(46)	(1)	(84)	(0)

Datafilling table STDPRTCT

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table STDPRTCT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Description and action
EXTPRTNM		alphanumeric (a maximum of 8 characters)	External standard pretranslator subtable name. Enter the name that the operating company defines to indicate the standard pretranslator subtable. This action does not apply for standard pretranslator name C7PT. Integrated services digital network user part (ISUP) trunks use this name automatically on test calls in offices with ISUP capability.
Note: The maximum number of tuples in table STDPRTCT is 4 095.			

In table STDPRTCT, a standard pretranslator is assigned to each line attribute when the line class code (LCC) permits origination of calls. The operating company assigns the name of the pretranslator. The name of the pretranslator assigned in table LINEATTR is OWT1.

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following example.

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
OWT1	(1)	(0)

Bellcore LAMA Format (continued)**Datafilling table VIRTGRPS**

Virtual facility groups (VFG) simulate loop-around trunks that provide IBN OUTWATS. When access to VFG occurs, the switch checks for available virtual facilities. If virtual facilities are not available, the system blocks the call. If virtual facilities are available, the VFG translates the call again. If the incoming type is POTS, POTS translations translates the call.

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table VIRTGRPS appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Description and action
KEY		1 to 6 characters	Virtual facility group key. Enter a 1 to 6 character name the user defines if this entry is the first entry for the VFG. The addition of the tuple defines the name. Other tables that require VFGs can use this name. Leave this field blank if this entry is not the first entry.
DATA		see subfields	Virtual facility group data. This field contains the subfields described below.
	VFGTYPE	SIZE, a space, and a number from 0 to 2 048	Virtual facility group type. Enter SIZE, a space, and a number from 0 to 2 048, if this entry is the first entry for the VFG. This entry specifies the number of simultaneous accesses this VFG allows. Enter USES if this entry is not the first entry.
	INCTYPE	POTS, blank	Incoming type. Enter POTS when the call enters the POTS translation environment if this entry is the first entry for the VFG. Leave this field blank if this entry is not the first entry.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example. The datafill describes translations that proceed to POTS translations and index to table LINEATTR.

Belcore LAMA Format (continued)

MAP example for table VIRTGRPS

KEY				DATA	OPTIONS
OWZNE4	SIZE	2	POTS	N 8 Y	
			(	EA ABC Y)	\$
OWZNE4	SIZE	2	POTS	6136214455 8 Y	
			(	EA ABC Y)	\$

For a 111 AMA record, a special billing number is not assigned. The originating IBN DN is the billing number recorded. For a 114 AMA record, a billing number is entered with data in the BILLNUM field.

Datafilling table VFGDATA

Table VFGDATA enters data in table VIRTGRPS. The user must enter data in table VFGDATA and not table VIRTGRPS.

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table VFGDATA appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VFGDATA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
KEY		1 to 6 characters	Virtual facility group name and type direction. Enter the 1 to 6 character name assigned to the VFG in table VIRTGRPS. Enter the type and direction for incoming POTS.
DATA		see subfields	Data. This field contains subfields TYPEDIR, BILLNUM, CUSTGRP, SUBGRP, TRC, NCOS, INTRAGRP, SMDR, CDR, OPTIONS, and FACILITY. Descriptions of these subfields follow.
	TYPEDIR	POTSVI	Type and direction. This field contains the type and direction for the Integrated Business Network (IBN). Enter POTSVI for the type and direction of the incoming POTS.

Bellcore LAMA Format (continued)**Datafilling table VFGDATA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
	BILLNUM	alphanumeric (a maximum of 11 characters), N	Billing number. Enter the data from field BILLNUM of table VIRTGRPS.
	LINEATTR	0 to 2047	Line attribute index. This subfield contains the data in field LINEATTR of table VIRTGRPS.
	LINECDR	Y or N	Line call detail recording. This subfield contains the data in field LINECDR of table VIRTGRPS.
	OPTIONS	see subfield	Options. This field contains subfield OPTION.
	OPTION	VFGEA	Option. Enter VFGEA. Enter subfields PIC and CHOICE.
	PIC	alphanumeric	Preferred inter-LATA carrier. This subfield contains the data in field PIC for the option EA in table VIRTGRPS.
	CHOICE	Y or N	Choice. This field contains the data in field CHOICE for the option EA in table VIRTGRPS.

Datafill example for table VFGDATA

Sample datafill for table VFGDATA appears in the following example. If field TYPEDIR is incoming and POTS, enter POTSVI.

MAP example for table VFGDATA

KEY	DATA
OWZNE4 POTSVI	
POTSVI	N 8 Y (VFGEA ABC Y) \$
OWZNE4 POTSVI	
POTSVI	6136214455 8 Y (VFGEA ABC Y) \$

Datafilling table DIGCOL

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table DIGCOL appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table DIGCOL

Field	Subfield or refinement	Entry	Description and action
DGKEY		see subfields	Digit collection key. This field contains subfields DATNAME and DIGIT.
	DATNAME	alphanumeric	Name of digit collection table. Enter the 1 to 8 character name assigned to the block of data in table DIGCOL.
	DIGIT	0 to 9, STAR, OCT	Digit. Enter the digit (0 to 9), star (STAR) or octothorpe (OCT) that applies to the record.
DGDATA		see subfield	Digit collection table. This field contains subfield DGCOLSEL. A description of this subfield follows.
	DGCOLSEL		Digit collection selector. Enter the selector RPT.

Datafill example for table DIGCOL

Sample datafill for table DIGCOL appears in the following example. The value KDK 4 is the digit collection tuple indexed.

MAP example for table DIGCOL

DGKEY	DGDATA
KDK	4 RPT

Datafilling table CUSTHEAD

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table CUSTHEAD appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table CUSTHEAD

Field	Subfield or refinement	Entry	Description and action
CUSTNAME		1 to 16-character	Customer group name. Enter the 1 to 16 character name assigned to the customer group.
CUSTXLA		1 to 8-character	Customer translator. Enter the 1 to 8-character name assigned to the customer translator block of data in table IBNXLA. Table IBNXLA specifies the data for the translation of digits. These digits originate from an IBN station, attendant, incoming or incoming side of a two-way trunk group.
DIGCOLNM		1 to 8-character	Digit collection name. Enter the 1 to 8-character name assigned to the block of data in table DIGCOL. Table DIGCOL specifies the IBN digit collection for the IBN lines.
IDIGCOL		1 to 8-character, NIL	International digit collection name. Enter the 1 to 8-character name assigned to the block of data in table DGHEAD. This field appears only when the Open Number Translation feature (NTXB57AA) is in the load. For any other condition, enter NIL.
OPTIONS		list of options and associated subfields	Options. Enter the list of options and associated subfields assigned to the customer group.

Datafill example for table CUSTHEAD

Sample datafill for table CUSTHEAD appears in the following example.

Belcore LAMA Format (continued)

MAP example for table CUSTHEAD

```

CUSTNAME  CUSTXLA      DGCOLNM IDIGCOL
              OPTIONS
-----
COMKODAK      CXDK      KDK      NIL
( VACTRMT 0) ( EXTNCOS 0) ( ACCT 5)
( FETXLA CUSTFEAT) ( PLMXLA PXDK) ( ERDT 7)
( AUTH COMKODAK N N) (SUPERCNF)( ACR AUTH 1)
( CUTPAUSE 1) ( CUTMOUT10) ( OCTXLA CUSTSHRP) $

```

Each group of IBN stations is assigned to a customer group. In the previous datafill example, the customer group is COMKODAK, the CUSTXLA name is CXDK. The name CXDK indexes table IBNXLA. The DIGCOLNM is KDK, that indexes table DIGCOL.

Datafilling table IBNRTE

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table IBNRTE appears in the following table. The fields that apply to Bellcore LAMA Format appear. See the data schema section of this document for a description of the other fields.

Datafilling table IBNRTE

Field	Subfield or refinement	Entry	Description and action
	IBNRTESEL	OW	IBN route selector. Enter OW.

Datafill example for table IBNRTE

Sample datafill for table IBNRTE appears in the following example. Digit translation in table IBNXLA causes the reference to index this table when the route selector is OW. The route selector translates to a VFG (OWZNE4).

MAP example for table IBNRTE

```

RTE                      RTELIST
-----
130      ( OW N N N 1 V  OWZNE4      0) $

```

Datafilling table NCOS

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table NCOS appears in the following table. The fields that apply to Bellcore LAMA

Bellcore LAMA Format (continued)

Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table NCOS

Field	Subfield or refinement	Entry	Description and action
CUSTGRP		1 to 16-character, blank	Customer group name. If this entry is the first record for the NCOS number, enter the 1 to 16-character code. This code is assigned to the customer group. If this entry is not the first record, this field remains blank.
NCOS		0 to 511, blank	Network class of service number. If this entry is the first record for the NCOS number, enter the NCOS number (0 to 511). If this entry is not the first record, this field remains blank.
NCOSNAME		1 to 6-character, blank	Network class of service name. If this entry is the first record for the NCOS number, enter the 1- to 6-character name. This name is assigned to the NCOS number for the key and lamp display. If this entry is not the first record, this field remains blank.

Datafill example for table NCOS

Sample datafill for table NCOS appears in the following example. The entry for the customer group name in table IBNLINES indexes this table.

MAP example for table NCOS

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
COMKODAK	0	KDKO	0	0	(OHQ 0 TONE_OHQ)
				(CBQ 0 3 N 2)	\$

Datafilling table LINEATTR

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table IBNRTE appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Description and action
LCC		alphanumeric	Line class code. Enter the line class code assigned to the line attribute index. The LCC of a current tuple cannot change.
STS		numeric	Serving translation scheme. Enter the serving NPA assigned to the line attribute index. The STS of a current tuple cannot change.
PRTNM		alphanumeric or NPRT	Standard pretranslator subtable name. If the system requires pretranslation of digits, enter the name of the Standard Pretranslator subtable assigned to the line attribute index. If the system does not require standard pretranslation, enter NPRT.
LATANM		alphanumeric	Local access and transport area name. Enter the name of the LATA associated with this line attribute.

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example. The NPA of the originating line is 613. The pretranslator of the originating line is OWT1. The LATA name is LATA1.

MAP example for table LINEATTR

LNATIDX	LCC	CHGCLSS	COST	SCRNCL	LTG	STS	PRTNM	LCANAME	ZEROMPOS
TRAFSNO									
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS			
			RESINF		OPTIONS				
8	OWT	NONE	NT	NSCR	0	613	OWT1	NLCA	
TSPS	10								
NIL	NILSFC	LATA1	0	NIL	NIL	00			
		N			\$				

For BCS34 and later versions, the system removes fields LCABILL and HOT in table LINEATTR. The system places fields LCABILL and HOT as options in the options field.

Bellcore LAMA Format (continued)**Datafilling table IBNXLA**

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table IBNXLA appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
KEY		see subfields	Key. This field contains subfields XLANAME and DGLIDX. Descriptions of these subfields follow.
	XLANAME	1 to 8-character	Translator name. Enter the 1 to 8-character name assigned to the translator.
	DGLIDX	vector of a maximum of 18 digits	Digilator index. Enter the digits or digits assigned as the OUTWATS access code.
RESULT		see subfields	Result. This field contains subfields TRSEL, ACR, SMDR, NOACDIGS, SDT, DGCOLNM, CRL, INTRAGRP, NETTYPE, LNATTR, OWATZONE, INVZNFLX, and EXRTEID. Descriptions of these subfields follow.
	TRSEL	NET	Translator selector. Enter the translation selector NET.
	ACR	Y or N	Account code entry. Enter Y, if the system requires an account code entry when the OUTWATS access code specified in field DGLIDX is dialed. Enter N if the system does not require an account code entry.
	SMDR	Y or N	Station message detail recording. Enter Y, if calls to this access code are to be station message detail recorded. A customer group station or attendant console originated these calls. Enter N if calls are not to be recorded. Note: If set to Y, only the feature that originates a call produces a SMDR record. For features that do not originate a call, this field does not affect the call. The system does not generate an SMDR record for these features.

Bellcore LAMA Format (continued)**Datafilling table IBNXLA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
	NO_ ACCODE_ DIGITS	0 to 7	Number of access code digits. Enter the number of digits (0 to 7) in the OUTWATS access code.
	SECOND_ DIAL_TONE	Y or N	Second dial tone. Enter Y if second dial tone is necessary. For any other condition, enter N.
	DGCOLNM		Digit collection name. Enter the 1 to 8-character name assigned to the block of data in table DIGCOL. This action occurs for digit collection for the IBN lines.
	CRL	Y or N	Code restriction level. Enter Y if code restriction levels apply to this access code. For any other condition, enter N.
	INTRAGRP	Y or N	Intragroup. Enter Y if call is intragroup. For any other condition, enter N.
	NET_TYPE	OWT	Network type. Enter the network type OWT.
	LNATTR	0 to 1023	Line attribute. Enter the line attribute assigned to the OUTWATS access code. The range for the IBN treatment is 0 to 1 023.
	OWATZONE	AUTO	OUTWATS zone. Enter the OUTWATS zone that screens this call. Enter AUTO if the zone number is the zone that table OWATZONE specifies for the FNPA of the called number.
	INVZNFLX	0 to 63	Zone flexible intercept. Enter the IBN treatment to determine the route for out-of-zone calls. The range for the IBN treatment is 0 to 63.
	EXTRTEID	See the data schema section	External route identifier. This field contains subfields TABID and KEY. See the data schema section of this document for descriptions of these subfields.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table IBNXLA**

KEY		RESULT
CXDK	142	
NET N Y N 3 Y POTS N N OWT 8 1 9 IBNRTE		130

Translator name (CXDK) indexes table IBNXLA. This condition occurs because the OUTWATS access code is 142. The station dials the OUTWATS access code to reach the trunk group over which the call routes. The translation selector is NET. The network type is OWT. The DGCOLNM is POTS. The zone is 1. The DGCOLNM is POTS. The next table indexed is table LINEATTR. The value 8 indexes this table. After POTS translations, table IBNXLA routes the call to table IBNRTE indexed by 130. This action determines how to complete the call.

Datafilling table OWATZONE

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table OWATZONER appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table OWATZONE

Field	Subfield or refinement	Entry	Description and action
OWATCODE		see subfields	OUTWATS code. This key field contains subfields SVGNPA and DIGITS. Descriptions of these subfields follow.
	SVGNPA	numeric	Serving numbering plan area. Enter the SNPA.
	DIGITS	numeric	Digits. Enter the digits assigned to the zone. See the data schema section of this document for a description of this subfield.
ZONE		0 to 9, A, B, or C	OUTWATS zone. Enter the OUTWATS zone number assigned to the key field OWATCODE.

Datafill example for table OWATZONE

Sample datafill for table OWATZONE appears in the following example.

Belcore LAMA Format (continued)

MAP example for table OWATZONE

	OWATCODE	ZONE
613	9182411111	1

The serving NPA is 613. If the originator dials the number 2411111 in FNPA 918, the destination of the call is in zone 1.

Datafilling table ZONEORDR

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table ZONEORDR appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table ZONEORDR

Field	Subfield or refinement	Entry	Description and action
SVGNPA		3-digit serving or home NPA	Serving numbering plan area. Enter the 3-digit serving or home NPA.
ZONESETS		vector	Zone sets. Enter a vector. See the data schema section of this document for a description of this subfield.

Datafill example for table ZONEORDR

Table ZONEORDR identifies if a call from one zone is correct in another zone. Some zone sets contain only one zone. Only a call that originates from the same zone can terminate. In the following datafill example, a zone A call can terminate only to zone A. Zones grouped together allow termination according to the order of the zones. A zone 7 originator can terminate to any zone from 1 to 7. A zone 1 originator cannot terminate to zone 7.

Sample datafill for table ZONEORDR appears in the following example.

MAP example for table ZONEORDR

SVGNPA	ZONESETS
613	(0123456789ABC) \$

Bellcore LAMA Format (continued)

If the call is not authorized or out-of-zone, the system blocks the call.

The table editor enters data in table ZONEORDR. When you enter data in this table, leave a space between each set of zones. The system inputs the parentheses around each set of zones in the previous example.

Datafilling subtable RTEREF

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table RTEREF appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling subtable RTEREF (Sheet 1 of 2)

Field	Subfield	Entry	Description and action
RTE		1 to 1 023, blank	Route reference index. If the record is the first in the route list, enter the route reference number. The range of this number is 1 to 1 023. This number is assigned to the route list. See note. For any other condition, this field remains blank.
RTELIST		see subfields	Route list. This field contains the subfields RTESEL, CONNTYPE, CLLI, and ROUTATTR_INDEX. Descriptions of these subfields follow.
	RTESEL	S or SX	Route selector. Enter S and datafill refinements CONNTYPE and CLLI if the route is standard. Enter SX and datafill refinements CLLI and ROUTATTR_INDEX if the route is expanded standard.
	CONNTYPE	D	Connection type. Enter D to comply with the table editor. The system logic does not use this field.
Note: Field MAXRTE of tables HNPACONT, FNPACONT, and FNPACONT.FNPASTS extends automatically to the highest route index. Field RTE of subtables HNPACONT.RTEREF, FNPACONT.RTEREF, and FNPACONT.FNPASTS.RTEREF, use the highest route index.			

Belcore LAMA Format (continued)

Datafilling subtable RTEREF (Sheet 2 of 2)

Field	Subfield	Entry	Description and action
	CLLI	code in table CLLI to which translation routes	Common language location identifier. Enter the code in table CLLI to which translation routes.
	ROUTATTR INDEX	alphanumeric (1 to 16 characters)	Route attribute index. For route selector SX, enter the index in table ROUTATTR that contains the expanded routing information that applies to the call.
Note: Field MAXRTE of tables HNPACONT, FNPACONT, and FNPACONT.FNPASTS extends automatically to the highest route index. Field RTE of subtables HNPACONT.RTEREF, FNPACONT.RTEREF, and FNPACONT.FNPASTS.RTEREF, use the highest route index.			

Datafill example for subtable RTEREF

Sample datafill for subtable RTEREF appears in the following example.

MAP example for subtable RTEREF

RTE	RTELIST			
9	(	S	D	OGMF) \$

The system translates the call with subtable RTEREF that the 9 indexes. The translation of the call depends on the digits dialed. Subtable RTEREF contains the identity of the trunk group (OGMF in the example) from which an idle outgoing trunk is available. The call routes over the OGMF outgoing trunk for call completion.

Datafilling subtable HNPACODE

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table HNPACODE appears in the following table. The fields that apply to Belcore

Bellcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling subtable HNPACODE

Field	Subfield	Entry	Description and action
FROMDIGS		numeric string	From digits. Enter a numeric string. The three digits of the string indicate an office code in the home NPA. This number can represent a single code. This number can indicate the first in a block of codes in sequence that have the same input data.
TODIGS		numeric	To digits. If field FROMDIGS indicates a single code, enter the same single code as in FROMDIGS.
CDRRTMT		see subfields	Code type, route reference and treatment. This field contains the subfields CD and RR. Descriptions of these subfields follow.
	CD	FRTE	Code type. Enter FRTE for foreign route.
	RR	1 to 1 023	Route reference index. Enter the route reference index of the route list in subtable HNPACONT.RTEREF. The range of this index is 1 to 1 023. Enter this index in the same position SNPA as this subtable HNPACONT.HNPACODE. Translation proceeds to this route reference index.

Datafill example for subtable HNPACODE

Sample datafill for subtable HNPACODE appears in the following example.

MAP example for subtable HNPACODE

FROMDIGS	TODIGS		
	CDRRTMT		
			918
918	FRTE	9	

The previous example describes the 918 index to subtable HNPACODE. The 918 is the NPA of the digits dialed. Because the NPA of the originating line is 613, 918 is a foreign NPA (FNPA).

Belcore LAMA Format (continued)

Datafilling subtable STDPRT

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table STDPRT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Note: Changes in subtable STDPRT can affect office billing because of call code types. The call type default is NP. See data schema section of this document for information on subtable STDPRT.

Datafilling subtable STDPRT (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter the digit or digits that the system must translate. If the entry indicates a block of numbers in sequence, enter the first number in the block.
TODIGS		numeric	To digits. Equal to the digits entered in FROMDIGS. If FROMDIGS indicates a block of numbers in sequence, enter the last number of the block.
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, CARRNAME, RTEAREA, RTEPRSNT, EXTRTEID, TABID, KEY, MINIDIGSR, MAXDIGSR, and OCS. Descriptions of these subfields follow.
	PRERTSEL		Pretranslation route selector. Enter the pretranslation route selector.
	TYPCALL	DD, NP, OA, NL	Type of call. Enter the type of call: • DD - direct dial • NP - no prefix • OA - operator-assisted • NL - nil

Bellcore LAMA Format (continued)**Datafilling subtable STDPRT (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	NOPREDIG	0 to 7	Number of prefix digits. Enter the number of digits (0 to 7) to be prefix digits. The switching unit prepares for circle digit operation. The number of prefix digits to remove from the digit translation must include the circle digit.
	CARRNAME		Carrier name. Enter the carrier name that table OCCNAME defines.
	RTEAREA	see subfields	Route area. This field contains subfields RTEPRSNT, EXTRTEID, MINIDIGSR, and MAXDIGSR. Descriptions of these subfields follow.
	RTEPRSNT	N	Route present. Enter N if a national translation (table HPNACONT) route is to follow. The system does not prompt for subfields EXTRTEID, TABID, KEY, MINIDIGSR, and MAXDIGSR.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT appears in the following example.

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
17	19	
T	DD 1	IBNRTE 130 7 11 NONE

Subtable STDPRT is the first table that the received leading digits index. This action occurs only when the originating line attribute specifies a pretranslator name in table LINEATTR. The pretranslator name is OWT1. The received leading digits used for this example are 918. Because the first digit dialed is 9, the call is a billable call (DD). The call uses North American (NA) translations.

Belcore LAMA Format (continued)

Datafilling table LATANAME

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table LATANAME appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table LATANAME

Field	Subfield or refinement	Entry	Description and action
LATANAME		alphanumeric	LATA name. Enter all the LATA names that this office uses.
LATANUM		000 to 999	LATA number. Enter the LATA number for each LATA name entered in field LATANAME.

Datafill example for table LATANAME

Sample datafill for table LATANAME appears in the following example.

MAP example for table LATANAME

LATANAME	LATANUM
LATA1	000

Datafilling table LATAXLA

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table LATAXLA appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document.

Datafilling table LATAXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
LATACODE		see subfields	LATA code. This field contains subfields LATANM and DIGITS. Descriptions of these subfields follow.
	LATANM	alphanumeric	Calling LATA name. Enter the LATA name defined in table LATANAME.

Bellcore LAMA Format (continued)

Datafilling table LATAXLA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description and action
	DIGITS	numeric	Dialed digits. Enter the digits that the originator of the call dials. These digits are NPA or NPANXX. Enter only the digits for which one of the following sets of attributes applies: • Intra-LATA interstate • Inter-LATA interstate • Inter-LATA intrastate Note: The LATA and STATE fields define these attributes. See the data schema section of this document for a description of this subfield.
LATA		INTER or INTRA	LATA call attribute. Enter INTER to define an NPA or NPANXX code as inter-LATA. Enter INTRA to define an NPA or NPANXX code as intra-LATA.
STATE		INTER or INTRA	State call attribute. Enter INTER to define an NPA or NPANXX code as interstate. Enter INTER to define an NPA or NPANXX code as intrastate.
EATYPE		STD, CORRIDOR, PRIVILEGE, or NON_EA	Equal access call type. Enter the correct EA call type. See the data schema section of this document for a description of this subfield. • STD - standard • CORRIDOR - corridor • PRIVILEGE - privilege • NON_EA - non equal access

Datafill example for table LATAXLA

Sample datafill for table LATAXLA appears in the following example.

Belcore LAMA Format (continued)

MAP example for table LATAXLA

LATACODE	LATA	STATE	EATYPE
LATA1	918	INTER	INTER
			STD

Table LATAXLA defines the attributes of domestic calls as inter-LATA or intra-LATA and as interstate or intrastate. The system compares the attributes of the table with the attributes of table OCCINFO. This procedure determines the carriers that handle the calls. In the previous example, the system enters the call in inter-LATA and interstate. The call can originate in one LATA and state. That call terminates outside the originating LATA or to another LATA outside the state originated. For the originating line, calls in NPA 918 complete as inter-LATA interstate calls.

Datafilling table AMAOPTS

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table AMAOPTS appears in the following example. The fields that apply to Bellcore LAMA Format appear. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		OUTWATS, UNANS_ LOCAL, and UNANS_TOLL	Option. Enter OUTWATS, UNANS_LOCAL, and UNANS_TOLL.
SCHEDULE		see subfield	Schedule. This field contains subfield AMASEL.
	AMASEL	ON	AMA selector. Enter refinement ON to activate OUTWATS, UNANS_LOCAL, and UNANS_TOLL.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table AMAOPTS**

OPTION	SCHEDULE
OUTWATS	ON
UNANS_LOCAL	ON
UNANS_TOLL	ON

Datafilling table BCCODES

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table BCCODES appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Description and action
CALLTYPE		LOCAL, TOL, HIGHREV, and TOPS	Bellcore call type. Enter one of the following Bellcore call types. • LOCAL - local calls • TOLL - toll calls • HIGHREV - high-revenue calls • TOPS - TOPS calls
CODES		Bellcore call codes	Bellcore call codes. Enter any group of the Bellcore call codes. A blank column must separate each call code. See the table BCCODES in the data schema section of this document for a complete list of Bellcore call codes.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example.

Belcore LAMA Format (continued)

MAP example for table BCCODES

CALLTYPE	CODES
TOLL	(006)
LOCAL	(007) (068) (111) (114)

The call type keys the entries in this table. This table contains a list of call codes that determine when the system records AMA records that are not answered and high revenue AMA records. To generate the records that are not answered, set the UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS. Enter call codes 111 and 114 in the LOCAL tuple in table BCCODES. Perform this action if the system must generate AMA records for inter-LATA OUTWATS calls that are not answered.

Datafill sequence for Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), Bellcore LAMA Format Enhancement (BC0683), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512)

The tables that require datafill to provide the following features appear in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) features

Bellcore LAMA Format (continued)

The tables appear in the correct entry order.

Datafill requirements for Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), Bellcore LAMA Format Enhancement (BC0683), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) (Sheet 1 of 2)

Table	Function of table
TRKGRP (group type IBNTO)	Trunk group table. This table defines the trunks over which the traffic routes.
VIRTGRPS	Virtual Facility Group Table. This table provides a mechanism to eliminate the loop-around trunks. Loop-around trunks provide IBN INWATS and OUTWATS and provide equal access abilities.
LENLINES (Note)	Line Assignment Table. This table contains information on line equipment numbers (LEN), the associated directory numbers (DN), and options that apply to the lines.
LENFEAT (Note)	Line Feature Table. The features associated with a specified line appear in this table.
IBNLINES (Note)	IBN Digital FX Trunk Table. The LEN, the DN, the signal type, the customer group, and the options appear in this table. Each IBN station number, attendant console, and multiple appearance directory number receives this information.
IBNFEAT (Note)	IBN Line Feature Table. This table lists the features that can be assigned to a line. Software checks line features to determine information that the system requires must record for AMA processing.
MRSANAME	List of Multi-Unit Message Rate Area Names Table. This table lists the message rate service area (MRSA) names. These names generate call codes 001 to 005 for calls that are outside a flat-rate local calling area.
MUMRTAB	Multi-Unit Message Rate Screening Table. This table determines the index to table MUMRMBI. The MRSA name in table LINEATTR or table TRKGRP and the digits dialed index this table.
MUMRMBI	Multi-Unit Message Rate Message Billing Index (MBI) Table. This table determines if the system recorded the called number, the timing data, or the (MBI) on an AMA device.
Note: You can use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Belcore LAMA Format (continued)

Datafill requirements for Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), Bellcore LAMA Format Enhancement (BC0683), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) (Sheet 2 of 2)

Table	Function of table
AMAOPTS	AMA Options Table. This table controls the activation and time of the recording options for local, toll, and high-revenue calls.
BCCODES	Bellcore Codes Table. This table allows the operating company to specify unanswered calls that create billing records. If an option is active in table AMAOPTS, the system searches table BCCODES for the call code that corresponds. If the system finds the code in table BCCODES, the system creates a billing record for that unanswered call.
Note: You can use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Datafilling table TRKGRP (group type IBNTO)

Datafill for the following features for table TRKGRP appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table TRKGRP (group type IBNTO)

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table TRKGRP (group type IBNTO)

Field	Subfield or refinement	Entry	Description and action
	OPTION	FACTYPE	Option. Enter FACTYPE.
	FACILITY	ETS	Facility. Enter ETS.

The Trunk Group (TRKGRP) table defines the trunks over which traffic routes. The system assigns IBN two-way (IBNT2) and IBN Outgoing (IBNTO) trunks in this data table. To generate call code 011, 021, 032, or 085 for DD calls that route over an IBNT2 or IBNTO trunk with POTS translations, assign the FACTYPE option. Assign the type of facility over which the call routes (FX,

Bellcore LAMA Format (continued)

CCSA, TDMTT, ETS). These options are only facility type names that can apply to IBN trunks. You can assign only one option at a time.

The following table describes the call codes associated with each facility type option assigned.

Call codes associated with a facility

Call code	Option assigned	Facility
011	FX	Foreign exchange, automatic flexible routing
021	CCSA	Common control switching arrangement
032	TDMTT	Tandem tie trunk
085	ETS	Electronic tandem switched

Datafill example for table TRKGRP (group type IBNTO)

Sample datafill for group type IBNTO in table TRKGRP appears in the following example. The sample datafill causes the system to generate an AMA record that call code 085 identifies. This action occurs when the system routes a call over the OGMF trunk.

MAP example for table TRKGRP (group type IBNTO)

GRPKEY

GRPINFO

OGMF

IBNTO 0 EL NCRT COMKODAK 0 MIDL ANSDISC 0 N 0 0 8 9 N N N N N
(FACTYPE ETS) \$

Datafilling table VIRTGRPS

Datafill for the following features for table VIRTGRPS appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table VIRTGRPS

Belcore LAMA Format (continued)

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Description and action
DATA		see subfields	Virtual facility group data. This field contains subfields MEMBERS and INCTYPE. A description of subfield INCTYPE follows.
	INCTYPE	IBN, POTS	Incoming type. Enter IBN if the call enters the Integrated Business Network (IBN) translation environment. Enter data in subfield BILLNUM and CUSTNAME. Enter POTS if the call enters the plain ordinary telephone service (POTS) translation environment. Enter data into subfields BILLNUM, LINEATTR and LINECDR.
	BILLNUM	1 to 11 digits or N	Billing number. Enter the billing number to which the system charges the next leg of the call. The range for the billing number is 1 to 11 digits. If the system charges the call to the billing number of the originator for the next leg of the call, enter N.
	CUSTNAME	alphanumeric (1 to 16) characters	Customer group name. Enter the customer group name.
	LINEATTR	0 to 2047	Line attribute index. Enter the line attribute index that specifies the translations and screening tables for the next leg of the call.
	LINECDR	Y or N	Line call detail recording. Enter Y if CDR must record virtual line type calls. Enter N if CDR is not required.
OPTIONS		see subfields	Options. Enter the list of options and associated subfields assigned to the VFG. A space must separate each option and the subfield of the option.
	OPTION	VFGAMA	Option. Enter VFGAMA.
	FACILITY	CCSA, TDMTT, FX, or ETS	Facility. Enter CCSA (common control switching arrangement), TDMTT (tandem tie trunk), FX (foreign exchange), or ETS (electronic telephone set).

Bellcore LAMA Format (continued)

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS for the following example.

MAP example for table VIRTGRPS

KEY	DATA		OPTIONS	
OWZNE4	SIZE 2	POTS	N 8 Y	
		(	EA ABC Y)	\$
OWZNE4	SIZE 2	POTS	6136214455	8 Y
		(	EA ABC Y)	\$
GOCIWT	SIZE 1	IBN	N	IBNTST 0 0 0 N
			(	VFGAMA CCSA)
				\$

Virtual facility groups (VFG) simulate loop-around trunks. The loop-around trunks route IBN OUTWATS, IBN INWATS, common control switching arrangement, and equal access calls. To generate call code 068 for an IBN OUTWATS call, enter a special billing number in BILLNUM field of table VIRTGRPS. To generate call code 007, enter N in the BILLNUM field of table VIRTGRPS. To generate call code 021 for a call that routes over a CCSA network, enter the option VFGAMA CCSA. Enter this option in the incoming VFG.

The first two datafill examples described are for OUTWATS calls translated with a VFG. The first example causes the system to generate call code 007. The second example causes the system to generate call code 068 for the OUTWATS call. The third entry provides sample datafill for a call that routes and uses the CCSA network and translated with a VFG. If the call is a non-billable call, the system generates call code 021 for this call.

Datafilling table MRSANAME

Table MRSANAME (multi-unit message rate area names) table lists the MRSA names. Enter these names in table LINEATTR (field MRSA) and table TRKGRP (field GPVAR MRSA) when the trunk group type is P2. The MRSA name entered in table LINEATTR and table TRKGRP index to table MUMRTAB.

Datafill for the following features for table MRSANAME appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)

Belcore LAMA Format (continued)

- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table MRSANAME

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table MRSANAME

Field	Subfield or refinement	Entry	Description and action
MRSA		alphanumeric	Multi-unit message rate area name. Enter the name of a multi-unit message rate area. The total number of multi-unit message rate area names cannot exceed 127. The system cannot delete entries referenced in table LINEATTR field MRSA and table MUMRTAB field MUMRNAME. The system can only delete these entries when the system deletes the associated tuples in table LINEATTR and table MUMRTAB.

Datafill example for table MRSANAME

Sample datafill for table MRSANAME appears in the following example.

MAP example for table MRSANAME

MRSA
OTW

Table MRSANAME generates call codes 001 to 005 for calls that are outside of a flat-rate local calling area. These calls are local calls but require billing records.

Datafilling table MUMRTAB

Datafill for the following features for table MUMRTAB appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)

Bellcore LAMA Format (continued)

- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table MUMRTAB

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table MUMRTAB

Field	Subfield or refinement	Entry	Description and action
KEY		see subfields	Key. This field contains subfields MUMRNAME and DGLIDX. Descriptions of these subfields follow.
	MUMRNAME	alphanumeric	Multi-unit message rate area name. Enter the name of a Multi-Unit Message Rate Area. Table MRSANAME field MRSA must recognize this name. The total number of multi-unit message rate area names cannot exceed 127.
	DGLIDX	numeric	Dialed digits. Enter the leading digits of the destination numbers in the Multi-Unit Message Rate Area that field MUMRMBI defines. When the destination office code is in the serving NPA of the originator, the leading digits are the Office Code NXX. For any other condition, the leading digits are NPA + NXX of the destination Office Code.
MUMRMBI		000 to 255	Index to the message billing index table MUMRMBI. Enter the index (000 to 255) to table MUMRMBI. Note: Table control does not allow an index of 0. The MUMRMBI field cannot have the value 0 as data.

Datafill example for table MUMRTAB

Sample datafill for table MUMRTAB appears in the following example.

Bellcore LAMA Format (continued)

MAP example for table MUMRTAB

	KEY	MUMRMBI
OTWA	411	1

Datafilling table MUMRMBI

Datafill for the following features for table MUMRMBI appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table MUMRMBI

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table MUMRMBI

Field	Subfield or refinement	Entry	Description and action
MUMRKEY		000 to 255	Key. Enter the key (000 to 255).
DETAILED		Y or N	Complete entries on AMA tape. Enter Y if the system must record the called number on the AMA tape. For any other condition, enter N.
TIMED		Y or N	Timed calls. Enter Y if the system must record the timing call data on the AMA tape. In all other conditions, enter N.
RECRDMBI		Y or N	Record MBI. Enter Y if the system must record MBI on the AMA tape. For any other condition, enter N.
MBI		000 to 999	Multi-unit message rate index. Enter the MBI (001 to 999) to record on the AMA tape. An entry of 000 does not cause billing.

Datafill example for table MUMRMBI

Sample datafill for table MUMRMBI appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table MUMRMBI**

MUMRKEY	DETAILED	TIMED	RECRDMBI	MBI
1	Y	Y	Y	1

Datafilling table AMAOPTS

Datafill for the following features for table AMAOPTS appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table AMAOPTS

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Description and action
OPTION		alphanumeric	Option. Enter an alphanumeric option code.
SCHEDULE		see subfields	Schedule. This field contains subfields AMASEL, ONDATE, ONTIME, OFFDATE, OFFTIME, SCHED, TV, and TU. Descriptions of these subfields follow.

Belcore LAMA Format (continued)

Datafilling table AMAOPTS (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Description and action
	AMASEL	ON, OFF, DEFAULT, PERIODIC, or TIMED	AMA selector. Enter one of the following values: • ON - Activate the option immediately. • OFF - Deactivate the option immediately. • DEFAULT - Use the default schedule for the option. • PERIODIC - Activate the option at the specified date and time to perform the interval activity. Complete subfields ONDATE and ONTIME to specify the date and time for activation. Complete subfield SCHED for the time intervals to perform the activity. • TIMED - Activate the option between the specified dates and times. Complete subfields ONDATE and ONTIME to activate the option. Complete subfields OFFDATE and OFFTIME to deactivate the option.
	ONDATE	year, month, and day	Activation on date. If AMASEL is PERIODIC or TIMED, enter the year, month, and day that the option activates. The format is YYMMDD. For any other condition, the system does not prompt for this field.
	ONTIME	hour and minute	Activation on time. If AMASEL is PERIODIC or TIMED, enter the hour and minute the option activates. The format is HHMM. For any other condition, the system does not prompt for this field.
	OFFDATE	year, month, and day	Activation off date. If AMASEL is TIMED, enter the year, month, and day that the option is active. The format is YYMMDD. For any other condition, the system does not prompt for this field.
	OFFTIME	hour and minute	Activation off time. If AMASEL is TIMED, enter the hour and minute the option is not active. The format is HHMM. For any other condition, the system does not prompt for this field.

Bellcore LAMA Format (continued)**Datafilling table AMAOPTS (Sheet 3 of 3)**

Field	Subfield or refinement	Entry	Description and action
	SCHED	see subfields	Periodic schedule. If AMASEL is PERIODIC, complete subfields TU and TV. For any other condition, the system does not prompt for this subfield.
	TV	0 to 255	Time value. Enter a value from 0 to 255.
	TU	AEONS, HRS, HUNDREDMS, MINS, SECS, or TENMS	Time unit. Enter AEONS, HRS, HUNDREDMS, MINS, SECS, or TENMS.

Table AMAOPTS indicates automatic message accounting options. Table AMAOPTS controls the activation and time of the recording options not recorded on AMA tape automatically. Table AMAOPTS contains one tuple for each option. A change in the schedule information for the options, causes the options to activate, deactivate, and schedule. This event occurs at specified dates and times. This method allows the user to control the output that the AMA system generates.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

Belcore LAMA Format (continued)

MAP example for table AMAOPTS

OPTION	SCHEDULE
AUDIT	OFF
CALL_FWD	OFF
CDAR	OFF
CHG411	OFF
CHG555	ON
COIN	OFF
DA411	ON
DA555	ON
ENFIA_B_C	OFF
FRECALL	OFF
HIGHREV	OFF
INWATS	OFF
LNID	OFF
LOGAMA	ON
LOGOPT	OFF
LONGCALL PERIODIC 890224 2666 24	HRS
LUSORIG	OFF
LUSTERM	OFF
OBSERVED	OFF
OCCTERM	ON
OUTWATS	OFF
OCCOVFL	OFF
OVERFLOW	OFF
TIMECHANGE	OFF
TRACER	OFF
TRKID	OFF
TWC	OFF
UNANS_LOCAL	OFF
UNANS_TOLL	ON

This sample datafill can cause the system to record the following calls:

- forwarded calls
- coin calls
- directory assistance 411 and 555 calls
- the INWATS and OUTWATS calls

This datafill causes the system to generate the following:

- the AMAB log reports
- terminating study records

Bellcore LAMA Format (continued)

- service observed records
- three-way calling records

When the OCCTERM option is on, the system records calls that enter the LATA from inter-LATA carriers. The ENFIA_B_C option causes the system to generate AMA records for lines that originate equal access calls. The system records all unanswered local and unanswered toll calls for call codes in table BCCODES. The system records time change entries. The system generates long duration call reports one time for each period of 24 h.

Note: When the HIGHREV option is activated, the system suppresses billing. The system does not suppress billing for calls that generate the call codes in table BCCODES.

Datafilling table BCCODES

Datafill for the following features for table BCCODES appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512)

Belcore LAMA Format (continued)

The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table **BCCODES**

Field	Subfield or refinement	Entry	Description and action
CALLTYPE			Bellcore call type. Enter one of the following Bellcore call types. • LOCAL - local calls • TOLL- toll calls • HIGHREV - high-revenue calls • TOPS - TOPS calls Note: If the HIGHREV option in table AMAOPTS is set to ON, the system records all HIGHREV calls. These calls must have a call code definition in table BCCODES. The system does not record unanswered calls when the HIGHREV option in table AMAOPTS is set to ON.
CODES			Bellcore call codes. Enter any group of the Bellcore call codes. A blank column must separate each call code. See table BCCODES in the data schema section of this document for a complete list of Bellcore call codes.

The Bellcore AMA call codes the system generates for unanswered and high revenue calls, appear in table BCCODES. The entries in this table determine when the system must record unanswered and high revenue AMA records. To generate unanswered records, UNANS_LOCAL and UNANS_TOLL are set to on in table AMAOPTS. To generate high revenue records, set the HIGHREV option to ON in table AMAOPTS.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table BCCODES**

CALLTYPE	CODES		
TOLL	(006)	(009)	(033)
LOCAL	(036)	(009)	(067) (074) (041)
HIGHREV	(006)	(068)	(008)

The following list describes the example datafill:

- When HIGHREV is ON in table AMAOPTS, the system generates AMA records that call codes 006, 068, and 008 identify.
- When UNANS_LOCAL is ON in table AMAOPTS, the system generates AMA records that call codes 036, 009, 067, 074, and 041 identify.
- When UNANS_TOLL is ON in table AMAOPTS, the system generates AMA records that call codes 006, 009, and 033 identify.

When HIGHREV is ON in table AMAOPTS, the system suppresses billing. The system does not suppress billing for the calls that generate the call codes entered for HIGHREV in this table.

Datafill sequence for Call Codes 009, 033, 121 Assignment Via Translations (BR0759)

The following tables require datafill to provide Call Codes 009, 033, 121 Assignment Via Translations (BR0759) feature. The tables appear in the correct entry order.

Datafill requirements for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) (Sheet 1 of 2)

Table	Function of table
LINEATTR	This table provides a list of attributes associated with the line index assigned to each subscriber line.
STDPRTCT	The names of the Standard Pretranslator subtable (STDPRTCT.STDPRT) that the operating company defines, appear in this table.
STDPRTCT. STDPRT	This table sets up the translations for a specified call type.

Belcore LAMA Format (continued)

Datafill requirements for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) (Sheet 2 of 2)

Table	Function of table
STDPRTCT. AMAPRT	This table generates call codes 009, 033, 088, 121, and 800 to 999 with AMA pretranslation.
AMAOPTS	This table controls the activation and schedule of the recording options for local, toll, and high-revenue calls.
BCCODES	This table allows the operating company to specify the calls that are not answered that create billing records. If an option is active in AMAOPTS, the system searches table BCCODES for a call code that corresponds. If the system detects the code in table BCCODES, the system creates a billing record for the unanswered call.

Datafilling table LINEATTR

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table LINEATTR appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Description and action
PRTNM		NPRT	Standard pretranslator subtable name. If the system requires pretranslation of digits, enter the name of the Standard Pretranslator subtable. This subtable is assigned to the line attribute index. If the system does not require standard pretranslation, enter NPRT.

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table LINEATTR**

LAX	LCC	CHGCLSS	COST	SCRNCL	LTG	STS	PRTNM	LCANAME	ZEROMPOS	TRAFSNO
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS				
		RESINF		OPTIONS						
0	1FR	NONE	NT	FR01	0	613	PRT1	L613		TSPS
10	NIL	NILSFC	LATA1	0	NIL	NIL		00		
		N		\$						

In the previous figure, the pretranslator name PRT1 is indexed to table STDPRTCT. The PRT1 is assigned in field PRTNM. Pretranslation occurs only if the PRTNM field of table LINEATTR or table TRKGRP specifies a pretranslator name.

For BCS34 and later versions, the system removes subfields LCABILL and HOT in table LINEATTR. The system places these subfields as options in the options field.

Datafilling table STDPRTCT

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table STDPRTCT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Description and action
EXTPRTNM		alphanumeric	External standard pretranslator subtable name. Enter the name that the operating company defines to indicate the standard pretranslator subtable. This condition does not apply for standard pretranslator name C7PT. The integrated services digital network user part (ISUP) trunks automatically uses C7PT on test calls in offices with ISUP ability.
Note: The maximum number of tuples in table STDPRTCT is 1 024.			

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following example.

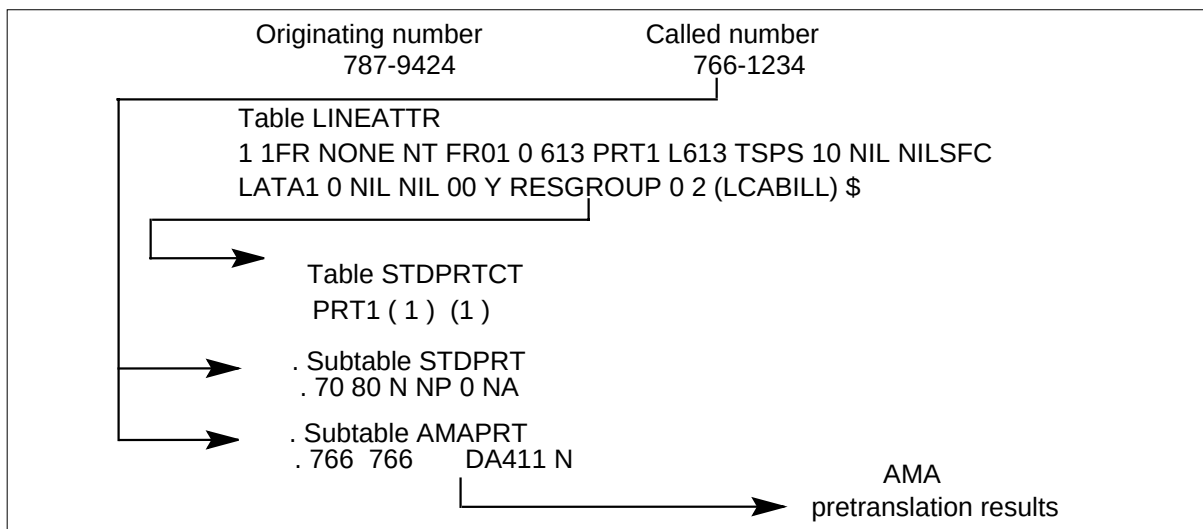
Belcore LAMA Format (continued)

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
PRT1	(1)	(1)

Each pretranslator entered in table STDPRTCT has a subtable STDPRT that corresponds. The received leading digits of the called number index subtable STDPRT. The following figure describes indexing with the pretranslator entered in table LINEATTR to index table STDPRTCT. the figure also describes how the leading digit of the called number indexes to subtable STDPRT. Indexing appears for an originating line (787-9424) dialing 766-1234.

Table indexing for standard pretranslation



In the previous figure, the datafill in subtable STDPRT indicates that the call is non-billable. The type of call is NP. Without the datafill in subtable AMAPRT, the call does not generate an AMA record. The datafill in subtable AMAPRT indicates that the system generates call code 009 (DA411). This action occurs when the user dials a number with leading digits 766. The leading digits of the called number determine indexing to the STDPRTCT subtables. The system translates a called number with leading digits 70, 71, 72, 73 79, or 80 with subtable STDPRT datafill. The previous figure describes this datafill. This datafill is 70 80 N NP 0 NA. The system generates call code 009 when the first digits of the called number are 766. The 411 options must be set to ON in table AMAOPTS.

Bellcore LAMA Format (continued)

Datafilling subtable STDPRT

Datafill for Call Codes 009, 033, 121 Assignment via Translations (BR0759) for subtable STDPRT appear in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Note: Changes in subtable STDPRT can change office billing because of call code types. The call type default is NP. See the data schema section of this document for information on subtable STDPRT.

Datafilling subtable STDPRT

Field	Subfield or refinement	Entry	Description and action
FROMDIGS		digital	From digits. Enter a maximum of 18 digits to translate. If the entry indicates a block of numbers in sequence, enter the first number in the block.
TODIGS		digital	To digits. Enter the numbers that are in the FROMDIGS field. Do not perform this action if FROMDIGS indicates a block of numbers in sequence. When this condition occurs, enter the last number of the block in this field.
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, CARRNAME, RTEAREA, RTEPRSNT, EXTRTEID, TABID, KEY, MINIDIGSR, MAXDIGSR, and OCS. Descriptions of these subfields follow.
	PRERTSEL	N	Pretranslation route selector. Enter N.
	TYPCALL	NP	Type of call. Enter NP.
	NOPREDIG	digital	Number of prefix digits. Enter the number of digits, from 0 to 7, to interpret as prefix digits.
	CARRNAME	carrier name	Carrier name. Enter the carrier name defined in table OCCNAME.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT appears in the following example.

Belcore LAMA Format (continued)

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
70	80	N NP 0 NA

Datafilling subtable AMAPRT

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for subtable AMAPRT appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling subtable AMAPRT

Field	Subfield or refinement	Entry	Description and action
FROMDIGS		digital	From digits. Enter a maximum of 18 digits to translate. If the entry indicates a block of numbers in sequence, enter the first number in the block.
TODIGS		digital	To digits. Enter the same numbers in field FROMDIGS. EXCEPTION: If FROMDIGS represents a block of numbers in sequence, enter the last number of the block in this field.
AMARSLT		see subfields	AMA result. This field contains subfields CALLCODE and SFPRSNT. Descriptions of these subfields follow.
	CALLCODE	DA411 and DA555	Call code. Enter DA411 and DA555.
	SFPRSNT	N	Service feature present. Enter N to prevent replacement of the current Service Feature field value.

Note: If subtable AMAPRT does not contain data for the received leading digits, AMA pretranslation does not affect the call code. The system generates the call code.

Bellcore LAMA Format (continued)

Datafill example for subtable AMAPRT

Sample datafill for subtable AMAPRT in table STDPRTCT appears in the following example.

MAP example for subtable AMAPRT

FROMDIGS	TODIGS	AMARSLT
766	766	DA411 N
5551212	5551212	DA555 N

When the number dialed has leading digits 766, the system generates call code 009 for that local DA call. When digits 555-1212 are dialed, the system generates call code 033.

Digits in the FROMDIGS and TODIGS fields can be different between subtable STDPRT and subtable AMAPRT. The operating company can enter AMA pretranslation results one at a time from standard pretranslation results.

With BR0759, an operating company can cause the system to generate some call codes. The AMA pretranslation determines the call codes that the system generates. The system generates AMA pretranslation through subtable AMAPRT. Subtable AMAPRT is indexed with the leading digits of the called number. When the leading digits of the called number are in subtable AMAPRT, the system generates an AMA record. The call code specified in the datafill identifies the AMA record.

Note: If subtable AMAPRT does not contain data for the received leading digits, AMA pretranslation does not affect call codes. The system generates call codes.

When the system uses standard pretranslation to translate an interLATA Datapath call, the system generates call code 119. Call code 119 indicates the terminating access record. When this condition occurs, the system uses standard pretranslation because subtable AMAPRT does not have an entry for the called number. The operating company can enter subtable AMAPRT for the received leading digits of a Datapath call. When this action occurs, the operating company can force the system to generate call code 121. This call code is the code for Datapath terminating access record.

Note: The AMA pretranslation occurs when table LINEATTR or table TRKGRP specifies a pretranslator name (field PRTNM). This pretranslator

Belcore LAMA Format (continued)

name indexes to table STDPRTCT. The leading digits of the called number determine the index to subtables STDPRT and AMAPRT.

AMA pretranslation datafill

The system can use AMA pretranslation to generate the following call codes:

- call code 009 - 411 directory assistance
- call code 033 - 555 directory assistance
- call code 121 - Datapath terminating access record

The system does not require AMA pretranslation to generate call codes 009 and 033. The DA411 and CHG411 and/or DA555 and CHG555 options must be on in table AMAOPTS and 411, or the subscriber must dial 555-1212. With AMA pretranslation, the system can generate call code 009 for local directory assistance calls other than 411. The system limits call code 033 to 555-1212 calls. Feature BR0759 provides call code 121. Only AMA pretranslation for Datapath terminating access records generates call code 121.

Call codes generated from AMARSLT datafill in subtable AMAPRT

AMARSLT datafill	Call code generated	Feature package required
DA411	009	NTX098AA
DA555	033	NTX098AA
NONDA555	088	NTX098AA and NTX737AA
DATAPATH	121	NTX098AA
CC800	800	NTX098AA and NTX737AA
CC801	801	NTX098AA and NTX737AA
CC802	802	NTX098AA and NTX737AA
CC803	803	NTX098AA and NTX737AA
CC804	804	NTX098AA and NTX737AA
CC805	805	NTX098AA and NTX737AA

Note 1: The system can generate call codes 088 and 800 to 805 if the Flexible Bellcore AMA feature package (NTX737AB) is loaded. Feature NTX737AB must be loaded with the NTX098AA feature package.

Belcore LAMA Format (continued)

Note 2: The AMA pretranslation only indicates the function of a Belcore AMA call code.

Note 3: The AMA pretranslation uses only the pretranslator name that table LINEATTR or table TRKGRP specify. For example, datafill in subtable STDPRT can cause indexing to table STDPRTCT again, with a new pretranslator name. The AMA pretranslation uses only the first pretranslator name to index table STDPRTCT.

Datafilling table AMAOPTS

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table AMAOPTS appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		DA411 and DA555	Option. Enter DA411 and DA555.
SCHEDULE		see subfields	Schedule. This field contains subfields AMASEL, ONDATE, OFFDATE, SCHED, ONTIME, and OFFTIME. A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate DA411 and DA555.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
DA411	ON
DA555	ON

This sample datafill causes the system to record directory assistance 411 and 555 calls and generate AMAB log reports. The system can generate all unanswered toll calls for calls in table BCCODES. The system requires time

Belcore LAMA Format (continued)

for short supervisory transitions. The system generates duration call reports one time for each period of 24 h.

Datafilling table BCCODES

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table BCCODES in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Description and action
CALLTYPE		LOCAL, TOLL, HIGHREV, or TOPS	Bellcore call type. Enter one of the following Bellcore call types: LOCAL - local calls TOLL - toll calls HIGHREV - high-revenue calls TOPS - TOPS calls Note: If the HIGHREV option in table AMAOPTS is set to ON, the system records all HIGHREV calls. table BCCODES defines the call code. The system does not record unanswered calls when the HIGHREV option in table AMAOPTS is set to ON.
CODES		any group of the Bellcore call codes	Bellcore call codes. Enter any group of the Bellcore call codes. A blank column must separate each call code. For a complete list of Bellcore call codes, see table BCCODES in the data schema section of this document.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table BCCODES**

CALLTYPE	CODES
TOLL	(006) (007) (030) (033) (068) (069) (008) \$

Datafill sequence of a data unit datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793)

The following tables require datafill to activate the Datapath AMA Format—Call Codes 072 and 117 feature. The data tables are data unit specified. Enter the data tables to activate a data unit. Enter the data tables to prepare the data unit to receive and transmit Datapath calls. The tables appear in the correct entry order.

Datafill requirements to activate and prepare a data unit to receive and transmit Datapath calls (Sheet 1 of 2)

Table	Purpose of table
CLLI	Lists the common language location identification (CLLI) codes for each of the following: • announcement • tone • trunk group • test trunk • national milliwatt test lines • service circuit
LNINV	Lists the data for each line card slot.
KSETINV (Note)	Holds business set and data unit (DU) module data. Each piece of equipment must have a line card slot assigned in this table.
KSETLINE (Note)	Contains data of DN appearances on business sets and DUs.
KSETFEAT (Note)	Lists the line features assigned to the business sets and DUs that table KSETLINE lists. Lists the features assigned to the MDC sets and DUs that table IVDINV lists.
Note: Use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Bellcore LAMA Format (continued)

Datafill requirements to activate and prepare a data unit to receive and transmit Datapath calls (Sheet 2 of 2)

Table	Purpose of table
RESGROUP	Stores data that is common to all resource members in a group. One entry is present for each group.
RESINV	Stores inventory data on all resource groups in the office.
RESMEM	Stores data on resource members of each group.
DPROFILE	Contains parameters (such as data rate) that characterize a data unit.
Note: Use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Datafilling table CLLI

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table CLLI appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table CLLI (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CLLI		alphanumeric (a maximum of 16 characters)	Common language location identifier. Enter a maximum of 16 alphanumeric characters that identify the far end of each announcement, tone or trunk group. The following rules apply: • The first character must be alphabetic. • An underscore (_) is a correct character in the CLLI code. • Do not enter any special characters, like *, -, +, ?, /. • For best use, a CLLI code must not contain more than 12 characters. Only the first 12 characters appear on the visual display unit (VDU) terminal, MAP terminal, or trunk test position (TTP). The entire CLLI appears in a log report.
ADNUM		digital (0 to 8192)	Administrative trunk group number. Enter a number from 0 to a number that is one less than the size of table CLLI. The size of table CLLI appears in table DATASIZE. The maximum size of table CLLI is 8192. To allow for future growth in the number of pseudo-CLLIs, the customer must not assign administrative numbers below 51. See the data schema section of this document for additional information.

Belcore LAMA Format (continued)

Datafilling table CLLI (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
TRKGRSIZ		numeric (0 to 2047)	Trunk group size. This number is the maximum expected number of trunk members assigned to the trunk group. The figure allocates store. The figure can be greater than the number of the first working trunks. See the data schema section of this document for additional information.
ADMININF		alphanumeric (a maximum of 32 characters)	Administrative information. Enter a maximum of 32 alphanumeric characters. The operating company uses this field to record administrative information. The switching unit does not use information in the field. Note: Do not use special characters, like @, #, \$, %, ^, &, *, (,), +, =, /, ' , ; , : , ? , } . These characters can cause errors.

Datafill example for table CLLI

Sample datafill for table CLLI appears in the following example.

Codes in table CLLI identify the far end of each announcement, tone, or trunk group. The CLLIs in the example identify the trunks that route Datapath calls in the switch. The ADMININF field is for administrative purposes. The switching unit does not use this field.

MAP example for table CLLI

CLLI	ADNUM	TRKGRSIZ	ADMININF
DUMPANDRESTORE		28 0	DUMP_AND_RESTORE
TRKLPBK	24	0	TRUNK_LOOP_BACK
DMODEMC	2	4	NEW_MODEM_3X02CA_CLLI

Datafilling table LNINV

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table LNINV appears in the following table. The fields that apply to

Bellcore LAMA Format (continued)

Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table LNINV (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CARDCODE		see explanation	Card code. Enter the product engineering code of the line card. When you submit input for final lines, enter ".
PADGRP		see explanation	Pad group. Enter the name of the pad group assigned to the line circuit in table PADDATA. When you submit input for final lines, enter ".
STATUS		working	Line inventory availability status. Enter working. When you submit input for final lines, enter ".
GND		N	Ground. Enter N if the line is not a ground start.
BNV		L or NL	Balanced network value. Enter L if the line circuit configuration is for a loaded network. Enter NL for a non-loaded network. When you submit input for final lines, enter ".
MNO		N	Manual override. Enter N to allow off-hook balance network to update field BNV in this table. When you submit input for final lines, enter ".
CARDINFO			Card information. This field contains subfield CARDTYPE. This field contains the refinements of subfield CARDTYPE.
	CARDTYPE	NIL, RCUPOTS, RCUEPOTS, or SSLCC	Card type. The following are valid entries: • NIL (default) • RCUPOTS • RCUEPOTS • SSLCC. Enter dataf in refinements FCN and INSVC.)

Bellcore LAMA Format (continued)

Datafilling table LNINV (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	FCN	see explanation	Function. Enter the value that defines the function of the two-wire and four-wire special service card. See the data schema section of this document for additional information.
	INSVC	Y or N	In-service. Enter Y to establish a special connection for the card. The system produces alarms if the card fails diagnostics. Enter N to take down the special connection. The system applies trunk conditioning and does not produce alarms if the card fails diagnostics.

Datafill example for table LNINV

Sample datafill for table LNINV appears in the following example.

MAP example for table LNINV

LEN	CARDCODE	PADGRP	STATUS	GND	BNV	MNO
CARDINFO						
HOST	00 0 08 09	6X17AA	NPDGP	WORKING	N	NL N
		NILRCU0	00 0 01 09	7A21AA	STD	LN
WORKING	N NL N					
	SSLCC	4WFXS	Y			

Datafilling table RESGROUP

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table RESGROUP appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

The NRS feature requires the resource tables. The NRS feature provides modem pooling for DU and data transmission. The NRS feature can select

Bellcore LAMA Format (continued)

different modems. The NRS feature stores, processes and manipulates modem pools.

Datafilling table RESGROUP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY		see explanation	Resource group key. This field contains a CLLI. The CLLI is the key to this table.
GDATA		see subfields	Resource group data. This field contains subfields GRPTYP, TMODE and SPEED.
	GRPTYP	MP or MMP	Resource group type. Enter MP for modem pool. Enter MMP for maintenance modem pool.
	TMODE	FULL	Transmission mode. Enter FULL if the modems are full duplex.
	SPEED	numeric	Modem speed. Enter the baud rate of the modem in bits per second.
OVFLDATA		see subfields	Overflow data. This field contains subfields OVFL and OVFLCLLI.
	OVFL	Y or N	Group overflow. Enter Y to enter an overflow CLLI. Enter N if you do not have to enter an overflow CLLI.
	OVFLCLLI	see explanation	Group overflow CLLI. Enter the CLLI of another resource group to which calls overflow. The calls overflow to this group when all members in the current group are busy. If OVFL is N, the system does not prompt you for this field.
MTCDATA		see subfields	Maintenance data. This field contains subfields MTC, MTCCLLI, and MTCMODE.
	MTC	Y or N	Maintenance. Enter Y to add modem pool maintenance data. Enter N if you do not have to add modem pool maintenance data.

Belcore LAMA Format (continued)

Datafilling table RESGROUP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	MTCCLI	see explanation	Maintenance CLI. Enter the CLI of the maintenance modem pool that the system uses as a default to perform a BERT test.
	MTCMODE	IN, OUT, or BOTH	Maintenance test mode. The following are correct entries: • IN - The modem pool processes calls in the INBOUND direction. • OUT - The modem pool processes calls in the OUTBOUND direction. • BOTH - The modem pool handles both inbound and outbound call processing.

Datafill example for table RESGROUP

Sample datafill for table RESGROUP appears in the following example.

A resource group OMP1200A with overflow to OMP1200B appears in the example. The default test mode is in the OUTBOUND direction with MTCE1200 maintenance modem pool. The OMP1200B has a default test mode of BOTH to test with MTCE1200 maintenance modem pool. The MTCE1200 test both INBOUND and OUTBOUND, full duplex, 1200-baud modem pools.

MAP example for table RESGROUP

GRPKEY		GDATA		OVFLDATA	MTCDATA	
OMP1200A	MP	FULL1200	Y	OMP1200B	YMTCE1200	OUT
OMP1200B	MP	FULL1200	N		YMTCE1200	BOTH
OMP1200	MMP	FULL1200	N		YMTCE1200	BOTH

Datafilling table RESINV

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table RESINV appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Bellcore LAMA Format (continued)

Table RESINV stores all the office resources inventory data. This table contains the line equipment numbers (LEN) for all the defined resources. This table identifies the type of resource.

Two data formats are present. The data formats are modem-pool modems (MPMD) and modem-pool data units (MPDU). The last three fields of this table identify the LEN for the other half of the DU/modem pair. The other half of the DU/modem pair contains the CLLI of the resource group to which the member belongs. The other half of the pair also contains the position of the member in the group. These last three fields provide information only.

Datafilling table RESINV

Field	Subfield or refinement	Entry	Explanation and action
RESKEY		see explanation	Resource key. Enter the LEN of the resource.
RESDATA		see subfields	Resource data. This field contains subfields RESSEL, DETSEL, MPLEN, GRPCLLIM and SEQNO.
	RESSEL	MPMD or MPDU	Resource selector. Enter MPMD if the resource is a modem-pool modem. Enter MPDU if the resource is a modem-pool DU.
	DETSEL	N	Detail selector. Enter N if this resource line does not associate with the mating resource pair. Enter N if this resource line is not assigned in table RESMEM as a member of the resource group. Enter N when you add a new resource line.

Datafill example for table RESINV

Sample datafill for table RESINV appears in the following example.

MAP example for table RESINV

RESKEY	RESDATA
00 0 15 01	MPDU N
00 0 03 01	MPMD N

Bellcore LAMA Format (continued)

Datafilling table RESMEM

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table RESMEM appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table RESMEM

Field	Subfield or refinement	Entry	Explanation and action
	GRPTYP	MP or MMP	Group type. Enter MP for modem pool or MMP for maintenance modem pool.
	DULEN	see explanation	Data unit line equipment number. Enter the LEN of the data unit.
	MODEMLEN	see explanation	Modem line equipment number. Enter the LEN of the modem.

Datafill example for table RESMEM

Sample datafill for table RESMEM appears in the following example.

MAP example for table RESMEM

MEMKEY	MDATA
BELL212A1200 0	MP HOST 00 0 15 01 HOST 00 0 03 01
MTCE1200 0	MMP HOST 00 0 05 02 HOST 00 0 15 01

Datafilling table DPROFILE

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table DPROFILE appear in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table DPROFILE (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DPKEY		see subfield	Data unit profile key. This field contains subfield LEN.
	LEN	see explanation	Line equipment number. Enter the LEN of the DU.

Bellcore LAMA Format (continued)**Datafilling table DPROFILE (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
CLASSVAR		see subfields	Class of data unit variable area. This field contains subfields CLASSDU, DOWNLOAD, MIMIC, CONFIG, SYNCHRO, DATARATE, CLOCKSRC, DUPLEX, and DPOPTS.
	CLASSDU	MP	Class of data unit. Enter MP for modem pool data unit.
	DOWNLOAD	Y	Profile download. Enter Y to allow profile downloading.
	MIMIC	LI	Mode indicator/mode indicator common control. Enter LI for level inverted.
	CONFIG	DTE	Data access module configuration indicator. Enter DTE if the data access module connects to a data terminal equipment terminal.
	SYNCHRO	S	Synchronous/asynchronous selector. Enter S for synchronous transmission.
	DATARATE	see explanation	Data rate. Enter the speed at which the equipment of the customer can transmit and receive data.
	CLOCKSRC	I	Clocking source. Enter I to signify that the DU must internally derive the DU clocking source for data transmission.
	DUPLEX	F	Full/half duplex. Enter F for full-duplex data communication.

Using the table editor and SERVORD

Table DPROFILE accepts input from SERVORD or the table editor. To download the DU, use the SERVORD or the table editor to provide the correct datafill.

If you use the table editor to enter table DPROFILE, perform the following:

1. Access the line test position (LTP) level of MAP terminal.
2. Post the Datapath line.
3. Execute the return-to-service (RTS) command.

Belcore LAMA Format (continued)

If you use SERVORD instead of the table editor, the system executes the POST and RTS commands automatically.

Datafill example for table DPROFILE

Sample datafill for table DPROFILE appears in the following example.

The entry is a modem pool (MP) unit with the access module connected to a data terminal (DTE). The line uses synchronous transmission. The line transmits and receives data at 19 200 bit/s. The echo option allows the DU to echo characters back to the equipment of the customer.

MAP example for table DPROFILE

DPKEY													
CLASSVAR													
HOST	00	0	08	10									
	MP	Y	LI	DTE	S	19200	I	F	(ECHO)	\$			

Datafill sequence of Datapath call datafill for Datapath AMA Format—call code 072 (BR0793)

A call that originates from a DU generates an 072 or a 117 AMA record. The 072 is an intra-LATA Datapath AMA record. The 117 is an inter-LATA Datapath AMA record.

An origination occurs when a DU sends an originating message to the line trunk controller (LTC). To accomplish this origination, press the DN key on the DU. When the originating attempt completes, the DMS switch collects digits. The DMS switch uses IBN capabilities to translate the digits. When a call connects through the network, the system returns a ringing tone. The ringing tone returns until the call is answered. The called DU exchanges information with the calling DU. The DUs exchange information before both DUs go into data mode. To disconnect, press the release key on the DU.

The following information describes the datafill required for intra-LATA and inter-LATA Datapath calls. The following information describes the datafill required to generate AMA records. Call codes 072 and 117 identify the AMA records. The system can route datapath calls in different ways. The following description does not apply to all conditions. Use the description to understand the flow of call order. Use the description to understand the relationship of data tables used in translating inter-LATA and intra-LATA Datapath calls.

Bellcore LAMA Format (continued)

One intra-LATA station paid call generates call code 072. The system routes one inter-LATA call over an equal access (EA) trunk. The system generates a 117 call code.

The datafill the system uses to route two Datapath station-paid calls appears in the following table. The data tables appear in the correct entry order.

Datafill sequence for intra-LATA and inter-LATA Datapath calls

Intra-LATA call code 072	Inter-LATA call code 117
DNINV	HNPACONT
HNPACONT	STDPRTCT
PFXTREAT	DIGCOL
LCASCRN	CUSTHEAD
STDPRTCT	OCCINFO
DIGCOL	OFRT
CUSTHEAD	NCOS
LCASCRCN.LCASCRCN	LINEATTR
TOFCNAME	KSETLINE
NCOS	IBNXLA
LINEATTR	STDPRTCT.STDPRT
KSETLINES	AMAOPTS
IBNXLA	LATAXLA
HNPACONT.HNPACODE	
STDPRTCT.STDPRT	
AMAOPTS	

This section provides a description of each data table that the system accesses during call processing. The system accesses the tables to complete two calls that originate from one DU and terminate to another DU. These calls generate 072 and 117 call codes.

Belcore LAMA Format (continued)

The following tables require datafill to activate the Datapath AMA Format—Call Codes 072 and 117 feature. The tables appear in the correct entry order to generate an intra-LATA call code 072.

Datafill requirements for Datapath call datafill for intra-LATA call code 072 (Sheet 1 of 2)

Table	Purpose of table
DNINV (Note)	Details the information for each DN in the switch.
HNPACONT	Lists the home or SNPA and the STS code subtables.
PFXTREAT	Lists the home or SNPA and the STS code subtables.
LCASCRCN	Lists the name of each of the local calling area screening subtables (LCASCRCN.LCASCRCN). Lists the SNPA to which each table belongs.
STDPRTCT	Lists the operating names of the standard pretranslator subtable (STDPRTCT.STDPRT). The operating company defines the names.
DIGCOL	Specifies the action the line module takes based on the first digit dialed. The IBN digit collection requires table DIGCOL.
CUSTHEAD	Lists the values and options assigned to groups.
LCASCRCN. LCASCRCN	Determines if a call is a local or non-local termination. The digits dialed determines the termination. Each local calling area that is in the territorial limit of the switching unit requires one screening table.
TOFCNAME	Lists all terminating offices in the switch. A terminating office is a combination of area code and office code.
NCOS	Describes the class of service assigned to the following: • attendant consoles • IBN stations • incoming IBN trunk groups or the incoming side of two-way IBN trunk groups • authorization codes • customer groups
LINEATTR	Provides a list of attributes associated with the line index assigned to every subscriber line.
KSETLINE (Note)	Contains data of DN appearances on business sets and DUs.
Note: Enter this table through SERVORD. A datafill table or example is not available. See SERVORD for an example how to use SERVORD to enter data in this table.	

Bellcore LAMA Format (continued)

Datafill requirements for Datapath call datafill for intra-LATA call code 072 (Sheet 2 of 2)

Table	Purpose of table
IBNXLA	Provides the instructions that use a virtual facility group to translate an OUTWATS call.
HNPACONT. HNPACODE	Lists the route, treatment, or table to which translations must route for three-digit SNPA or STS defined in table HNPACONT.
STDPRTCT. STDPRT	Sets up the translations for a specific call type.
AMAOPTS	Controls the activation and scheduling of the recording options for local, toll, and high-revenue calls.
BCCODES	Allows the operating company to specify which unanswered calls will create billing records.
Note: Enter this table through SERVORD. A datafill table or example is not available. See SERVORD for an example how to use SERVORD to enter data in this table.	

Datafilling table HNPACONT

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table HNPACONT appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table HNPACONT

Field	Subfield or refinement	Entry	Explanation and action
NPA		numeric	Serving translation scheme. Enter the three-digit SNPA or serving translations scheme (STS) code. Note: A home or SNPA must have 1 or 0 as the middle digit. You must enter the home or SNPA in one of the first 16 positions. Line data, POTS VFG data, PBX trunk data can use the SNPAs. Tables DNINV, DNROUTE, and TOFCNAME can use the SNPAs.
MAXRTE		0 to 1023	Number of route references. Enter the quantity of route reference numbers. This field automatically extends to the highest route index that subtable RTEREF of table HNPACONT uses. The route index has a maximum of 1023.
NOAMBIGC		0 to 159	Number of ambiguous codes. Enter the number of ambiguous codes required.

Datafill example for table HNPACONT

Sample datafill for table HNPACONT appears in the following example. In this example, the SNPA of the originating line is 613. The SNPA in table HNPACONT.

MAP example for table HNPACONT

NPA	MAXRTE	NOAMBIGC	RTEREF	HNPACODE	ATTRIB	RTEMAP
613	127		1 (1) (	1)(	0)(	0)

Datafilling a table PFXTREAT

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table PFXTREAT appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section in this document for a description of the other fields.

Datafilling table PFXTREAT

Field	Subfield or refinement	Entry	Explanation and action
TYPLCLCD		see subfields	Type of call and local code. This field contains subfields PFXSELEC, TYPCALL, and LOCAL.
	PFXSELEC	see explanation	Prefix selector. Enter the prefix selector assigned to the prefix treatment.
	TYPCALL	DD	Type of call. Enter DD for direct dial.
	LOCAL	Y	Local. Enter Y if the prefix treatment record is for a local call.
UPDTYPCA		see explanation	Updated type of call. If the system updates the type of call, enter the updated type of call. If the system does not update the type of call, enter the value assigned to field TYPCALL.
TREAT		UNDT	Treatment. If calls that route to the prefix treatment can complete, enter UNDT (undefined treatment) as the treatment.

Datafill example for table PFXTREAT

Sample datafill for table PFXTREAT appears in the following example. The routed call is a billable (DD) call. The prefix digits of billable calls are optional (OPTL).

MAP example for table PFXTREAT

TYPLCLCD	UPDTYPCA	TREAT
OPTL DD Y	DD	UNDT

Datafilling table LCASCRCN

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table LCASCRCN appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table LCASCRCN

Field	Subfield or refinement	Entry	Explanation and action
NPALOCNM		see subfields	Numbering plan area plus local calling area subtable name. This field contains subfields STS and LCANAME.
	STS	numeric	Serving translation scheme. Enter the SNPA code for the trunk group.
	LCANAME	a maximum of 4 characters	Local calling area name. Enter the name of subtable LCASCR of table LCASCRCN. The local calling area name can be a maximum of 4 characters. Note: The NLCA is not a correct entry for this field. The DMS switch software reserves NL for no local calling area screening. Accidental addition of NLCA in table LCASCRCN followed by deletion of NLCA removes NLCA from a table. For example, deletion of NLCA removes NLCA from table LINEATTR field LCANAME. The specification of no local calling area screening is not possible.
PFXSELEC		a maximum of 4 characters	Prefix selector. Enter the name of the prefix selector assigned to subtable LCASCR in table LCASCRCN. The name of the prefix selector can be a maximum of four characters.
PFXFOR10		N	Prefix for 10. Enter N.

Datafill example for table LCASCRCN

Sample datafill for table LCASCRCN appears in the following example. The LCANAME (from table LINEATTR) is L613. The LCANAME indexes table LCASCRCN as follows.

MAP example for table LCASCRCN

NPALOCNM	LCASCR	PFXSELEC	PFXFOR10
919	L613	(0) OPTL	N

Bellcore LAMA Format (continued)**Datafilling table STDPRTCT**

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table STDPRTCT appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Explanation and action
EXTPRTNM		alphanumeric	External standard pretranslator subtable name. Enter the name that the operating company defines to represent the standard pretranslator subtable. Do not enter standard pretranslator name C7PT. The ISUP trunks automatically use standard pretranslator name C7PT on test calls in offices with ISUP capability.
Note: The maximum number of tuples in table STDPRTCT is 1024.			

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following table. In this example, P621 is the pretranslator assigned to the originating line (DU). The P621 is the index in table STDPRTCT that appeared in the previous datafill.

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
P621	(1)	(0)

Datafilling table DIGCOL

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table DIGCOL appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table DIGCOL

Field	Subfield or refinement	Entry	Explanation and action
DGKEY		see subfields	Digit collection key. This field contains subfields DATNAME and DIGIT. Descriptions of these subfields follow.
	DATNAME	1- to 8-character alphanumeric name	Name of digit collection table. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL.
	DIGIT	0 to 9, STAR, or OCT	Digit. Enter the digit (0 to 9), star (STAR), or octothorpe (OCT) which applies to the record.
DGDATA		see subfield	Digit collection table. This field contains subfield DGCOLSEL.
	DGCOLSEL	RPT	Digit collection selector. Enter the selector RPT.

Datafill example for table DIGCOL

Sample datafill for table DIGCOL appears in the following example. Datapath digit collection requires table DIGCOL because IBN translation capabilities implement Datapath.

In this example, KDK is the digit collection tuple indexed. Field DGDATA specifies when action occurs. The digits dialed determine the action taken. The RPT means that each time a digit is dialed, the system receives the digit. The system reports the digit to the central control.

MAP example for table DIGCOL

DGKEY	DGDATA
KDK	9 RPT

Datafilling table CUSTHEAD

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table CUSTHEAD appears in the following table. The fields that apply to Belcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table CUSTHEAD

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		1- to 16-character name	Customer group name. Enter the 1- to 16-character name assigned to the customer group.
CUSTXLA		1- to 8-character name	Customer translator. Enter the 1- to 8-character name assigned to the block of data (customer translator) in table IBNXLA. The block of data specifies the data for the translation of digits. The digits originate from an IBN station, attendant, incoming trunk group, or incoming side of a two-way trunk group.
DGCOLNM		1- to 8-character name	Digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL. This block of data specifies the IBN digit collection for the IBN lines.
IDIGCOL		1- to 8-character name or NIL	International digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DGHEAD. This field only appears if the Open Number Translation feature (NTXB57AA) is in the load. Enter NIL if the Open Number Translation is not in the load.

Datafill example for table CUSTHEAD

Sample datafill for table CUSTHEAD appears in the following example. In this example, the customer group is COMKODAK. The CUSTXLA name is CXDK. The CUSTXLA indexes table IBNXLA. The DIGCOLNM name is KDK. The DIGCOLNM name indexes table DIGCOL.

MAP example for table CUSTHEAD

```

CUSTNAME  CUSTXLA    DGCOLNM IDIGCOL
              OPTIONS
-----
COMKODAK   CXDK      KDK      NIL
( VACTRMT 0) ( EXTNCOS 0) ( ACCT 5)
( FETXLA CUSTFEAT) ( PLMXLA PXDK) ( ERDT 7)
( AUTH COMKODAK N N) ( SUPERCNF)( ACR AUTH 1)
( CUTPAUSE 1) ( CUTMOUT10) ( OCTXLA CUSTSHRP) $

```

Belcore LAMA Format (continued)

Datafilling table LCASCR

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table LCASCR appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table LCASCR

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		000 to 999	From digits. Enter the 3-digit local NNX code (000 to 999). This number represents a single code or the first number in a block of consecutive local NNX codes.
TODIGS		000 to 999	To digits. If FROMDIGS represents the first number in a block of consecutive NNX codes, enter the last NNX code in the block. If FROMDIGS represents a single local NNX code, enter the NNX code entered in FROMDIGS.

Datafill example for table LCASCR

Sample datafill for table LCASCR appears in the following example.

MAP example for table LCASCR

FROMDIGS	TODIGS
722	722

Datafilling table TOFCNAME

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table TOFCNAME appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Note: You can add and delete tuples from this table. You cannot deallocate system store when you allocate system store.

Datafilling table TOFCNAME

Field	Subfield or refinement	Entry	Explanation and action
AREACODE		numeric	Area code. Enter the area code that contains the terminating office.
OFCCODE		numeric	Office code. Enter the office code.
			Note: A number cannot be an AREACODE and OFCCODE. For example, when 613 is an AREACODE, 613 cannot be an OFCCODE in any AREACODE.

Datafill example for table TOFCNAME

Sample datafill for table TOFCNAME appears in the following example.

Note: Do not enter the same OFCCODE in two different area codes. For example, 613 849 and 819 849 have the same OFCCODE.

MAP example for table TOFCNAME

AREACODE	OFCCODE
613	722

Datafilling table NCOS

The datafill specific to Datapath AMA Format—Call Code 072 (BR0793) for table NCOS appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table NCOS

Field	Subfield or refinement	Entry	Explanation and action
CUSTGRP		1- to 16-character name	Customer group name. If this field is the first record for the NCOS number, enter the code assigned to the customer group. The code is a 1- to 16-character code. If this field is not the first record, leave this field blank.
NCOS		0 to 511	Network class of service number. If this field is the first record for the NCOS number, enter the NCOS number. If this field is not the first record, leave this field blank.
NCOSNAME		1- to 6-character name	Network class of service name. If this field is the first record for the NCOS number, enter the name assigned to the NCOS number. Enter the number for the key and lamp display. The name is a 1- to 6-character name. If this field is not the first record, leave this field blank.
LSC		0 to 31	Line screening code. If this field is the first record for the NCOS number, enter the line screening code assigned to the NCOS number.
TRAFSNO		0 to 31 or 0	Line screening code. If this field is the first record for the NCOS number, enter the line screening code assigned to the NCOS number. If the line screening code is not necessary, enter 0.

Datafill example for table NCOS

Sample datafill for table NCOS appears in the following table. The customer group name indexes this table. Table IBNLINES contains the customer group name.

Bellcore LAMA Format (continued)**MAP example for table NCOS**

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
COMKODAK	0	KDKO	0	0	(OHQ 0 TONE_OHQ)
(CBQ 0 3 N 2)	\$				

Datafilling table LINEATTR

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table LINEATTR appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

This table provides the attributes associated with the DU. The DU originates the call. The DU provides the pretranslator route selector.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Explanation and action
LNATTIDX		0 to 31 999	Line attribute index. Enter the line attribute index.
LCC			Line class code. Enter the line class code assigned to the line attribute index. You cannot change the LCC of a current tuple.
PRTNM			Standard pretranslator subtable name. If pretranslation of digits is necessary, enter the name of the standard pretranslator subtable assigned to the line attribute index. If standard pretranslation is not necessary, enter NPRT.
LCANAME			Local calling area screening subtable name. If screening of local NNX codes is necessary, enter the name of the local calling area subtable. Enter the name of the local calling area subtable assigned to the line attribute index. If screening is not necessary, enter NLCA.
LATANM			Local access and transport area name. Enter the name of the LATA associated with this line attribute.

Belcore LAMA Format (continued)

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example. The P621 is the pretranslator that indexes subtables STDPRT and HNPACONT. The L613 indexes table LCASCRN. The LATA1 indexes table LATAXLA.

MAP example for table LINEATTR

LAIDX	LCC	CHGCLSS	COST	SCRNCL	LTG	STS	PRTNM	LCANAME
ZEROMPOS	TRAFSNO							
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS		
	RESINF		OPTIONS					
0	1FR	NONE	NT	FR01	0	613	P621	L613
TSPS	10							
MRSA1	NILSFC	LATA1	0	NIL	NIL	00		
	N			\$				

Datafilling table IBNXLA

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table IBNXLA appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfields	Key. This field contains subfields XLANAME and DGLIDX.
	XLANAME	1- to 8-character name	Translator name. Enter the 1- to 8-character name assigned to the translator.
	DGLIDX	numeric	Digilator index. Enter the digit or digits assigned as the OUTWATS access code.
RESULT		see subfields	Result. This field contains subfields TRSEL, ACR, SMDR, NOACDIGS, SDT, DGCOLNM, CRL, INTRAGRP, NETTYPE, and LNATTR.
	TRSEL	NET	Translator selector. Enter the translation selector NET.
	ACR	Y or N	Account code entry. This field specifies if an account code entry is necessary.

Bellcore LAMA Format (continued)

Datafilling table IBNXLA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	SMDR	Y or N	Station message detail recording. This field specifies if the system records calls. Note: If set to Y, the system SMDR records the feature that originates a call. This feature does not have an effect for features that do not originate a call. For features that do not originate a call, the system does not produce a SMDR record.
	NOACDIGS	0 to 7	Number of access code digits. Enter the number of digits in the OUTWATS access code.
	SDT	Y	Second dial tone. Enter Y if second dial tone is necessary.
	DGCOLNM	1- to 8-character name	Digit collection name. Enter the name assigned to the block of data in table DIGCOL for digit collection for the IBN lines. The name is 1- to 8-characters.
	CRL	N	Code restriction level. Enter N.
	INTRAGRP	N	Intragroup. Enter N.
	NETTYPE	network type	Network type. Enter the network type.
	LATTR	0 to 4095	Line attribute. Enter the line attribute assigned to the OUTWATS access code.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appears in the following example. In the datafill, the translator CXDK and the access code dialed (9) index table IBNXLA. The CXDK and access code index table IBNXLA to reach the line or trunk. The system routes the call of the line or trunk. The translation selector is NET. The network type is GEN. The DGCOLNM is POTS. The LATTR (line attribute index 0) indexes table LINEATTR.

Belcore LAMA Format (continued)

MAP example for table IBNXLA

KEY		RESULT	
CXDK	9		
NET	N N N 1 Y	POTS	N N GEN (LATTR 0) \$

Datafilling subtable HNPACODE

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table HNPACODE appears in the following table. The fields that apply to Belcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling subtable HNPACODE

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter a numeric string where the leading three digits represent an office code in the home NPA. This number can represent a single code. This number can represent the first in a block of consecutive codes that have the same input data.
TODIGS		numeric	To digits. If field FROMDIGS represents a single code, enter the same single code as in FROMDIGS. If field FROMDIGS represents the first number of a block of consecutive numbers, enter the last number in the block.
CDRRTMT		see subfields	Code type, route reference, and treatment. This field contains subfields CD and RR.
	CD		Code type.
	RR	1 to 1023	Route reference index. Enter the route reference index of the route list in table HNPACONT.RTEREF to which translation is to proceed. Table HNPACONT.RTEREF is the same position SNPA as this table HNPACONT.HNPACODE.

Bellcore LAMA Format (continued)**Datafill example for subtable HNPACODE**

Sample datafill for subtable HNPACODE in table HNPACONT appears in the following example. In the example, 722 is the terminating office code identified for the intra-LATA Datapath call. Subtable HNPACODE routes the call to table TOFCNAME. Subtable HNPACODE uses SNPA 613 and office code 722 to route the call.

MAP example for subtable HNPACODE

FROMDIGS	TODIGS CDRRTMT
722	722 DN 613 722

Datafilling subtable STDPRT

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for subtable STDPRT appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

**CAUTION****Possible office billing alteration**

Changes in subtable STDPRT can alter office billing because of call code types. The call type default is NP. See the data schema section of this document for additional information on subtable STDPRT.

Datafilling subtable STDPRT (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter the digit or digits to translate. If the entry represents a block of consecutive numbers, enter the first number in the block.
TODIGS		numeric	To digits. Equal to the digits entered in FROMDIGS. If FROMDIGS represents a block of consecutive numbers, enter the last number of the block here.

Belcore LAMA Format (continued)

Datafilling subtable STDPRT (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, and CARRNAME.
	PRERTSEL		Pretranslation route selector. Enter the pretranslation route selector.
	TYPCALL	DD	Type of call. Enter DD for direct dial.
	NOPREDIG	0 to 7	Number of prefix digits. Enter the number of digits that the system interprets as prefix digits. Note: Where the switching unit provides circle digit operation, include the circle digit. Include the circle digit in the number of prefix digits to remove from the digit translation.
	CARRNAME		Carrier name. Enter the IC/INC carrier name that table OCCNAME defines.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT appears in the following example.

The received leading digit dialed for the intra-LATA Datapath call is 722. The first digit is 7. The call is a billable call (DD). The system uses North American (NA) translations.

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
7	810	N DD 0 NA

Bellcore LAMA Format (continued)**Datafilling table AMAOPTS**

The datafill for Bellcore LAMA Format for table AMAOPTS appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		UNANS_LOCAL and UNANS_TOLL	Option. Enter UNANS_LOCAL and UNANS_TOLL.
SCHEDULE		see subfield	Schedule. This field contains subfield AMASEL.
	AMASEL	ON	AMA selector. Enter ON to activate UNANS_LOCAL and UNANS_TOLL.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example. If recording of unanswered local calls is necessary, set UNANS_LOCAL to ON in table AMAOPTS. If recording of unanswered toll calls is necessary, set UNANS_TOLL to ON in table AMAOPTS. If recording of unanswered local and toll calls is necessary, set UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS.

MAP example for table AMAOPTS

OPTION	SCHEDULE
UNANS_LOCAL	ON
UNANS_TOLL	ON

Belcore LAMA Format (continued)

Datafilling table BCCODES

The datafill for Bellcore LAMA Format for table BCCODES appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Explanation and action
CALLTYPE		LOCAL, TOLL, HIGHREV, TOPS	Bellcore call type. Enter one of the following Bellcore call types: • LOCAL (local calls) • TOLL (toll calls) • HIGHREV (high-revenue calls) • TOPS (TOPS calls)
CODES		numeric	Bellcore call codes. Enter any combination of the Bellcore call codes. You can enter a maximum of 46 Bellcore call codes. Separate each call code with a blank column.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example. Key the entries in table BCCODES by the call type. The entries contain a list of call codes. The call codes determine when the system records unanswered and high-revenue AMA records. To generate unanswered records, set UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS. Enter LOCAL tuple in table BCCODES with call codes 072 and 117. Enter this field to generate unanswered local inter-LATA or intra-LATA Datapath calls.

MAP example for table BCCODES

CALLTYPE	CODES					
TOLL	(600)					
LOCAL	(007)	(068)	(111)	(114)	(072)	(117)

Bellcore LAMA Format (continued)**Datafill sequence of Datapath call datafill for Datapath AMA Format—Call Code 117 (BR0793)**

The following table lists the tables that require datafill to implement the Datapath AMA Format—Call Codes 072 and 117 feature. The tables are in the correct entry order to generate an inter-LATA call code 117.

Datafill requirements for datapath call datafill for an inter-LATA call code 117 (Sheet 1 of 2)

Table	Purpose of table
HNPACONT	List of HNPA code subtables. Lists the home or NPA and the STS.
STDPRTCT	List of standard pretranslation tables. Lists the names of the standard pretranslator subtables (STDPRTCT.STDPRT). The operating company defines the names of the pretranslator subtables.
DIGCOL	The IBN digit collection. Specifies the action that the line module takes. The first digit dialed determines the action. The IBN digit collection requires table DIGCOL.
CUSTHEAD	Customer group head. Lists the values and options assigned to groups.
OCCINFO	Equal Access Other Common Carrier information. Defines the attributes for carriers that serve the DMS switch. This table screens calls for carrier compatibility.
OFRT	Office route. Defines all carrier routes and operator service routes. Each tuple provides the route number and the route list. The route list must include a primary route. The route list can include alternate routes.
NCOS	Network class of service table. Describes the class of service assigned to the following: • attendant consoles • IBN stations • incoming IBN trunk groups • the incoming side of two-way IBN trunk groups • authorization codes • customer groups
LINEATTR	Line attribute. Provides a list of attributes associated with the line index assigned to every subscriber line.

Belcore LAMA Format (continued)

Datafill requirements for datapath call datafill for an inter-LATA call code 117 (Sheet 2 of 2)

Table	Purpose of table
KSETLINE	Business set feature keys. Contains data of DN appearances on business sets and DUs. Note: Enter this table through SERVORD. This document does not provide a datafill procedure. See SERVORD for an example of how to use SERVORD to enter this table.
IBNXLA	The IBN translation. Provides the instructions that use a virtual facility group to translate an OUTWATS call.
STDPRTCT. STDPRT	Standard pretranslator subtable. Sets up the translations for a specific call type.
AMAOPTS	The AMA options table. Controls the activation and scheduling of the recording options for local, toll, and high-revenue calls.
LATAXLA	Equal Access local access and transport area translation. Defines the attributes of domestic calls as inter-LATA or intra-LATA and as interstate or intrastate.
BCCODES	Bellcore codes. Allows the operating company to specify which unanswered calls create billing records.

Datafilling table HNPACONT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table HNPACONT appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table HNPACONT

Field	Subfield or refinement	Entry	Explanation and action
NPA		numeric	Serving translation scheme. Enter the three-digit SNPA or STS code. Note: A home or SNPA must have 1 or 0 for the the middle digit. Enter a home or SNPA in one of the first 16 positions. Line data, POTS VFG data, PBX trunk data, and tables DNINV, DNROUTE, and TOFCNAME can use SNPAs.
MAXRTE		numeric	Number of route references. Enter the quantity of route reference numbers. This field automatically extends to the highest route index in subtable HNPACONT.RTEREF. The maximum route index is 1023.
NOAMBIGC		0 to 159	Number of ambiguous codes. Enter the number of ambiguous codes required.

Datafill example for table HNPACONT

Sample datafill for table HNPACONT appears in the following example. The SNPA of the originating line is 613. Table HNPACONT contains the SNPA of the originating line. The SNPA appears in the following example.

MAP example for table HNPACONT

NPA	MAXRTE	NOAMBIGC	RTEREF	HNPACODE	ATTRIB	RTEMAP
613	127	1	(1)	(1)	(0)	(0)

Datafilling table STDPRTCT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table STDPRTCT appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Explanation and action
EXTPRTNM		alphanumeric	External standard pretranslator subtable name. Enter the name that the operating company defines to represent the standard pretranslator subtable. Do not enter the standard pretranslator name C7PT. The ISUP trunks automatically use the standard pretranslator name C7PT on test calls in offices with ISUP capability.

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following example. In this example, P621 is the pretranslator assigned to the originating line (DU). The P621 is the index into table STDPRTCT. The index into table STDPRTCT appeared in the previous datafill.

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
P621	(1)	(0)

Datafilling table DIGCOL

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table DIGCOL appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table DIGCOL (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DGKEY		see subfields	Digit collection key. This field contains subfields DATNAME and DIGIT.
	DATNAME	1-to 8-characters	Name of digit collection table. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL.

Bellcore LAMA Format (continued)**Datafilling table DIGCOL (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
DGDATA	DIGIT	0 to 9, STAR, OCT	Digit. Enter the digit (0 to 9), star (STAR), or octothorpe (OCT) that applies to the record.
		see subfield	Digit collection table. This field contains subfield DGCOLSEL.
	DGCOLSEL	RPT	Digit collection selector. Enter the selector RPT.

Datafill example for table DIGCOL

Sample datafill for table DIGCOL appears in the following example. Datapath digit collection requires table DIGCOL because IBN translation capabilities implement Datapath.

In this example, KDK is the digit collection tuple indexed. The DGDATA field specifies when action occurs. The digits dialed determine the actions taken. The RPT means that each time a digit is dialed, the system receives the digits. The system reports the digits to the central control.

MAP example for table DIGCOL

DGKEY		DGDATA
KDK	9	RPT

Datafilling table CUSTHEAD

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table CUSTHEAD appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appears in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table CUSTHEAD

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		1- to 16-character	Customer group name. Enter the 1- to 16-character name assigned to the customer group.
CUSTXLA		1- to 8-character	Customer translator. Enter the 1- to 8-character name assigned to the block of data (customer translator) in table IBNXLA. The block of data specifies the data for the translation of digits. The digits originate from an IBN station, attendant, incoming trunk group, or incoming side of a two-way trunk group.
DGCOLNM		1- to 8-character	Digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL. The block of data specifies the IBN digit collection for the IBN lines.
IDIGCOL		1- to 8-character, or NIL	International digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DGHEAD. This field only appears when the Open Number Translation feature (NTXB57AA) is in the load. Enter NIL if you do not enter the block data name.

Datafill example for table CUSTHEAD

Sample datafill for table CUSTHEAD appears in the following example. In this example, the customer group is COMKODAK, and the CUSTXLA is CXDK. The CUSTXLA indexes table IBNXLA. The DIGCOLNM name is KDK. The DIGCOLNM indexes table DIGCOL.

MAP example for table CUSTHEAD

CUSTNAME	CUSTXLA	DGCOLNM	IDIGCOL	OPTIONS
COMKODAK	CXDK	KDK	NIL	
(VACTRMT 0)	(EXTNCOS 0)	(ACCT 5)	(FETXLA CUSTFEAT)	
(PLMXLA PXDK)	(ERDT 7)	(AUTH COMKODAK N N)		
(SUPERCNF)	(ACR AUTH 1)	(CUTPAUSE 1)	(CUTMOUT10)	
(OCTXLA CUSTSHRP)	\$			

Bellcore LAMA Format (continued)**Datafilling table OCCINFO**

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table OCCINFO appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table OCCINFO (Sheet 1 of 6)

Field	Subfield or refinement	Entry	Explanation and action
CARRNAME		1- to 16-character alphanumeric	Carrier name. Enter the carrier name or a 1- to 16-character alphanumeric abbreviation of the carrier name. Enter the carrier name as the name appears in table OCCNAME. Leave this field empty if you use the generic recursive pretranslator. The generic recursive pretranslator associates with the reserved carrier name USE_PREVIOUS.
CARRNUM		000 to 999 or NIL	Carrier number. Enter the carrier access code (000 to 999). The carrier access code is equal to the XXX digits in the equal access prefixes (10XXX or 950YXXX). Enter NIL if you do not enter the carrier code. Note: This field only accepts 256 entries for each office.
ACCESS			Access arrangement. Enter the access type that the carrier accepts to handle a call.
INTER		Y or N	Inter local access transport area. Enter Y if the carrier can handle inter-LATA traffic. Enter N if the carrier cannot handle inter-LATA traffic.
INTNTL		Y or N	International. Enter Y if the carrier can handle international traffic. Enter N if the carrier cannot handle international traffic.
INTRA		Y or N	Intra local access transport area. Enter Y if the carrier can handle intra-LATA traffic. Enter N if the carrier cannot handle intra-LATA traffic.
ANI		Y or N	Automatic number identification. Enter Y if the carrier requires ANI digits with the called number. Enter N if the carrier does not require ANI digits with the called number.

Belcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 2 of 6)

Field	Subfield or refinement	Entry	Explanation and action
FANI		Y or N	Flexible automatic number identification. Enter Y if the carrier can receive flexible ANI (FANI) information digits instead of ANI information digits. Enter N if the carrier cannot receive FANI information digits instead of ANI information digits.
ONISCRN		Y or N	Operator number identification screening. Enter Y if ONI traffic requires screening by an operator or CAMA position before outpulsing to the carrier. Enter N if ONI traffic does not require screening before outpulsing.
AD1		Y or N	Abbreviated dialing number one. Enter Y if Abbreviated Dialing can access the carrier. Enter N if Abbreviated Dialing cannot access the carrier.
OVERLAP		Y or N	Overlap. Enter Y if the carrier receives digits from the access tandem. Enter Y if the carrier receives digits from the equal access end office that uses overlap outpulsing. Enter N if the carrier does not receive digits from the access tandem or equal access end office.
INTERS		Y or N	Inter-state. Enter Y if the carrier can handle traffic between states. Enter N if the carrier cannot handle traffic between states.
INTRAS		Y or N	Intra-state. Enter Y if the carrier can handle traffic in a state. Enter N if the carrier cannot handle traffic in a state.
TERMREC		LONG or SHORT	Terminating access record. Enter the length of the terminating access record produced for the carrier. The length of the terminating access record is LONG or SHORT. Refer to the <i>Belcore Format Automatic Message Accounting Reference Guide</i> , structure codes 653/664, for a description of terminating records.

Bellcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 3 of 6)

Field	Subfield or refinement	Entry	Explanation and action
OCCSEPNO		0 to 127	Other common carrier separation number. Enter the OCC separation number for the carrier in the Traffic Separations Measurement System. The OCC separation number is from 0 to 127.
OPSIG		FGRPC, NONE, FGRPD	Operator signaling. Enter the type of operator signaling that the carrier provides. This field eliminates the need to establish two carriers with the same access code in table OCCINFO. This field allows transitional or equal access plan carriers to perform FGC operator signaling. Enter one of the following codes: - enter FGRPC for Feature Group D carriers that require Feature Group C operator signaling - enter NONE for all other Feature Group D carriers - enter FGRPD as the equivalent to NONE at this time Note: For FGC carriers, enter NONE or FGRPC. The values do not affect operator signaling to the FGC carrier. The system ignores this field for FGC carriers.
PICIND		Y or N	Presubscription indicator. Enter Y if the carrier receives the presubscription indicator. Enter N if the carrier receives the presubscription indicator. Note: Enter the PICIND for every entry in table OCCINFO.

Belcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 4 of 6)

Field	Subfield or refinement	Entry	Explanation and action
NOA950		Y or N	Nature of address indicator. Enter Y to indicate that the type of address indicator in the calling party number parameter is set. Enter N to indicate that the nature of address indicator in the calling party number parameter is set to the normal value. Note: The default value of N does not cause a change in the current operation of the switch. A value of Y indicates a call from a public station, a hotel/motel line, or a non-EAEO (equal access end office).
INCCPN		Y or N	Include calling party number. Enter N to remove the calling party number parameter from initial address messages sent to this carrier. Enter Y if a change in the current operation of the switch is not necessary. The Y is the default value.
DTMFIND		Y or N	Rotary dial/dual tone multifrequency (DTMF) indicator. Enter Y if the carrier receives the rotary dial/DTMF indicator on operator services calls that route directly to the carrier. Enter N if the carrier does not receive the rotary dial/DTMF indicator. Note: Enter the DTMFIND for every entry in table OCCINFO. The DTMFIND is active when feature package NTX888 is present.
OPSERV		Y or N	Operator services. Enter Y if the carrier accepts EAOSS. The carrier does not require the operating company to process 10XXX+0 and 00 calls to the carrier. Enter N if the carrier does not accept EAOSS. The carrier requires the operating company to process 10XXX+0 and 00 calls to the carrier. Note: Enter OPSERV for every entry in table OCCINFO. The OPSERV is active when feature package NTX888AA is present.

Bellcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 5 of 6)

Field	Subfield or refinement	Entry	Explanation and action
CACBLOCK		Y or N	Carrier access code blocking. Enter Y if the carrier blocks all calls dialed with a carrier access code. Enter N for all other carriers. Note: Enter CACBLOCK for every entry in table OCCINFO. The CACBLOCK is active when feature package NTX989AA is present.
CTDOA		Y or N	Carrier toll deny (CTD) operator assisted. Enter Y to block OA calls to this carrier. The subscriber has the CTD line option applied for this carrier. Enter N if the system does not block calls to this carrier. The N is the default value.
CMCMON		Y or N	Cellular mobile carrier monitor. Enter Y to monitor the connection between the CMS and IC/INC. Enter Y to place the called DN in the originating IC/INC and terminating CMC billing records. Enter N if the system does not monitor the connection or place the called DN in the billing records.
SCRNWATS		Y or N	Enhanced WATS screening. Enter Y if the carrier requires band screening on digits dialed from an Enhanced WATS line. Enter N if the carrier does not require band screening. Note: The SCRNWATS applies when software package NTXA16AA is present.
CRMCRA		Y or N	Circuit reservation and acknowledgment messages. Enter Y if an access tandem (AT) sends a circuit reservation message (CRM) to an interexchange carrier (IEC). The AT sends the CRM on FGD calls outgoing over SS7 trunk group type ATC trunks. The AT receives a circuit reservation acknowledgment (CRA) message from the IEC. The AT receives the CRA on FGD calls incoming to the AT. The calls are incoming to the AT on multifrequency intertoll or SuperCAMA trunks. Multifrequency trunks belong to trunk type IT. SuperCAMA trunks belong to trunk group SC. Enter N if these conditions do not occur.

Belcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 6 of 6)

Field	Subfield or refinement	Entry	Explanation and action
ATPINCL		Y or N	Access transport parameter included. Enter Y if the IAM message to the IEC includes an access transport (ATP). Enter N if an IAM message sent to the IEC does not contain an ATP.
INTRAOPR		Y or N	Intra-LATA operator. Enter Y if a carrier can handle intra-LATA operator calls. Enter N if the carrier cannot handle intra-LATA calls.

Datafill example for table OCCINFO

Sample datafill for table OCCINFO appears in the following example. The carrier for the inter-LATA Datapath call that the datafill translates is ABC. The datafill translates the 121 ABC access code according to the following datafill.

MAP example for table OCCINFO

```

CARRNAME CARRNUM ACCESS INTER INTNTL INTRA ANI FANI
ONISCRN AD1 OVERLAP
INTERS INTRAS TERMREC OCCSEPNO OPSIG PICIND NOA950
INCCPN DTMFIND OPSERV
CACBLOCK CTDOA CMCMON SCRNWATS CRMCRA ATPINCL
INTRAOPR

```

ABC	121	EAP	Y	Y	Y	Y	Y
Y	Y	Y					
Y	Y	LONG	0	NONE		N	N
N	Y	N					
N	Y	N	N	Y		N	
N							

Datafilling table OFRT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table OFRT appears in the following table. The fields that apply to Belcore LAMA

Bellcore LAMA Format (continued)

Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table OFRT

Field	Subfield or refinement	Entry	Explanation and action
RTE		0 to 1023	Route reference index. If the record is the first in the route list, enter the route reference number assigned to the route list.
RTELIST		see subfields	Route list. This field contains the subfields RTESEL, CONNTYPE, CLLI, and ROUTATTR_INDEX.
	RTESEL	S or SX	Route selector. Enter S and datafill refinements CONNTYPE and CLLI if the route is standard. Enter SX and datafill refinements CLLI and ROUTATTR_INDEX if the route is expanded standard.
	CONNTYPE	D	Connection type. Enter D to satisfy the table editor. The system logic does not use this field.
	CLLI	alphanumeric	Common language location identifier. Enter the code in table CLLI to which translation is to route.
	ROUTATTR_INDEX	alphanumeric	Route attribute index. Enter the index in table ROUTATTR that contains the expanded routing information to apply to the call.

Datafill example for table OFRT

Sample datafill for table OFRT appears in the following example. The key is 321. The key is indexed from subtable STDPRT. The route selector is S. Standard digit manipulation is necessary. The system routes the call over the OGEEABC trunk to complete the call.

MAP example for table OFRT

RTE	RTELIST
321	(S D OGEEABC) \$

Belcore LAMA Format (continued)

Datafilling table NCOS

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table NCOS appears in the following table. The fields that apply to Belcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table NCOS

Field	Subfield or refinement	Entry	Explanation and action
CUSTGRP		1- to 16- characters	Customer group name. Enter the 1- to 16-character code assigned to the customer group.
NCOS		0 to 511	Network class of service number. If this field is the first record for the NCOS number, enter the NCOS number. If this is not the first record, leave this field blank.
NCOSNAME		1- to 6-characters	Network class of service name. If this field is the first record for the NCOS number, enter the name assigned to the NCOS number. The name is for the key and lamp display. The name assigned to the NCOS number is a 1- to 6-character name. If this field is not the first record, leave this field blank.
LSC		0 to 31	Line screening code. If this field is the first record for the NCOS number, enter the line screening code assigned to the NCOS number.
TRAFSNO		0 or 10 to 127	Traffic separation number. If this field is the first record for the NCOS number, enter the traffic separation number. Enter the traffic separation number assigned to the NCOS number in table TFANINT. Enter O if the traffic separation number is not necessary.

Datafill example for table NCOS

Sample datafill for table NCOS appears in the following example. The customer group name in table IBNLINES indexes this table.

Bellcore LAMA Format (continued)**MAP example for table NCOS**

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
COMKODAK	0	KDKO	0	0	(OHQ 0TONE_OHQ) (CBQ 0 3 N 2) \$

Datafilling table LINEATTR

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table LINEATTR appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document. This table provides the attributes associated with the data unit that originates the call. This table provides the pretranslator route selector.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Explanation and action
LNATTIDX		0 to 4095	Line attribute index. Enter the line attribute index.
LCC		1- to 5- alphanumeric or NLCC	Line class code. Enter the LCC assigned to the line attribute index. You cannot change the LCC of a current tuple.
		1- to 5- alphanumeric	
PRTNM		1- to 4- alphanumeric or NPRT	Standard pretranslator subtable name. If pretranslation of digits is necessary, enter the name of the standard pretranslator subtable assigned to the line attribute index. If standard pretranslation is not necessary, enter NPRT.
LCANAME		1- to 5- alphanumeric or NLCA	Local calling area screening subtable name. If screening of local NNX codes is necessary, enter the name of the local calling area subtable. Enter the name of the local calling area subtable assigned to the line attribute index. If screening is not necessary, enter NLCA.
LATANM		1- to 8- alphanumeric	Local access and transport area name. Enter the name of the LATA associated with this line attribute.

Belcore LAMA Format (continued)

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example. In the datafill example, P621 is the pretranslator that indexes subtables STDPRT and HNPACONT. The L613 indexes table LCASCRN. The LATA1 indexes table LATAXLA.

For BCS34 and later versions, LCABILL and HOT are removed as fields in table LINEATTR and placed as options in field OPTIONS.

MAP example for table LINEATTR

LNATTIDX	LCC	CHGCLSS	COST	SCRNCL	LTG	STS	PRTNM	LCANAME
ZEROMPOS	TRAFSNO							
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS		
		RESINF				OPTIONS		
0	1FR	NONE	NT	FR01	0	613	P621	L613
	TSPS	10						
NIL	NILSFC	LATA1	0	NIL		NIL	00	
			N				\$	

Datafilling table IBNXLA

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table IBNXLA appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfields	Key. This field contains subfields XLANAME and DGLIDX.
	XLANAME	alphanumeric	Translator name. Enter the 1- to 8-character name assigned to the translator.
	DGLIDX	1- to 18-digits	Digilator index. Enter the digits or digits assigned as the OUTWATS access code.
RESULT		see subfields	Result. This field contains subfields TRSEL, ACR, SMDR, NOACDIGS, SDT, DGCOLNM, CRL, INTRAGRP, NETTYPE, and LNATTR.
	TRSEL	NET	Translator selector. Enter the translation selector NET.

Bellcore LAMA Format (continued)

Datafilling table IBNXLA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	ACR	Y or N	Account code entry. Enter N when an account entry is not necessary.
	SMDR	Y or N	Station message detail recording. Enter N when the system does not record calls. Note: If set to Y, only the feature that originates a call is SMDR recorded. For features that do not originate a call, this field does not have an effect. The system does not produce an SMDR record.
	NOACDIGS	0 to 7	Number of access code digits. Enter the number of digits in the OUTWATS access code.
	SDT	Y or N	Second dial tone. Enter Y if second dial tone is necessary.
	DGCOLNM	1- to 8- digit alphanumeric	Digit collection name. Enter the name assigned to the block of data in table DIGCOL for digit collection for the IBN lines. The name is a 1- to 8-character name.
	CRL	N	Code restriction level. Enter N.
	INTRAGRP	N	Intragroup. Enter N.
	NETTYPE		Network type. Enter the network type.
	LATTR	0 to 4095	Line attribute. Enter the line attribute index assigned to the OUTWATS access code.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appears in the following example. In the datafill, the translator CXDK and the access code dialed (9) index table IBNXLA. The translator and the access code index IBNXLA to reach the line or trunk. The call routes over the line or trunk. The translation selector is NET. The network type is GEN. The DGCOLNM is POTS. The LATTR (line attribute index 0) indexes table LINEATTR.

Belcore LAMA Format (continued)

MAP example for table IBNXLA

KEY		RESULT
CXDK	9	
NET N N N 1 Y	POTS N N GEN (LATTR	0) \$

Datafilling subtable STDPRT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for subtable STDPRT appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.



CAUTION

Possible office billing alteration

Changes in subtable STDPRT can alter office billing because of call code types. The call type default is NP. Refer to the data schema section of this document for additional information on subtable STDPRT.

Datafilling subtable STDPRT (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter the digit or digits to translate. If the entry represents a block of consecutive numbers, enter the first number in the block.
TODIGS		numeric	To digits. Enter the number equal to the digits entered in FROMDIGS. If FROMDIGS represents a block of consecutive numbers, enter the last number of the block at this time.
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, CARRNAME, RTEAREA, RTEPRSNT, EXTRTEID, TABID, KEY, MINIDIGSR, MAXDIGSR, and OCS.

Bellcore LAMA Format (continued)**Datafilling subtable STDPRT (Sheet 2 of 3)**

Field	Subfield or refinement	Entry	Explanation and action
	PRERTSEL		Pretranslation route selector. Enter the pretranslation route selector.
	TYPCALL	DD	Type of call. Enter DD for direct dial.
	NOPREDIG	0 to 7 digits	Number of prefix digits. Enter the number of digits that the system interprets as prefix digits. When the switching unit provides for circle digit operation, include the circle digit in the number of prefix digits. Include the circle digit in the number of prefix digits to remove from the digit translation.
	CARRNAME		Carrier name. Enter the IC/INC carrier name that table OCCNAME defines.
	RTEAREA	see subfields	Route area. This field contains subfields RTEPRSNT, EXTRTEID, MINIDIGSR, and MAXDIGSR.
	RTEPRSNT	Y or N	Route present. Enter Y if the system sends a call to a route from pretranslation. If this condition occurs, enter all the fields that remain.
	EXTRTEID	see subfields	External route identifier. This field contains subfields TABID and KEY.
	TABID	OFRT	Table name. Enter OFRT. Table OFRT contains the route for the FGB call.
	KEY	0 to 1023	Index. Enter the index in table OFRT that the call uses for routing.
	MINIDIGSR	1 to 15 digits	Minimum digits received. If field RTEPRSNT is Y, enter the minimum number of digits to collect before the system routes the call.

Belcore LAMA Format (continued)

Datafilling subtable STDPRT (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	MAXDIGSR	1 to 24 digits	Maximum digits received. If field RTEPRSNT is Y, enter the minimum number of digits to collect before the system routes the call.
	OCS	Y or N	Overlap carrier selection. If field RTEPRSNT is N, leave this field blank. To establish Overlap Carrier Selection, set fields RTEPRSNT, OCS, and OVERLAP in table OCCINFO to Y. In any other condition, an overlap does not occur.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT in table STDPRTCT appears in the following example.

The leading digits dialed for the inter-LATA Datapath call are 10121. When the 10121 tuple is indexed, the call is an Equal Access billable (DD) call. The carrier that routes the call is ABC. The system translates the call to table OFRT for additional routing instructions. The 321 indexes table OFRT.

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
10121	10121	EA DD 5 N ABC Y OFRT 321 6 20 N

Datafilling table AMAOPTS

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table AMAOPTS appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		UNANS_LOCAL and UNANS_TOLL	Option. Enter UNANS_LOCAL and UNANS_TOLL.
SCHEDULE		see subfield	Schedule. This field contains subfield AMASEL.
	AMASEL	ON	The AMA selector. Enter ON to activate UNANS_LOCAL and UNANS_TOLL.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example. If recording of unanswered local calls is necessary, set UNANS_LOCAL to ON in table AMAOPTS. If recording of unanswered toll calls is necessary, set UNANS_TOLL to ON in table AMAOPTS. If recording of unanswered local and toll calls is necessary, set UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS.

MAP example for table AMAOPTS

OPTION	SCHEDULE
UNANS_LOCAL	ON
UNANS_TOLL	ON

Datafill sequence for TR-508 AMA Compliance II (AN0101)

The following table requires datafill to provide TR-508 AMA Compliance II (AN0101).

Datafill requirements for Bellcore LAMA Format

Table	Function of table
	AMA Options Table. This table controls the activation and time of the recording options for local, toll, and high-revenue calls.

Datafilling table AMAOPTS

Datafill for TR-508 AMA Compliance II (AN1010) for table AMAOPTS appears in the following table. The fields that apply to Bellcore LAMA Format

Belcore LAMA Format (continued)

appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		BCLONGCALL	Option. Enter BCLONGCALL.
SCHEDULE		see subfields	Schedule. This field contains subfields: AMASEL, ONDATE, ONTIME, OFFDATE, OFFTIME, SCHED, TV, and TU. Descriptions of these subfields follow.
	AMASEL	PERIODIC	AMA selector. Enter PERIODIC to activate BCLONGCALL at the specified date and time to perform the interval activity. Complete subfields ONDATE and ONTIME to specify the date and time for activation. Complete subfield SCHED for the time intervals to perform the activity.
	ONDATE	YYMMDD	Activation on date. Enter the year, month, and day that the system activates the option. The format is YYMMDD.
	ONTIME	HHMM	Activation on time. Enter the hour and minute the system activates the option. The format is HHMM.

Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS. Base AMA provides the function of these tuples.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
BCLONGCALL PERIODIC 821215 0000 24	HRS

Bellcore LAMA Format (continued)**Datafill sequence of an OUTWATS station billing for BC AMA Inter-LATA WATS Call Code 111 (BC1698)**

The tables that require datafill to provide BC AMA Inter-LATA WATS Call Code 111 (BC1698) feature appear in the following table. This feature is for an OUTWATS station billing. This feature affects data tables when an IBN line originates an OUTWATS call that uses inter-LATA carriers/international carriers (IC/INC). This table provides the datafill sequence for data tables affected. The tables appear in the correct entry order.

Datafill requirements for Bellcore LAMA Format (Sheet 1 of 2)

Table	Function of table
HNPACONT	List of HNPACONT Code Subtables Table. All the correct home or serving numbering plan areas (NPA) and serving translation schemes (STS) appear in this table.
STDPRTCT	List of Standard Pretranslation Tables Table. The names of the standard pretranslator subtable (STDPRTCT.STDPRT) that the operating company defines appear in this table.
VIRTGRPS	Virtual Facility Group Table. This table provides a mechanism to eliminate the loop-around trunks. Loop-around trunks provide IBN INWATS and OUTWATS, and to provide equal access abilities.
VFGDATA	Virtual Facility Group Data Table. This table allows non-operating company user to access data in table VIRTGRPS. Non-operating company users can only access tables VFGDATA and VFGENG. A change in the data in tables VFGDATA and VFGENG affects the data in table VIRTGRPS. A change in table VIRTGRPS affects the data in tables VFGDATA and VFGENG
DIGCOL	IBN Digit Collection Table. This table specifies the action that the line module must perform. The action depends on the first digit dialed. The IBN digit collection requires table DIGCOL.
CUSTHEAD	Customer Group Head Table. The values and options assigned to groups appear in this table.
IBNRTE	IBN Route Table. This table contains route lists.
NCOS	Network Class of Service Table. This table describes the class of service assigned to attendant consoles, and IBN stations. This table describes the service assigned to incoming IBN trunk groups. This table describes the service assigned to the incoming side of two-way IBN trunk groups. This table describes the service assigned to authorization codes, and customer groups.
LINEATTR	Line Attribute Table. This table provides a list of features associated with the line index assigned to each subscriber line.

Belcore LAMA Format (continued)

Datafill requirements for Bellcore LAMA Format (Sheet 2 of 2)

Table	Function of table
IBNLINES	IBN Line Assignment Table. This table contains the line assignments for each Integrated Business Station number, attendant console, and multiple appearance directory number.
IBNXLA	IBN Translation Table. This table provides the instructions that translate the OUTWATS call with a VFG.
OWATZONE	OUTWATS Zone Table. Provides the OUTWATS zone associated with each FNPA for each SNPA.
ZONEORDR	Zone Order Table. Identifies if a call from one zone is correct in another zone.
HNPACONT. RTEREF	Home NPA Route Reference Subtable. This table defines the routing for each NPA in table HNPACONT.
HNPACONT. HNPACODE	HNPA CODE Subtable. This table identifies the route, treatment or table to which translations must route. This condition occurs for each three-digit serving NPA (SNPA) or STS that table HNPACONT defines.
STDPRTCT. STDPRT	Standard Pretranslator Subtable. This table sets up the translations for a specified call type.
LATANAME	Equal Access Local Access and Transport Area Name Table. This table provides a list of all operating company names of the LATA that the switch serves.
LATAXLA	Equal Access Local Access and Transport Area Translation Table. This table defines the features of domestic calls as inter-LATA or intra-LATA as Interstate or Intrastate.
AMAOPTS	AMA Options Table. This table controls the activation and time of the recording options for local, toll, and high-revenue calls.
BCCODES	Belcore Codes Table. This table allows the operating company to specify which calls that are not answered create billing records.

The following tables describe each data table accessed during call processing. These tables use a Virtual Facility Group (VFG) to translate an IBN OUTWATS call. This call generates AMA records that call codes 111 and 114 identify.

Datafilling table HNPACONT

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table HNPACONT appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table HNPACONT

Field	Subfield or refinement	Entry	descriptionand action
STS		numeric	Serving translation scheme. Enter the three-digit serving numbering plan areas (SNPA) or serving translations schemes (STS) code. Note: A home or serving NPA must have 1 or 0 as the center digit. A home or serving NPA must be in one of the first 16 positions. Only SNPAs are for line data, POTS VFG data, PBX trunk data, and tables DNINV, DNROUTE, and TOFCNAME.
NORTREFS		numeric	Number of route references. Enter 2 for the quantity of route reference numbers. This field automatically extends to the highest route index (a maximum of 1023) in use in subtable HNPACONT.RTEREF.
NOAMBIGC		0 to 1000	Number of ambiguous codes. Enter the number of ambiguous codes (0 to 1000) required.

Datafill example for table HNPACONT

Sample datafill for table HNPACONT appears in the following example.

MAP example for table HNPACONT

STS	NORTREFS	NOAMBIGC	RTEREF	HNPACODE	ATTRIB	RTEMAP
613	127	1	(46)	(1)	(84)	(0)

Datafilling table STDPRTCT

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table STDPRTCT appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Description and action
EXTPRTNM		alphanumeric (a maximum of 8 characters)	External standard pretranslator subtable name. Enter the name that the operating company defines to indicate the standard pretranslator subtable. This action does not apply for standard pretranslator name C7PT. Integrated services digital network user part (ISUP) trunks use this name automatically on test calls in offices with ISUP capability.
Note: The maximum number of tuples in table STDPRTCT is 4 095.			

In table STDPRTCT, a standard pretranslator is assigned to each line attribute when the line class code (LCC) permits origination of calls. The operating company assigns the name of the pretranslator. The name of the pretranslator assigned in table LINEATTR is OWT1.

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following example.

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
OWT1	(1)	(0)

Datafilling table VIRTGRPS

Virtual facility groups (VFG) simulate loop-around trunks that provide IBN OUTWATS. When access to VFG occurs, the switch checks for available virtual facilities. If virtual facilities are not available, the system blocks the call. If virtual facilities are available, the VFG translates the call again. If the incoming type is POTS, POTS translations translates the call.

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table VIRTGRPS appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Description and action
KEY		1 to 6 characters	Virtual facility group key. Enter a 1 to 6 character name the user defines if this entry is the first entry for the VFG. The addition of the tuple defines the name. Other tables that require VFGs can use this name. Leave this field blank if this entry is not the first entry.
DATA		see subfields	Virtual facility group data. This field contains the subfields described below.
	VFGTYPE	SIZE, a space, and a number from 0 to 2 048	Virtual facility group type. Enter SIZE, a space, and a number from 0 to 2 048, if this entry is the first entry for the VFG. This entry specifies the number of simultaneous accesses this VFG allows. Enter USES if this entry is not the first entry.
	INCTYPE	POTS, blank	Incoming type. Enter POTS when the call enters the POTS translation environment if this entry is the first entry for the VFG. Leave this field blank if this entry is not the first entry.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example. The datafill describes translations that proceed to POTS translations and index to table LINEATTR.

MAP example for table VIRTGRPS

KEY				DATA				OPTIONS			
OWZNE4	SIZE	2	POTS		N	8	Y				
			(					EA	ABC	Y)	\$
OWZNE4	SIZE	2	POTS	6136214455	8	Y					
			(					EA	ABC	Y)	\$

Belcore LAMA Format (continued)

For a 111 AMA record, a special billing number is not assigned. The originating IBN DN is the billing number recorded. For a 114 AMA record, a billing number is entered with data in the BILLNUM field.

Datafilling table VFGDATA

Table VFGDATA enters data in table VIRTGRPS. The user must enter data in table VFGDATA and not table VIRTGRPS.

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table VFGDATA appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VFGDATA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
KEY		1 to 6 characters	Virtual facility group name and type direction. Enter the 1 to 6 character name assigned to the VFG in table VIRTGRPS. Enter the type and direction for incoming POTS.
DATA		see subfields	Data. This field contains subfields TYPEDIR, BILLNUM, CUSTGRP, SUBGRP, TRC, NCOS, INTRAGRP, SMDR, CDR, OPTIONS, and FACILITY. Descriptions of these subfields follow.
	TYPEDIR	POTSVI	Type and direction. This field contains the type and direction for the Integrated Business Network (IBN). Enter POTSVI for the type and direction of the incoming POTS.
	BILLNUM	alphanumeric (a maximum of 11 characters), N	Billing number. Enter the data from field BILLNUM of table VIRTGRPS.
	LINEATTR	0 to 2047	Line attribute index. This subfield contains the data in field LINEATTR of table VIRTGRPS.
	LINECDR	Y or N	Line call detail recording. This subfield contains the data in field LINECDR of table VIRTGRPS.
	OPTIONS	see subfield	Options. This field contains subfield OPTION.
	OPTION	VFGEA	Option. Enter VFGEA. Enter subfields PIC and CHOICE.

Bellcore LAMA Format (continued)**Datafilling table VFGDATA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
	PIC	alphanumeric	Preferred inter-LATA carrier. This subfield contains the data in field PIC for the option EA in table VIRTGRPS.
	CHOICE	Y or N	Choice. This field contains the data in field CHOICE for the option EA in table VIRTGRPS.

Datafill example for table VFGDATA

Sample datafill for table VFGDATA appears in the following example. If field TYPEDIR is incoming and POTS, enter POTSVI.

MAP example for table VFGDATA

KEY	DATA
OWZNE4 POTSVI	
POTSVI	N 8 Y (VFGEA ABC Y) \$
OWZNE4 POTSVI	
POTSVI	6136214455 8 Y (VFGEA ABC Y) \$

Datafilling table DIGCOL

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table DIGCOL appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table DIGCOL (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
DGKEY		see subfields	Digit collection key. This field contains subfields DATNAME and DIGIT.
	DATNAME	alphanumeric	Name of digit collection table. Enter the 1 to 8 character name assigned to the block of data in table DIGCOL.
	DIGIT	0 to 9, STAR, OCT	Digit. Enter the digit (0 to 9), star (STAR) or octothorpe (OCT) that applies to the record.

Belcore LAMA Format (continued)

Datafilling table DIGCOL (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description and action
DGDATA		see subfield	Digit collection table. This field contains subfield DGCOLSEL. A description of this subfield follows.
	DGCOLSEL		Digit collection selector. Enter the selector RPT.

Datafill example for table DIGCOL

Sample datafill for table DIGCOL appears in the following example. The value KDK 4 is the digit collection tuple indexed.

MAP example for table DIGCOL

DGKEY	DGDATA
KDK	4 RPT

Datafilling table CUSTHEAD

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table CUSTHEAD appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table CUSTHEAD (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
CUSTNAME		1 to 16-character	Customer group name. Enter the 1 to 16 character name assigned to the customer group.
CUSTXLA		1 to 8-character	Customer translator. Enter the 1 to 8-character name assigned to the customer translator block of data in table IBNXLA. Table IBNXLA specifies the data for the translation of digits. These digits originate from an IBN station, attendant, incoming or incoming side of a two-way trunk group.

Bellcore LAMA Format (continued)**Datafilling table CUSTHEAD (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
DIGCOLNM		1 to 8-character	Digit collection name. Enter the 1 to 8-character name assigned to the block of data in table DIGCOL. Table DIGCOL specifies the IBN digit collection for the IBN lines.
IDIGCOL		1 to 8-character, NIL	International digit collection name. Enter the 1 to 8-character name assigned to the block of data in table DGHEAD. This field appears only when the Open Number Translation feature (NTXB57AA) is in the load. For any other condition, enter NIL.
OPTIONS		list of options and associated subfields	Options. Enter the list of options and associated subfields assigned to the customer group.

Datafill example for table CUSTHEAD

Sample datafill for table CUSTHEAD appears in the following example.

MAP example for table CUSTHEAD

```

CUSTNAME  CUSTXLA      DGCOLNM IDIGCOL
          OPTIONS
-----
COMKODAK   CXDK        KDK      NIL
( VACTRMT 0) ( EXTNCOS 0) ( ACCT 5)
( FETXLA CUSTFEAT) ( PLMXLA PXDK) ( ERDT 7)
( AUTH COMKODAK N N) (SUPERCNF)( ACR AUTH 1)
( CUTPAUSE 1) ( CUTMOUT10) ( OCTXLA CUSTSHRP) $

```

Each group of IBN stations is assigned to a customer group. In the previous datafill example, the customer group is COMKODAK, the CUSTXLA name is CXDK. The name CXDK indexes table IBNXLA. The DIGCOLNM is KDK, that indexes table DIGCOL.

Datafilling table IBNRTE

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table IBNRTE appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear. See the data schema section of this document for a description of the other fields.

Datafilling table IBNRTE

Field	Subfield or refinement	Entry	Description and action
	IBNRTSEL	OW	IBN route selector. Enter OW.

Datafill example for table IBNRTE

Sample datafill for table IBNRTE appears in the following example. Digit translation in table IBNXLA causes the reference to index this table when the route selector is OW. The route selector translates to a VFG (OWZNE4).

MAP example for table IBNRTE

RTE	RTELIST
130	(OW N N N 1 V OWZNE4 0) \$

Datafilling table NCOS

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table NCOS appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table NCOS (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
CUSTGRP		1 to 16-character, blank	Customer group name. If this entry is the first record for the NCOS number, enter the 1 to 16-character code. This code is assigned to the customer group. If this entry is not the first record, this field remains blank.

Bellcore LAMA Format (continued)**Datafilling table NCOS (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
NCOS		0 to 511, blank	Network class of service number. If this entry is the first record for the NCOS number, enter the NCOS number (0 to 511). If this entry is not the first record, this field remains blank.
NCOSNAME		1 to 6-character, blank	Network class of service name. If this entry is the first record for the NCOS number, enter the 1- to 6-character name. This name is assigned to the NCOS number for the key and lamp display. If this entry is not the first record, this field remains blank.

Datafill example for table NCOS

Sample datafill for table NCOS appears in the following example. The entry for the customer group name in table IBNLINES indexes this table.

MAP example for table NCOS

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
COMKODAK	0	KDKO	0	0	(OHQ 0 TONE_OHQ) (CBQ 0 3 N 2) \$

Datafilling table LINEATTR

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table IBNRTE appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Description and action
LCC		alphanumeric	Line class code. Enter the line class code assigned to the line attribute index. The LCC of a current tuple cannot change.
STS		numeric	Serving translation scheme. Enter the serving NPA assigned to the line attribute index. The STS of a current tuple cannot change.
PRTNM		alphanumeric or NPRT	Standard pretranslator subtable name. If the system requires pretranslation of digits, enter the name of the Standard Pretranslator subtable assigned to the line attribute index. If the system does not require standard pretranslation, enter NPRT.
LATANM		alphanumeric	Local access and transport area name. Enter the name of the LATA associated with this line attribute.

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example. The NPA of the originating line is 613. The pretranslator of the originating line is OWT1. The LATA name is LATA1.

MAP example for table LINEATTR

```

LNATIDX LCC CHGCLSS COST SCRNL LTG STS PRTNM LCANAME ZEROMPOS
TRAFSNO
MRSA SFC LATANM MDI IXNAME DGCLNAME FANIDIGS
RESINF OPTIONS
-----
  8    OWT    NONE    NT    NSCR  0  613  OWT1  NLCA
TSPS   10
NIL NILSFC LATA1 0      NIL   NIL   00
              N              $

```

For BCS34 and later versions, the system removes fields LCABILL and HOT in table LINEATTR. The system places fields LCABILL and HOT as options in the options field.

Bellcore LAMA Format (continued)**Datafilling table IBNXLA**

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table IBNXLA appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
KEY		see subfields	Key. This field contains subfields XLANAME and DGLIDX. Descriptions of these subfields follow.
	XLANAME	1 to 8-character	Translator name. Enter the 1 to 8-character name assigned to the translator.
	DGLIDX	vector of a maximum of 18 digits	Digilator index. Enter the digits or digits assigned as the OUTWATS access code.
RESULT		see subfields	Result. This field contains subfields TRSEL, ACR, SMDR, NOACDIGS, SDT, DGCOLNM, CRL, INTRAGRP, NETTYPE, LNATTR, OWATZONE, INVZNFLX, and EXRTEID. Descriptions of these subfields follow.
	TRSEL	NET	Translator selector. Enter the translation selector NET.
	ACR	Y or N	Account code entry. Enter Y, if the system requires an account code entry when the OUTWATS access code specified in field DGLIDX is dialed. Enter N if the system does not require an account code entry.
	SMDR	Y or N	Station message detail recording. Enter Y, if calls to this access code are to be station message detail recorded. A customer group station or attendant console originated these calls. Enter N if calls are not to be recorded. Note: If set to Y, only the feature that originates a call produces a SMDR record. For features that do not originate a call, this field does not affect the call. The system does not generate an SMDR record for these features.

Bellcore LAMA Format (continued)**Datafilling table IBNXLA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
	NO_ ACCODE_ DIGITS	0 to 7	Number of access code digits. Enter the number of digits (0 to 7) in the OUTWATS access code.
	SECOND_ DIAL_TONE	Y or N	Second dial tone. Enter Y if second dial tone is necessary. For any other condition, enter N.
	DGCOLNM		Digit collection name. Enter the 1 to 8-character name assigned to the block of data in table DIGCOL. This action occurs for digit collection for the IBN lines.
	CRL	Y or N	Code restriction level. Enter Y if code restriction levels apply to this access code. For any other condition, enter N.
	INTRAGRP	Y or N	Intragroup. Enter Y if call is intragroup. For any other condition, enter N.
	NET_TYPE	OWT	Network type. Enter the network type OWT.
	LNATTR	0 to 1023	Line attribute. Enter the line attribute assigned to the OUTWATS access code. The range for the IBN treatment is 0 to 1 023.
	OWATZONE	AUTO	OUTWATS zone. Enter the OUTWATS zone that screens this call. Enter AUTO if the zone number is the zone that table OWATZONE specifies for the FNPA of the called number.
	INVZNFLX	0 to 63	Zone flexible intercept. Enter the IBN treatment to determine the route for out-of-zone calls. The range for the IBN treatment is 0 to 63.
	EXTRTEID	See the data schema section	External route identifier. This field contains subfields TABID and KEY. See the data schema section of this document for descriptions of these subfields.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table IBNXLA**

KEY		RESULT
CXDK	142	
NET N Y N 3 Y POTS N N OWT 8 1 9 IBNRTE		130

Translator name (CXDK) indexes table IBNXLA. This condition occurs because the OUTWATS access code is 142. The station dials the OUTWATS access code to reach the trunk group over which the call routes. The translation selector is NET. The network type is OWT. The DGCOLNM is POTS. The zone is 1. The DGCOLNM is POTS. The next table indexed is table LINEATTR. The value 8 indexes this table. After POTS translations, table IBNXLA routes the call to table IBNRTE indexed by 130. This action determines how to complete the call.

Datafilling table OWATZONE

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table OWATZONER appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table OWATZONE

Field	Subfield or refinement	Entry	Description and action
OWATCODE		see subfields	OUTWATS code. This key field contains subfields SVGNPA and DIGITS. Descriptions of these subfields follow.
	SVGNPA	numeric	Serving numbering plan area. Enter the SNPA.
	DIGITS	numeric	Digits. Enter the digits assigned to the zone. See the data schema section of this document for a description of this subfield.
ZONE		0 to 9, A, B, or C	OUTWATS zone. Enter the OUTWATS zone number assigned to the key field OWATCODE.

Datafill example for table OWATZONE

Sample datafill for table OWATZONE appears in the following example.

Belcore LAMA Format (continued)

MAP example for table OWATZONE

	OWATCODE	ZONE
613	9182411111	1

The serving NPA is 613. If the originator dials the number 2411111 in FNPA 918, the destination of the call is in zone 1.

Datafilling table ZONEORDR

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table ZONEORDR appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table ZONEORDR

Field	Subfield or refinement	Entry	Description and action
SVGNPA		3-digit serving or home NPA	Serving numbering plan area. Enter the 3-digit serving or home NPA.
ZONESETS		vector	Zone sets. Enter a vector. See the data schema section of this document for a description of this subfield.

Datafill example for table ZONEORDR

Table ZONEORDR identifies if a call from one zone is correct in another zone. Some zone sets contain only one zone. Only a call that originates from the same zone can terminate. In the following datafill example, a zone A call can terminate only to zone A. Zones grouped together allow termination according to the order of the zones. A zone 7 originator can terminate to any zone from 1 to 7. A zone 1 originator cannot terminate to zone 7.

Sample datafill for table ZONEORDR appears in the following example.

MAP example for table ZONEORDR

SVGNPA	ZONESETS
613	(0123456789ABC) \$

Bellcore LAMA Format (continued)

If the call is not authorized or out-of-zone, the system blocks the call.

The table editor enters data in table ZONEORDR. When you enter data in this table, leave a space between each set of zones. The system inputs the parentheses around each set of zones in the previous example.

Datafilling subtable RTEREF

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table RTEREF appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling subtable RTEREF (Sheet 1 of 2)

Field	Subfield	Entry	Description and action
RTE		1 to 1 023, blank	Route reference index. If the record is the first in the route list, enter the route reference number. The range of this number is 1 to 1 023. This number is assigned to the route list. See note. For any other condition, this field remains blank.
RTELIST		see subfields	Route list. This field contains the subfields RTESEL, CONNTYPE, CLLI, and ROUTATTR_INDEX. Descriptions of these subfields follow.
	RTESEL	S or SX	Route selector. Enter S and datafill refinements CONNTYPE and CLLI if the route is standard. Enter SX and datafill refinements CLLI and ROUTATTR_INDEX if the route is expanded standard.
	CONNTYPE	D	Connection type. Enter D to comply with the table editor. The system logic does not use this field.
Note: Field MAXRTE of tables HNPACONT, FNPACONT, and FNPACONT.FNPASTS extends automatically to the highest route index. Field RTE of subtables HNPACONT.RTEREF, FNPACONT.RTEREF, and FNPACONT.FNPASTS.RTEREF, use the highest route index.			

Belcore LAMA Format (continued)

Datafilling subtable RTEREF (Sheet 2 of 2)

Field	Subfield	Entry	Description and action
	CLLI	code in table CLLI to which translation routes	Common language location identifier. Enter the code in table CLLI to which translation routes.
	ROUTATTR INDEX	alphanumeric (1 to 16 characters)	Route attribute index. For route selector SX, enter the index in table ROUTATTR that contains the expanded routing information that applies to the call.
Note: Field MAXRTE of tables HNPACONT, FNPACONT, and FNPACONT.FNPASTS extends automatically to the highest route index. Field RTE of subtables HNPACONT.RTEREF, FNPACONT.RTEREF, and FNPACONT.FNPASTS.RTEREF, use the highest route index.			

Datafill example for subtable RTEREF

Sample datafill for subtable RTEREF appears in the following example.

MAP example for subtable RTEREF

RTE	RTELIST			
9	(	S	D	OGMF) \$

The system translates the call with subtable RTEREF that the 9 indexes. The translation of the call depends on the digits dialed. Subtable RTEREF contains the identity of the trunk group (OGMF in the example) from which an idle outgoing trunk is available. The call routes over the OGMF outgoing trunk for call completion.

Datafilling subtable HNPACODE

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table HNPACODE appears in the following table. The fields that apply to Belcore

Bellcore LAMA Format (continued)

LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling subtable HNPACODE

Field	Subfield	Entry	Description and action
FROMDIGS		numeric string	From digits. Enter a numeric string. The three digits of the string indicate an office code in the home NPA. This number can represent a single code. This number can indicate the first in a block of codes in sequence that have the same input data.
TODIGS		numeric	To digits. If field FROMDIGS indicates a single code, enter the same single code as in FROMDIGS.
CDRRTMT		see subfields	Code type, route reference and treatment. This field contains the subfields CD and RR. Descriptions of these subfields follow.
	CD	FRTE	Code type. Enter FRTE for foreign route.
	RR	1 to 1 023	Route reference index. Enter the route reference index of the route list in subtable HNPACONT.RTEREF. The range of this index is 1 to 1 023. Enter this index in the same position SNPA as this subtable HNPACONT.HNPACODE. Translation proceeds to this route reference index.

Datafill example for subtable HNPACODE

Sample datafill for subtable HNPACODE appears in the following example.

MAP example for subtable HNPACODE

FROMDIGS	TODIGS	
	CDRRTMT	
918		
918	FRTE	9

The previous example describes the 918 index to subtable HNPACODE. The 918 is the NPA of the digits dialed. Because the NPA of the originating line is 613, 918 is a foreign NPA (FNPA).

Belcore LAMA Format (continued)

Datafilling subtable STDPRT

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table STDPRT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Note: Changes in subtable STDPRT can affect office billing because of call code types. The call type default is NP. See data schema section of this document for information on subtable STDPRT.

Datafilling subtable STDPRT (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter the digit or digits that the system must translate. If the entry indicates a block of numbers in sequence, enter the first number in the block.
TODIGS		numeric	To digits. Equal to the digits entered in FROMDIGS. If FROMDIGS indicates a block of numbers in sequence, enter the last number of the block.
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, CARRNAME, RTEAREA, RTEPRSNT, EXTRTEID, TABID, KEY, MINIDIGSR, MAXDIGSR, and OCS. Descriptions of these subfields follow.
	PRERTSEL		Pretranslation route selector. Enter the pretranslation route selector.
	TYPCALL	DD, NP, OA, NL	Type of call. Enter the type of call: • DD - direct dial • NP - no prefix • OA - operator-assisted • NL - nil

Bellcore LAMA Format (continued)**Datafilling subtable STDPRT (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	NOPREDIG	0 to 7	Number of prefix digits. Enter the number of digits (0 to 7) to be prefix digits. The switching unit prepares for circle digit operation. The number of prefix digits to remove from the digit translation must include the circle digit.
	CARRNAME		Carrier name. Enter the carrier name that table OCCNAME defines.
	RTEAREA	see subfields	Route area. This field contains subfields RTEPRSNT, EXTRTEID, MINIDIGSR, and MAXDIGSR. Descriptions of these subfields follow.
	RTEPRSNT	N	Route present. Enter N if a national translation (table HPNACONT) route is to follow. The system does not prompt for subfields EXTRTEID, TABID, KEY, MINIDIGSR, and MAXDIGSR.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT appears in the following example.

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
17	19	
T	DD 1	IBNRTE 130 7 11 NONE

Subtable STDPRT is the first table that the received leading digits index. This action occurs only when the originating line attribute specifies a pretranslator name in table LINEATTR. The pretranslator name is OWT1. The received leading digits used for this example are 918. Because the first digit dialed is 9, the call is a billable call (DD). The call uses North American (NA) translations.

Belcore LAMA Format (continued)

Datafilling table LATANAME

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table LATANAME appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table LATANAME

Field	Subfield or refinement	Entry	Description and action
LATANAME		alphanumeric	LATA name. Enter all the LATA names that this office uses.
LATANUM		000 to 999	LATA number. Enter the LATA number for each LATA name entered in field LATANAME.

Datafill example for table LATANAME

Sample datafill for table LATANAME appears in the following example.

MAP example for table LATANAME

LATANAME	LATANUM
LATA1	000

Datafilling table LATAXLA

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table LATAXLA appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document.

Datafilling table LATAXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
LATACODE		see subfields	LATA code. This field contains subfields LATANM and DIGITS. Descriptions of these subfields follow.
	LATANM	alphanumeric	Calling LATA name. Enter the LATA name defined in table LATANAME.

Bellcore LAMA Format (continued)

Datafilling table LATAXLA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description and action
	DIGITS	numeric	Dialed digits. Enter the digits that the originator of the call dials. These digits are NPA or NPANXX. Enter only the digits for which one of the following sets of attributes applies: • Intra-LATA interstate • Inter-LATA interstate • Inter-LATA intrastate Note: The LATA and STATE fields define these attributes. See the data schema section of this document for a description of this subfield.
LATA		INTER or INTRA	LATA call attribute. Enter INTER to define an NPA or NPANXX code as inter-LATA. Enter INTRA to define an NPA or NPANXX code as intra-LATA.
STATE		INTER or INTRA	State call attribute. Enter INTER to define an NPA or NPANXX code as interstate. Enter INTER to define an NPA or NPANXX code as intrastate.
EATYPE		STD, CORRIDOR, PRIVILEGE, or NON_EA	Equal access call type. Enter the correct EA call type. See the data schema section of this document for a description of this subfield. • STD - standard • CORRIDOR - corridor • PRIVILEGE - privilege • NON_EA - non equal access

Datafill example for table LATAXLA

Sample datafill for table LATAXLA appears in the following example.

Belcore LAMA Format (continued)

MAP example for table LATAXLA

LATACODE	LATA	STATE	EATYPE
LATA1	918	INTER	INTER
			STD

Table LATAXLA defines the attributes of domestic calls as inter-LATA or intra-LATA and as interstate or intrastate. The system compares the attributes of the table with the attributes of table OCCINFO. This procedure determines the carriers that handle the calls. In the previous example, the system enters the call in inter-LATA and interstate. The call can originate in one LATA and state. That call terminates outside the originating LATA or to another LATA outside the state originated. For the originating line, calls in NPA 918 complete as inter-LATA interstate calls.

Datafilling table AMAOPTS

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table AMAOPTS appears in the following example. The fields that apply to Belcore LAMA Format appear. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		OUTWATS, UNANS_ LOCAL, and UNANS_TOLL	Option. Enter OUTWATS, UNANS_LOCAL, and UNANS_TOLL.
SCHEDULE		see subfield	Schedule. This field contains subfield AMASEL.
	AMASEL	ON	AMA selector. Enter refinement ON to activate OUTWATS, UNANS_LOCAL, and UNANS_TOLL.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table AMAOPTS**

OPTION	SCHEDULE
OUTWATS	ON
UNANS_LOCAL	ON
UNANS_TOLL	ON

Datafilling table BCCODES

Datafill for BC AMA Inter-LATA WATS Call Code 111 (BC1698) for table BCCODES appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Description and action
CALLTYPE		LOCAL, TOL, HIGHREV, and TOPS	Bellcore call type. Enter one of the following Bellcore call types. • LOCAL - local calls • TOLL - toll calls • HIGHREV - high-revenue calls • TOPS - TOPS calls
CODES		Bellcore call codes	Bellcore call codes. Enter any group of the Bellcore call codes. A blank column must separate each call code. See the table BCCODES in the data schema section of this document for a complete list of Bellcore call codes.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example.

Bellcore LAMA Format (continued)

MAP example for table BCCODES

CALLTYPE	CODES
TOLL	(006)
LOCAL	(007) (068) (111) (114)

The call type keys the entries in this table. This table contains a list of call codes that determine when the system records AMA records that are not answered and high revenue AMA records. To generate the records that are not answered, set the UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS. Enter call codes 111 and 114 in the LOCAL tuple in table BCCODES. Perform this action if the system must generate AMA records for inter-LATA OUTWATS calls that are not answered.

Datafill sequence for Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), Bellcore LAMA Format Enhancement (BC0683), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512)

The tables that require datafill to provide the following features appear in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) features

Bellcore LAMA Format (continued)

The tables appear in the correct entry order.

Datafill requirements for Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), Bellcore LAMA Format Enhancement (BC0683), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) (Sheet 1 of 2)

Table	Function of table
TRKGRP (group type IBNTO)	Trunk group table. This table defines the trunks over which the traffic routes.
VIRTGRPS	Virtual Facility Group Table. This table provides a mechanism to eliminate the loop-around trunks. Loop-around trunks provide IBN INWATS and OUTWATS and provide equal access abilities.
LENLINES (Note)	Line Assignment Table. This table contains information on line equipment numbers (LEN), the associated directory numbers (DN), and options that apply to the lines.
LENFEAT (Note)	Line Feature Table. The features associated with a specified line appear in this table.
IBNLINES (Note)	IBN Digital FX Trunk Table. The LEN, the DN, the signal type, the customer group, and the options appear in this table. Each IBN station number, attendant console, and multiple appearance directory number receives this information.
IBNFEAT (Note)	IBN Line Feature Table. This table lists the features that can be assigned to a line. Software checks line features to determine information that the system requires must record for AMA processing.
MRSANAME	List of Multi-Unit Message Rate Area Names Table. This table lists the message rate service area (MRSA) names. These names generate call codes 001 to 005 for calls that are outside a flat-rate local calling area.
MUMRTAB	Multi-Unit Message Rate Screening Table. This table determines the index to table MUMRMBI. The MRSA name in table LINEATTR or table TRKGRP and the digits dialed index this table.
MUMRMBI	Multi-Unit Message Rate Message Billing Index (MBI) Table. This table determines if the system recorded the called number, the timing data, or the (MBI) on an AMA device.
Note: You can use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Belcore LAMA Format (continued)

Datafill requirements for Bellcore CAMA Format (BR0378), Bellcore LAMA Format (BR0439), Bellcore LAMA Format Enhancement (BC0683), and IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) (Sheet 2 of 2)

Table	Function of table
AMAOPTS	AMA Options Table. This table controls the activation and time of the recording options for local, toll, and high-revenue calls.
BCCODES	Belcore Codes Table. This table allows the operating company to specify unanswered calls that create billing records. If an option is active in table AMAOPTS, the system searches table BCCODES for the call code that corresponds. If the system finds the code in table BCCODES, the system creates a billing record for that unanswered call.
Note: You can use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Datafilling table TRKGRP (group type IBNTO)

Datafill for the following features for table TRKGRP appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table TRKGRP (group type IBNTO)

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table TRKGRP (group type IBNTO)

Field	Subfield or refinement	Entry	Description and action
	OPTION	FACTYPE	Option. Enter FACTYPE.
	FACILITY	ETS	Facility. Enter ETS.

The Trunk Group (TRKGRP) table defines the trunks over which traffic routes. The system assigns IBN two-way (IBNT2) and IBN Outgoing (IBNTO) trunks in this data table. To generate call code 011, 021, 032, or 085 for DD calls that route over an IBNT2 or IBNTO trunk with POTS translations, assign the FACTYPE option. Assign the type of facility over which the call routes (FX,

Bellcore LAMA Format (continued)

CCSA, TDMTT, ETS). These options are only facility type names that can apply to IBN trunks. You can assign only one option at a time.

The following table describes the call codes associated with each facility type option assigned.

Call codes associated with a facility

Call code	Option assigned	Facility
011	FX	Foreign exchange, automatic flexible routing
021	CCSA	Common control switching arrangement
032	TDMTT	Tandem tie trunk
085	ETS	Electronic tandem switched

Datafill example for table TRKGRP (group type IBNTO)

Sample datafill for group type IBNTO in table TRKGRP appears in the following example. The sample datafill causes the system to generate an AMA record that call code 085 identifies. This action occurs when the system routes a call over the OGMF trunk.

MAP example for table TRKGRP (group type IBNTO)

GRPKEY

GRPINFO

OGMF

IBNTO 0 EL NCRT COMKODAK 0 MIDL ANSDISC 0 N 0 0 8 9 N N N N N
(FACTYPE ETS) \$

Datafilling table VIRTGRPS

Datafill for the following features for table VIRTGRPS appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table VIRTGRPS

Belcore LAMA Format (continued)

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Description and action
DATA		see subfields	Virtual facility group data. This field contains subfields MEMBERS and INCTYPE. A description of subfield INCTYPE follows.
	INCTYPE	IBN, POTS	Incoming type. Enter IBN if the call enters the Integrated Business Network (IBN) translation environment. Enter data in subfield BILLNUM and CUSTNAME. Enter POTS if the call enters the plain ordinary telephone service (POTS) translation environment. Enter data into subfields BILLNUM, LINEATTR and LINECDR.
	BILLNUM	1 to 11 digits or N	Billing number. Enter the billing number to which the system charges the next leg of the call. The range for the billing number is 1 to 11 digits. If the system charges the call to the billing number of the originator for the next leg of the call, enter N.
	CUSTNAME	alphanumeric (1 to 16) characters	Customer group name. Enter the customer group name.
	LINEATTR	0 to 2047	Line attribute index. Enter the line attribute index that specifies the translations and screening tables for the next leg of the call.
	LINECDR	Y or N	Line call detail recording. Enter Y if CDR must record virtual line type calls. Enter N if CDR is not required.
OPTIONS		see subfields	Options. Enter the list of options and associated subfields assigned to the VFG. A space must separate each option and the subfield of the option.
	OPTION	VFGAMA	Option. Enter VFGAMA.
	FACILITY	CCSA, TDMTT, FX, or ETS	Facility. Enter CCSA (common control switching arrangement), TDMTT (tandem tie trunk), FX (foreign exchange), or ETS (electronic telephone set).

Bellcore LAMA Format (continued)

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS for the following example.

MAP example for table VIRTGRPS

KEY	DATA										OPTIONS
OWZNE4	SIZE	2	POTS			N	8	Y			
				(				EA	ABC	Y)	\$
OWZNE4	SIZE	2	POTS					8	Y		
				(				EA	ABC	Y)	\$
GOCIWT	SIZE	1	IBN	N	IBNTST	0	0		0	N	
						(		VFGAMA	CCSA)		
											\$

Virtual facility groups (VFG) simulate loop-around trunks. The loop-around trunks route IBN OUTWATS, IBN INWATS, common control switching arrangement, and equal access calls. To generate call code 068 for an IBN OUTWATS call, enter a special billing number in BILLNUM field of table VIRTGRPS. To generate call code 007, enter N in the BILLNUM field of table VIRTGRPS. To generate call code 021 for a call that routes over a CCSA network, enter the option VFGAMA CCSA. Enter this option in the incoming VFG.

The first two datafill examples described are for OUTWATS calls translated with a VFG. The first example causes the system to generate call code 007. The second example causes the system to generate call code 068 for the OUTWATS call. The third entry provides sample datafill for a call that routes and uses the CCSA network and translated with a VFG. If the call is a non-billable call, the system generates call code 021 for this call.

Datafilling table MRSANAME

Table MRSANAME (multi-unit message rate area names) table lists the MRSA names. Enter these names in table LINEATTR (field MRSA) and table TRKGRP (field GPVAR MRSA) when the trunk group type is P2. The MRSA name entered in table LINEATTR and table TRKGRP index to table MUMRTAB.

Datafill for the following features for table MRSANAME appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)

Bellcore LAMA Format (continued)

- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table MRSANAME

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table MRSANAME

Field	Subfield or refinement	Entry	Description and action
MRSA		alphanumeric	Multi-unit message rate area name. Enter the name of a multi-unit message rate area. The total number of multi-unit message rate area names cannot exceed 127. The system cannot delete entries referenced in table LINEATTR field MRSA and table MUMRTAB field MUMRNAME. The system can only delete these entries when the system deletes the associated tuples in table LINEATTR and table MUMRTAB.

Datafill example for table MRSANAME

Sample datafill for table MRSANAME appears in the following example.

MAP example for table MRSANAME

MRSA
OTW

Table MRSANAME generates call codes 001 to 005 for calls that are outside of a flat-rate local calling area. These calls are local calls but require billing records.

Datafilling table MUMRTAB

Datafill for the following features for table MUMRTAB appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)

Bellcore LAMA Format (continued)

- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table MUMRTAB

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table MUMRTAB

Field	Subfield or refinement	Entry	Description and action
KEY		see subfields	Key. This field contains subfields MUMRNAME and DGLIDX. Descriptions of these subfields follow.
	MUMRNAME	alphanumeric	Multi-unit message rate area name. Enter the name of a Multi-Unit Message Rate Area. Table MRSANAME field MRSA must recognize this name. The total number of multi-unit message rate area names cannot exceed 127.
	DGLIDX	numeric	Dialed digits. Enter the leading digits of the destination numbers in the Multi-Unit Message Rate Area that field MUMRMBI defines. When the destination office code is in the serving NPA of the originator, the leading digits are the Office Code NXX. For any other condition, the leading digits are NPA + NXX of the destination Office Code.
MUMRMBI		000 to 255	Index to the message billing index table MUMRMBI. Enter the index (000 to 255) to table MUMRMBI. Note: Table control does not allow an index of 0. The MUMRMBI field cannot have the value 0 as data.

Datafill example for table MUMRTAB

Sample datafill for table MUMRTAB appears in the following example.

Bellcore LAMA Format (continued)

MAP example for table MUMRTAB

	KEY	MUMRMBI
OTWA	411	1

Datafilling table MUMRMBI

Datafill for the following features for table MUMRMBI appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table MUMRMBI

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table MUMRMBI

Field	Subfield or refinement	Entry	Description and action
MUMRKEY		000 to 255	Key. Enter the key (000 to 255).
DETAILED		Y or N	Complete entries on AMA tape. Enter Y if the system must record the called number on the AMA tape. For any other condition, enter N.
TIMED		Y or N	Timed calls. Enter Y if the system must record the timing call data on the AMA tape. In all other conditions, enter N.
RECRDMBI		Y or N	Record MBI. Enter Y if the system must record MBI on the AMA tape. For any other condition, enter N.
MBI		000 to 999	Multi-unit message rate index. Enter the MBI (001 to 999) to record on the AMA tape. An entry of 000 does not cause billing.

Datafill example for table MUMRMBI

Sample datafill for table MUMRMBI appears in the following example.

Bellcore LAMA Format (continued)

MAP example for table MUMRMBI

MUMRKEY	DETAILED	TIMED	RECRDMBI	MBI
1	Y	Y	Y	1

Datafilling table AMAOPTS

Datafill for the following features for table AMAOPTS appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512) for table AMAOPTS

The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Description and action
OPTION		alphanumeric	Option. Enter an alphanumeric option code.
SCHEDULE		see subfields	Schedule. This field contains subfields AMASEL, ONDATE, ONTIME, OFFDATE, OFFTIME, SCHED, TV, and TU. Descriptions of these subfields follow.

Bellcore LAMA Format (continued)

Datafilling table AMAOPTS (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Description and action
	AMASEL	ON, OFF, DEFAULT, PERIODIC, or TIMED	AMA selector. Enter one of the following values: • ON - Activate the option immediately. • OFF - Deactivate the option immediately. • DEFAULT - Use the default schedule for the option. • PERIODIC - Activate the option at the specified date and time to perform the interval activity. Complete subfields ONDATE and ONTIME to specify the date and time for activation. Complete subfield SCHED for the time intervals to perform the activity. • TIMED - Activate the option between the specified dates and times. Complete subfields ONDATE and ONTIME to activate the option. Complete subfields OFFDATE and OFFTIME to deactivate the option.
	ONDATE	year, month, and day	Activation on date. If AMASEL is PERIODIC or TIMED, enter the year, month, and day that the option activates. The format is YYMMDD. For any other condition, the system does not prompt for this field.
	ONTIME	hour and minute	Activation on time. If AMASEL is PERIODIC or TIMED, enter the hour and minute the option activates. The format is HHMM. For any other condition, the system does not prompt for this field.
	OFFDATE	year, month, and day	Activation off date. If AMASEL is TIMED, enter the year, month, and day that the option is active. The format is YYMMDD. For any other condition, the system does not prompt for this field.
	OFFTIME	hour and minute	Activation off time. If AMASEL is TIMED, enter the hour and minute the option is not active. The format is HHMM. For any other condition, the system does not prompt for this field.

Bellcore LAMA Format (continued)**Datafilling table AMAOPTS (Sheet 3 of 3)**

Field	Subfield or refinement	Entry	Description and action
	SCHED	see subfields	Periodic schedule. If AMASEL is PERIODIC, complete subfields TU and TV. For any other condition, the system does not prompt for this subfield.
	TV	0 to 255	Time value. Enter a value from 0 to 255.
	TU	AEONS, HRS, HUNDREDMS, MINS, SECS, or TENMS	Time unit. Enter AEONS, HRS, HUNDREDMS, MINS, SECS, or TENMS.

Table AMAOPTS indicates automatic message accounting options. Table AMAOPTS controls the activation and time of the recording options not recorded on AMA tape automatically. Table AMAOPTS contains one tuple for each option. A change in the schedule information for the options, causes the options to activate, deactivate, and schedule. This event occurs at specified dates and times. This method allows the user to control the output that the AMA system generates.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

Belcore LAMA Format (continued)

MAP example for table AMAOPTS

OPTION	SCHEDULE
AUDIT	OFF
CALL_FWD	OFF
CDAR	OFF
CHG411	OFF
CHG555	ON
COIN	OFF
DA411	ON
DA555	ON
ENFIA_B_C	OFF
FRECALL	OFF
HIGHREV	OFF
INWATS	OFF
LNID	OFF
LOGAMA	ON
LOGOPT	OFF
LONGCALL PERIODIC 890224 2666 24	HRS
LUSORIG	OFF
LUSTERM	OFF
OBSERVED	OFF
OCCTERM	ON
OUTWATS	OFF
OCCOVFL	OFF
OVERFLOW	OFF
TIMECHANGE	OFF
TRACER	OFF
TRKID	OFF
TWC	OFF
UNANS_LOCAL	OFF
UNANS_TOLL	ON

This sample datafill can cause the system to record the following calls:

- forwarded calls
- coin calls
- directory assistance 411 and 555 calls
- the INWATS and OUTWATS calls

This datafill causes the system to generate the following:

- the AMAB log reports
- terminating study records

Bellcore LAMA Format (continued)

- service observed records
- three-way calling records

When the OCCTERM option is on, the system records calls that enter the LATA from inter-LATA carriers. The ENFIA_B_C option causes the system to generate AMA records for lines that originate equal access calls. The system records all unanswered local and unanswered toll calls for call codes in table BCCODES. The system records time change entries. The system generates long duration call reports one time for each period of 24 h.

Note: When the HIGHREV option is activated, the system suppresses billing. The system does not suppress billing for calls that generate the call codes in table BCCODES.

Datafilling table BCCODES

Datafill for the following features for table BCCODES appears in the following table:

- Bellcore CAMA Format (BR0378)
- Bellcore LAMA Format (BR0439)
- Bellcore LAMA Format Enhancement (BC0683)
- IBN Compatibility with Bellcore LAMA Format and MUMR (BR0512)

Belcore LAMA Format (continued)

The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table **BCCODES**

Field	Subfield or refinement	Entry	Description and action
CALLTYPE			Bellcore call type. Enter one of the following Bellcore call types. • LOCAL - local calls • TOLL- toll calls • HIGHREV - high-revenue calls • TOPS - TOPS calls Note: If the HIGHREV option in table AMAOPTS is set to ON, the system records all HIGHREV calls. These calls must have a call code definition in table BCCODES. The system does not record unanswered calls when the HIGHREV option in table AMAOPTS is set to ON.
CODES			Bellcore call codes. Enter any group of the Bellcore call codes. A blank column must separate each call code. See table BCCODES in the data schema section of this document for a complete list of Bellcore call codes.

The Bellcore AMA call codes the system generates for unanswered and high revenue calls, appear in table BCCODES. The entries in this table determine when the system must record unanswered and high revenue AMA records. To generate unanswered records, UNANS_LOCAL and UNANS_TOLL are set to on in table AMAOPTS. To generate high revenue records, set the HIGHREV option to ON in table AMAOPTS.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table BCCODES**

CALLTYPE	CODES		
TOLL	(006)	(009)	(033)
LOCAL	(036)	(009)	(067) (074) (041)
HIGHREV	(006)	(068)	(008)

The following list describes the example datafill:

- When HIGHREV is ON in table AMAOPTS, the system generates AMA records that call codes 006, 068, and 008 identify.
- When UNANS_LOCAL is ON in table AMAOPTS, the system generates AMA records that call codes 036, 009, 067, 074, and 041 identify.
- When UNANS_TOLL is ON in table AMAOPTS, the system generates AMA records that call codes 006, 009, and 033 identify.

When HIGHREV is ON in table AMAOPTS, the system suppresses billing. The system does not suppress billing for the calls that generate the call codes entered for HIGHREV in this table.

Datafill sequence for Call Codes 009, 033, 121 Assignment Via Translations (BR0759)

The following tables require datafill to provide Call Codes 009, 033, 121 Assignment Via Translations (BR0759) feature. The tables appear in the correct entry order.

Datafill requirements for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) (Sheet 1 of 2)

Table	Function of table
LINEATTR	This table provides a list of attributes associated with the line index assigned to each subscriber line.
STDPRTCT	The names of the Standard Pretranslator subtable (STDPRTCT.STDPRT) that the operating company defines, appear in this table.
STDPRTCT. STDPRT	This table sets up the translations for a specified call type.

Belcore LAMA Format (continued)

Datafill requirements for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) (Sheet 2 of 2)

Table	Function of table
STDPRTCT. AMAPRT	This table generates call codes 009, 033, 088, 121, and 800 to 999 with AMA pretranslation.
AMAOPTS	This table controls the activation and schedule of the recording options for local, toll, and high-revenue calls.
BCCODES	This table allows the operating company to specify the calls that are not answered that create billing records. If an option is active in AMAOPTS, the system searches table BCCODES for a call code that corresponds. If the system detects the code in table BCCODES, the system creates a billing record for the unanswered call.

Datafilling table LINEATTR

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table LINEATTR appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Description and action
PRTNM		NPRT	Standard pretranslator subtable name. If the system requires pretranslation of digits, enter the name of the Standard Pretranslator subtable. This subtable is assigned to the line attribute index. If the system does not require standard pretranslation, enter NPRT.

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table LINEATTR**

LAX	LCC	CHGCLSS	COST	SCRNCL	LTG	STS	PRTNM	LCANAME	ZEROMPOS	TRAFSNO
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS				
		RESINF		OPTIONS						
0	1FR	NONE	NT	FR01	0	613	PRT1	L613		TSPS
10	NIL	NILSFC	LATA1	0	NIL	NIL		00		
		N		\$						

In the previous figure, the pretranslator name PRT1 is indexed to table STDPRTCT. The PRT1 is assigned in field PRTNM. Pretranslation occurs only if the PRTNM field of table LINEATTR or table TRKGRP specifies a pretranslator name.

For BCS34 and later versions, the system removes subfields LCABILL and HOT in table LINEATTR. The system places these subfields as options in the options field.

Datafilling table STDPRTCT

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table STDPRTCT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Description and action
EXTPRTNM		alphanumeric	External standard pretranslator subtable name. Enter the name that the operating company defines to indicate the standard pretranslator subtable. This condition does not apply for standard pretranslator name C7PT. The integrated services digital network user part (ISUP) trunks automatically uses C7PT on test calls in offices with ISUP ability.
Note: The maximum number of tuples in table STDPRTCT is 1 024.			

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following example.

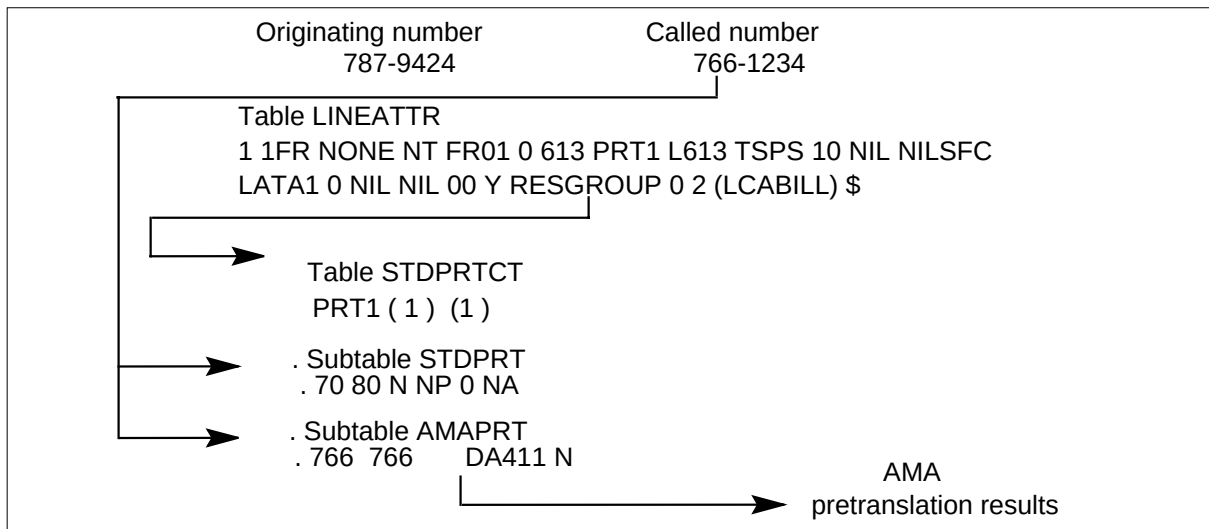
Belcore LAMA Format (continued)

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
PRT1	(1)	(1)

Each pretranslator entered in table STDPRTCT has a subtable STDPRT that corresponds. The received leading digits of the called number index subtable STDPRT. The following figure describes indexing with the pretranslator entered in table LINEATTR to index table STDPRTCT. the figure also describes how the leading digit of the called number indexes to subtable STDPRT. Indexing appears for an originating line (787-9424) dialing 766-1234.

Table indexing for standard pretranslation



In the previous figure, the datafill in subtable STDPRT indicates that the call is non-billable. The type of call is NP. Without the datafill in subtable AMAPRT, the call does not generate an AMA record. The datafill in subtable AMAPRT indicates that the system generates call code 009 (DA411). This action occurs when the user dials a number with leading digits 766. The leading digits of the called number determine indexing to the STDPRTCT subtables. The system translates a called number with leading digits 70, 71, 72, 73 79, or 80 with subtable STDPRT datafill. The previous figure describes this datafill. This datafill is 70 80 N NP 0 NA. The system generates call code 009 when the first digits of the called number are 766. The 411 options must be set to ON in table AMAOPTS.

Bellcore LAMA Format (continued)

Datafilling subtable STDPRT

Datafill for Call Codes 009, 033, 121 Assignment via Translations (BR0759) for subtable STDPRT appear in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Note: Changes in subtable STDPRT can change office billing because of call code types. The call type default is NP. See the data schema section of this document for information on subtable STDPRT.

Datafilling subtable STDPRT

Field	Subfield or refinement	Entry	Description and action
FROMDIGS		digital	From digits. Enter a maximum of 18 digits to translate. If the entry indicates a block of numbers in sequence, enter the first number in the block.
TODIGS		digital	To digits. Enter the numbers that are in the FROMDIGS field. Do not perform this action if FROMDIGS indicates a block of numbers in sequence. When this condition occurs, enter the last number of the block in this field.
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, CARRNAME, RTEAREA, RTEPRSNT, EXTRTEID, TABID, KEY, MINIDIGSR, MAXDIGSR, and OCS. Descriptions of these subfields follow.
	PRERTSEL	N	Pretranslation route selector. Enter N.
	TYPCALL	NP	Type of call. Enter NP.
	NOPREDIG	digital	Number of prefix digits. Enter the number of digits, from 0 to 7, to interpret as prefix digits.
	CARRNAME	carrier name	Carrier name. Enter the carrier name defined in table OCCNAME.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT appears in the following example.

Belcore LAMA Format (continued)

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
70	80	N NP 0 NA

Datafilling subtable AMAPRT

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for subtable AMAPRT appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling subtable AMAPRT

Field	Subfield or refinement	Entry	Description and action
FROMDIGS		digital	From digits. Enter a maximum of 18 digits to translate. If the entry indicates a block of numbers in sequence, enter the first number in the block.
TODIGS		digital	To digits. Enter the same numbers in field FROMDIGS. EXCEPTION: If FROMDIGS represents a block of numbers in sequence, enter the last number of the block in this field.
AMARSLT		see subfields	AMA result. This field contains subfields CALLCODE and SFPRSNT. Descriptions of these subfields follow.
	CALLCODE	DA411 and DA555	Call code. Enter DA411 and DA555.
	SFPRSNT	N	Service feature present. Enter N to prevent replacement of the current Service Feature field value.

Note: If subtable AMAPRT does not contain data for the received leading digits, AMA pretranslation does not affect the call code. The system generates the call code.

Bellcore LAMA Format (continued)

Datafill example for subtable AMAPRT

Sample datafill for subtable AMAPRT in table STDPRTCT appears in the following example.

MAP example for subtable AMAPRT

FROMDIGS	TODIGS	AMARSLT
766	766	DA411 N
5551212	5551212	DA555 N

When the number dialed has leading digits 766, the system generates call code 009 for that local DA call. When digits 555-1212 are dialed, the system generates call code 033.

Digits in the FROMDIGS and TODIGS fields can be different between subtable STDPRT and subtable AMAPRT. The operating company can enter AMA pretranslation results one at a time from standard pretranslation results.

With BR0759, an operating company can cause the system to generate some call codes. The AMA pretranslation determines the call codes that the system generates. The system generates AMA pretranslation through subtable AMAPRT. Subtable AMAPRT is indexed with the leading digits of the called number. When the leading digits of the called number are in subtable AMAPRT, the system generates an AMA record. The call code specified in the datafill identifies the AMA record.

Note: If subtable AMAPRT does not contain data for the received leading digits, AMA pretranslation does not affect call codes. The system generates call codes.

When the system uses standard pretranslation to translate an interLATA Datapath call, the system generates call code 119. Call code 119 indicates the terminating access record. When this condition occurs, the system uses standard pretranslation because subtable AMAPRT does not have an entry for the called number. The operating company can enter subtable AMAPRT for the received leading digits of a Datapath call. When this action occurs, the operating company can force the system to generate call code 121. This call code is the code for Datapath terminating access record.

Note: The AMA pretranslation occurs when table LINEATTR or table TRKGRP specifies a pretranslator name (field PRTNM). This pretranslator

Belcore LAMA Format (continued)

name indexes to table STDPRTCT. The leading digits of the called number determine the index to subtables STDPRT and AMAPRT.

AMA pretranslation datafill

The system can use AMA pretranslation to generate the following call codes:

- call code 009 - 411 directory assistance
- call code 033 - 555 directory assistance
- call code 121 - Datapath terminating access record

The system does not require AMA pretranslation to generate call codes 009 and 033. The DA411 and CHG411 and/or DA555 and CHG555 options must be on in table AMAOPTS and 411, or the subscriber must dial 555-1212. With AMA pretranslation, the system can generate call code 009 for local directory assistance calls other than 411. The system limits call code 033 to 555-1212 calls. Feature BR0759 provides call code 121. Only AMA pretranslation for Datapath terminating access records generates call code 121.

Call codes generated from AMARSLT datafill in subtable AMAPRT

AMARSLT datafill	Call code generated	Feature package required
DA411	009	NTX098AA
DA555	033	NTX098AA
NONDA555	088	NTX098AA and NTX737AA
DATAPATH	121	NTX098AA
CC800	800	NTX098AA and NTX737AA
CC801	801	NTX098AA and NTX737AA
CC802	802	NTX098AA and NTX737AA
CC803	803	NTX098AA and NTX737AA
CC804	804	NTX098AA and NTX737AA
CC805	805	NTX098AA and NTX737AA

Note 1: The system can generate call codes 088 and 800 to 805 if the Flexible Bellcore AMA feature package (NTX737AB) is loaded. Feature NTX737AB must be loaded with the NTX098AA feature package.

Bellcore LAMA Format (continued)

Note 2: The AMA pretranslation only indicates the function of a Bellcore AMA call code.

Note 3: The AMA pretranslation uses only the pretranslator name that table LINEATTR or table TRKGRP specify. For example, datafill in subtable STDPRT can cause indexing to table STDPRTCT again, with a new pretranslator name. The AMA pretranslation uses only the first pretranslator name to index table STDPRTCT.

Datafilling table AMAOPTS

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table AMAOPTS appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		DA411 and DA555	Option. Enter DA411 and DA555.
SCHEDULE		see subfields	Schedule. This field contains subfields AMASEL, ONDATE, OFFDATE, SCHED, ONTIME, and OFFTIME. A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate DA411 and DA555.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
DA411	ON
DA555	ON

This sample datafill causes the system to record directory assistance 411 and 555 calls and generate AMAB log reports. The system can generate all unanswered toll calls for calls in table BCCODES. The system requires time

Belcore LAMA Format (continued)

for short supervisory transitions. The system generates duration call reports one time for each period of 24 h.

Datafilling table BCCODES

Datafill for Call Codes 009, 033, 121 Assignment Via Translations (BR0759) for table BCCODES in the following table. The fields that apply to Bellcore LAMA Format appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Description and action
CALLTYPE		LOCAL, TOLL, HIGHREV, or TOPS	Bellcore call type. Enter one of the following Bellcore call types: LOCAL - local calls TOLL - toll calls HIGHREV - high-revenue calls TOPS - TOPS calls Note: If the HIGHREV option in table AMAOPTS is set to ON, the system records all HIGHREV calls. table BCCODES defines the call code. The system does not record unanswered calls when the HIGHREV option in table AMAOPTS is set to ON.
CODES		any group of the Bellcore call codes	Bellcore call codes. Enter any group of the Bellcore call codes. A blank column must separate each call code. For a complete list of Bellcore call codes, see table BCCODES in the data schema section of this document.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table BCCODES**

CALLTYPE	CODES
TOLL	(006) (007) (030) (033) (068) (069) (008) \$

Datafill sequence of a data unit datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793)

The following tables require datafill to activate the Datapath AMA Format—Call Codes 072 and 117 feature. The data tables are data unit specified. Enter the data tables to activate a data unit. Enter the data tables to prepare the data unit to receive and transmit Datapath calls. The tables appear in the correct entry order.

Datafill requirements to activate and prepare a data unit to receive and transmit Datapath calls (Sheet 1 of 2)

Table	Purpose of table
CLLI	Lists the common language location identification (CLLI) codes for each of the following: • announcement • tone • trunk group • test trunk • national milliwatt test lines • service circuit
LNINV	Lists the data for each line card slot.
KSETINV (Note)	Holds business set and data unit (DU) module data. Each piece of equipment must have a line card slot assigned in this table.
KSETLINE (Note)	Contains data of DN appearances on business sets and DUs.
KSETFEAT (Note)	Lists the line features assigned to the business sets and DUs that table KSETLINE lists. Lists the features assigned to the MDC sets and DUs that table IVDINV lists.
Note: Use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Bellcore LAMA Format (continued)

Datafill requirements to activate and prepare a data unit to receive and transmit Datapath calls (Sheet 2 of 2)

Table	Purpose of table
RESGROUP	Stores data that is common to all resource members in a group. One entry is present for each group.
RESINV	Stores inventory data on all resource groups in the office.
RESMEM	Stores data on resource members of each group.
DPROFILE	Contains parameters (such as data rate) that characterize a data unit.
Note: Use SERVORD to enter data in this table. A datafill table or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Datafilling table CLLI

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table CLLI appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table CLLI (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CLLI		alphanumeric (a maximum of 16 characters)	Common language location identifier. Enter a maximum of 16 alphanumeric characters that identify the far end of each announcement, tone or trunk group. The following rules apply: • The first character must be alphabetic. • An underscore (_) is a correct character in the CLLI code. • Do not enter any special characters, like *, -, +, ?, /. • For best use, a CLLI code must not contain more than 12 characters. Only the first 12 characters appear on the visual display unit (VDU) terminal, MAP terminal, or trunk test position (TTP). The entire CLLI appears in a log report.
ADNUM		digital (0 to 8192)	Administrative trunk group number. Enter a number from 0 to a number that is one less than the size of table CLLI. The size of table CLLI appears in table DATASIZE. The maximum size of table CLLI is 8192. To allow for future growth in the number of pseudo-CLLIs, the customer must not assign administrative numbers below 51. See the data schema section of this document for additional information.

Belcore LAMA Format (continued)

Datafilling table CLLI (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
TRKGRSIZ		numeric (0 to 2047)	Trunk group size. This number is the maximum expected number of trunk members assigned to the trunk group. The figure allocates store. The figure can be greater than the number of the first working trunks. See the data schema section of this document for additional information.
ADMININF		alphanumeric (a maximum of 32 characters)	Administrative information. Enter a maximum of 32 alphanumeric characters. The operating company uses this field to record administrative information. The switching unit does not use information in the field. Note: Do not use special characters, like @, #, \$, %, ^, &, *, (,), +, =, /, ' , ; , : , ? , } . These characters can cause errors.

Datafill example for table CLLI

Sample datafill for table CLLI appears in the following example.

Codes in table CLLI identify the far end of each announcement, tone, or trunk group. The CLLIs in the example identify the trunks that route Datapath calls in the switch. The ADMININF field is for administrative purposes. The switching unit does not use this field.

MAP example for table CLLI

CLLI	ADNUM	TRKGRSIZ	ADMININF
DUMPANDRESTORE	28	0	DUMP_AND_RESTORE
TRKLPBK	24	0	TRUNK_LOOP_BACK
DMODEMC	2	4	NEW_MODEM_3X02CA_CLLI

Datafilling table LNINV

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table LNINV appears in the following table. The fields that apply to

Bellcore LAMA Format (continued)

Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table LNINV (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CARDCODE		see explanation	Card code. Enter the product engineering code of the line card. When you submit input for final lines, enter ".
PADGRP		see explanation	Pad group. Enter the name of the pad group assigned to the line circuit in table PADDATA. When you submit input for final lines, enter ".
STATUS		working	Line inventory availability status. Enter working. When you submit input for final lines, enter ".
GND		N	Ground. Enter N if the line is not a ground start.
BNV		L or NL	Balanced network value. Enter L if the line circuit configuration is for a loaded network. Enter NL for a non-loaded network. When you submit input for final lines, enter ".
MNO		N	Manual override. Enter N to allow off-hook balance network to update field BNV in this table. When you submit input for final lines, enter ".
CARDINFO			Card information. This field contains subfield CARDTYPE. This field contains the refinements of subfield CARDTYPE.
	CARDTYPE	NIL, RCUPOTS, RCUEPOTS, or SSLCC	Card type. The following are valid entries: • NIL (default) • RCUPOTS • RCUEPOTS • SSLCC. Enter data in refinements FCN and INSVC.)

Belcore LAMA Format (continued)

Datafilling table LNINV (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	FCN	see explanation	Function. Enter the value that defines the function of the two-wire and four-wire special service card. See the data schema section of this document for additional information.
	INSVC	Y or N	In-service. Enter Y to establish a special connection for the card. The system produces alarms if the card fails diagnostics. Enter N to take down the special connection. The system applies trunk conditioning and does not produce alarms if the card fails diagnostics.

Datafill example for table LNINV

Sample datafill for table LNINV appears in the following example.

MAP example for table LNINV

LEN	CARDCODE	PADGRP	STATUS	GND	BNV	MNO
CARDINFO						
HOST	00 0 08 09	6X17AA	NPDGP	WORKING	N	NL N
		NILRCU0	00 0 01 09	7A21AA	STDLN	
WORKING	N NL N					
	SSLCC	4WFXS	Y			

Datafilling table RESGROUP

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table RESGROUP appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

The NRS feature requires the resource tables. The NRS feature provides modem pooling for DU and data transmission. The NRS feature can select

Bellcore LAMA Format (continued)

different modems. The NRS feature stores, processes and manipulates modem pools.

Datafilling table RESGROUP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY		see explanation	Resource group key. This field contains a CLLI. The CLLI is the key to this table.
GDATA		see subfields	Resource group data. This field contains subfields GRPTYP, TMODE and SPEED.
	GRPTYP	MP or MMP	Resource group type. Enter MP for modem pool. Enter MMP for maintenance modem pool.
	TMODE	FULL	Transmission mode. Enter FULL if the modems are full duplex.
	SPEED	numeric	Modem speed. Enter the baud rate of the modem in bits per second.
OVFLDATA		see subfields	Overflow data. This field contains subfields OVFL and OVFLCLLI.
	OVFL	Y or N	Group overflow. Enter Y to enter an overflow CLLI. Enter N if you do not have to enter an overflow CLLI.
	OVFLCLLI	see explanation	Group overflow CLLI. Enter the CLLI of another resource group to which calls overflow. The calls overflow to this group when all members in the current group are busy. If OVFL is N, the system does not prompt you for this field.
MTCDATA		see subfields	Maintenance data. This field contains subfields MTC, MTCCLLI, and MTCMODE.
	MTC	Y or N	Maintenance. Enter Y to add modem pool maintenance data. Enter N if you do not have to add modem pool maintenance data.

Belcore LAMA Format (continued)

Datafilling table RESGROUP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	MTCCLI	see explanation	Maintenance CLI. Enter the CLI of the maintenance modem pool that the system uses as a default to perform a BERT test.
	MTCMODE	IN, OUT, or BOTH	Maintenance test mode. The following are correct entries: • IN - The modem pool processes calls in the INBOUND direction. • OUT - The modem pool processes calls in the OUTBOUND direction. • BOTH - The modem pool handles both inbound and outbound call processing.

Datafill example for table RESGROUP

Sample datafill for table RESGROUP appears in the following example.

A resource group OMP1200A with overflow to OMP1200B appears in the example. The default test mode is in the OUTBOUND direction with MTCE1200 maintenance modem pool. The OMP1200B has a default test mode of BOTH to test with MTCE1200 maintenance modem pool. The MTCE1200 test both INBOUND and OUTBOUND, full duplex, 1200-baud modem pools.

MAP example for table RESGROUP

GRPKEY		GDATA		OVFLDATA	MTCDATA	
OMP1200A	MP	FULL1200	Y	OMP1200B	YMTCE1200	OUT
OMP1200B	MP	FULL1200	N		YMTCE1200	BOTH
OMP1200	MMP	FULL1200	N		YMTCE1200	BOTH

Datafilling table RESINV

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table RESINV appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Bellcore LAMA Format (continued)

Table RESINV stores all the office resources inventory data. This table contains the line equipment numbers (LEN) for all the defined resources. This table identifies the type of resource.

Two data formats are present. The data formats are modem-pool modems (MPMD) and modem-pool data units (MPDU). The last three fields of this table identify the LEN for the other half of the DU/modem pair. The other half of the DU/modem pair contains the CLLI of the resource group to which the member belongs. The other half of the pair also contains the position of the member in the group. These last three fields provide information only.

Datafilling table RESINV

Field	Subfield or refinement	Entry	Explanation and action
RESKEY		see explanation	Resource key. Enter the LEN of the resource.
RESDATA		see subfields	Resource data. This field contains subfields RESSEL, DETSEL, MPLEN, GRPCLLIM and SEQNO.
	RESSEL	MPMD or MPDU	Resource selector. Enter MPMD if the resource is a modem-pool modem. Enter MPDU if the resource is a modem-pool DU.
	DETSEL	N	Detail selector. Enter N if this resource line does not associate with the mating resource pair. Enter N if this resource line is not assigned in table RESMEM as a member of the resource group. Enter N when you add a new resource line.

Datafill example for table RESINV

Sample datafill for table RESINV appears in the following example.

MAP example for table RESINV

RESKEY	RESDATA
00 0 15 01	MPDU N
00 0 03 01	MPMD N

Bellcore LAMA Format (continued)

Datafilling table RESMEM

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table RESMEM appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table RESMEM

Field	Subfield or refinement	Entry	Explanation and action
	GRPTYP	MP or MMP	Group type. Enter MP for modem pool or MMP for maintenance modem pool.
	DULEN	see explanation	Data unit line equipment number. Enter the LEN of the data unit.
	MODEMLEN	see explanation	Modem line equipment number. Enter the LEN of the modem.

Datafill example for table RESMEM

Sample datafill for table RESMEM appears in the following example.

MAP example for table RESMEM

```

MEMKEY  MDATA
-----
BELL212A1200 0  MP  HOST 00 0 15 01 HOST 00 0 03 01
MTCE1200     0  MMP HOST 00 0 05 02 HOST 00 0 15 01

```

Datafilling table DPROFILE

The datafill for Datapath AMA Format—Call Codes 072 and 117 (BR0793) for table DPROFILE appear in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table DPROFILE (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DPKEY		see subfield	Data unit profile key. This field contains subfield LEN.
	LEN	see explanation	Line equipment number. Enter the LEN of the DU.

Bellcore LAMA Format (continued)**Datafilling table DPROFILE (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
CLASSVAR		see subfields	Class of data unit variable area. This field contains subfields CLASSDU, DOWNLOAD, MIMIC, CONFIG, SYNCHRO, DATARATE, CLOCKSRC, DUPLEX, and DPOPTS.
	CLASSDU	MP	Class of data unit. Enter MP for modem pool data unit.
	DOWNLOAD	Y	Profile download. Enter Y to allow profile downloading.
	MIMIC	LI	Mode indicator/mode indicator common control. Enter LI for level inverted.
	CONFIG	DTE	Data access module configuration indicator. Enter DTE if the data access module connects to a data terminal equipment terminal.
	SYNCHRO	S	Synchronous/asynchronous selector. Enter S for synchronous transmission.
	DATARATE	see explanation	Data rate. Enter the speed at which the equipment of the customer can transmit and receive data.
	CLOCKSRC	I	Clocking source. Enter I to signify that the DU must internally derive the DU clocking source for data transmission.
	DUPLEX	F	Full/half duplex. Enter F for full-duplex data communication.

Using the table editor and SERVORD

Table DPROFILE accepts input from SERVORD or the table editor. To download the DU, use the SERVORD or the table editor to provide the correct datafill.

If you use the table editor to enter table DPROFILE, perform the following:

1. Access the line test position (LTP) level of MAP terminal.
2. Post the Datapath line.
3. Execute the return-to-service (RTS) command.

Belcore LAMA Format (continued)

If you use SERVORD instead of the table editor, the system executes the POST and RTS commands automatically.

Datafill example for table DPROFILE

Sample datafill for table DPROFILE appears in the following example.

The entry is a modem pool (MP) unit with the access module connected to a data terminal (DTE). The line uses synchronous transmission. The line transmits and receives data at 19 200 bit/s. The echo option allows the DU to echo characters back to the equipment of the customer.

MAP example for table DPROFILE

DPKEY													
CLASSVAR													
HOST	00	0	08	10									
	MP	Y	LI	DTE	S	19200	I	F	(ECHO)	\$			

Datafill sequence of Datapath call datafill for Datapath AMA Format—call code 072 (BR0793)

A call that originates from a DU generates an 072 or a 117 AMA record. The 072 is an intra-LATA Datapath AMA record. The 117 is an inter-LATA Datapath AMA record.

An origination occurs when a DU sends an originating message to the line trunk controller (LTC). To accomplish this origination, press the DN key on the DU. When the originating attempt completes, the DMS switch collects digits. The DMS switch uses IBN capabilities to translate the digits. When a call connects through the network, the system returns a ringing tone. The ringing tone returns until the call is answered. The called DU exchanges information with the calling DU. The DUs exchange information before both DUs go into data mode. To disconnect, press the release key on the DU.

The following information describes the datafill required for intra-LATA and inter-LATA Datapath calls. The following information describes the datafill required to generate AMA records. Call codes 072 and 117 identify the AMA records. The system can route datapath calls in different ways. The following description does not apply to all conditions. Use the description to understand the flow of call order. Use the description to understand the relationship of data tables used in translating inter-LATA and intra-LATA Datapath calls.

Bellcore LAMA Format (continued)

One intra-LATA station paid call generates call code 072. The system routes one inter-LATA call over an equal access (EA) trunk. The system generates a 117 call code.

The datafill the system uses to route two Datapath station-paid calls appears in the following table. The data tables appear in the correct entry order.

Datafill sequence for intra-LATA and inter-LATA Datapath calls

Intra-LATA call code 072	Inter-LATA call code 117
DNINV	HNPACONT
HNPACONT	STDPRTCT
PFXTREAT	DIGCOL
LCASCRN	CUSTHEAD
STDPRTCT	OCCINFO
DIGCOL	OFRT
CUSTHEAD	NCOS
LCASCRCN.LCASCRCN	LINEATTR
TOFCNAME	KSETLINE
NCOS	IBNXLA
LINEATTR	STDPRTCT.STDPRT
KSETLINES	AMAOPTS
IBNXLA	LATAXLA
HNPACONT.HNPACODE	
STDPRTCT.STDPRT	
AMAOPTS	

This section provides a description of each data table that the system accesses during call processing. The system accesses the tables to complete two calls that originate from one DU and terminate to another DU. These calls generate 072 and 117 call codes.

Belcore LAMA Format (continued)

The following tables require datafill to activate the Datapath AMA Format—Call Codes 072 and 117 feature. The tables appear in the correct entry order to generate an intra-LATA call code 072.

Datafill requirements for Datapath call datafill for intra-LATA call code 072 (Sheet 1 of 2)

Table	Purpose of table
DNINV (Note)	Details the information for each DN in the switch.
HNPACONT	Lists the home or SNPA and the STS code subtables.
PFXTREAT	Lists the home or SNPA and the STS code subtables.
LCASCRCN	Lists the name of each of the local calling area screening subtables (LCASCRCN.LCASCRCN). Lists the SNPA to which each table belongs.
STDPRTCT	Lists the operating names of the standard pretranslator subtable (STDPRTCT.STDPRT). The operating company defines the names.
DIGCOL	Specifies the action the line module takes based on the first digit dialed. The IBN digit collection requires table DIGCOL.
CUSTHEAD	Lists the values and options assigned to groups.
LCASCRCN. LCASCRCN	Determines if a call is a local or non-local termination. The digits dialed determines the termination. Each local calling area that is in the territorial limit of the switching unit requires one screening table.
TOFCNAME	Lists all terminating offices in the switch. A terminating office is a combination of area code and office code.
NCOS	Describes the class of service assigned to the following: • attendant consoles • IBN stations • incoming IBN trunk groups or the incoming side of two-way IBN trunk groups • authorization codes • customer groups
LINEATTR	Provides a list of attributes associated with the line index assigned to every subscriber line.
KSETLINE (Note)	Contains data of DN appearances on business sets and DUs.
Note: Enter this table through SERVORD. A datafill table or example is not available. See SERVORD for an example how to use SERVORD to enter data in this table.	

Bellcore LAMA Format (continued)

Datafill requirements for Datapath call datafill for intra-LATA call code 072 (Sheet 2 of 2)

Table	Purpose of table
IBNXLA	Provides the instructions that use a virtual facility group to translate an OUTWATS call.
HNPACONT. HNPACODE	Lists the route, treatment, or table to which translations must route for three-digit SNPA or STS defined in table HNPACONT.
STDPRTCT. STDPRT	Sets up the translations for a specific call type.
AMAOPTS	Controls the activation and scheduling of the recording options for local, toll, and high-revenue calls.
BCCODES	Allows the operating company to specify which unanswered calls will create billing records.
Note: Enter this table through SERVORD. A datafill table or example is not available. See SERVORD for an example how to use SERVORD to enter data in this table.	

Datafilling table HNPACONT

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table HNPACONT appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table HNPACONT

Field	Subfield or refinement	Entry	Explanation and action
NPA		numeric	Serving translation scheme. Enter the three-digit SNPA or serving translations scheme (STS) code. Note: A home or SNPA must have 1 or 0 as the middle digit. You must enter the home or SNPA in one of the first 16 positions. Line data, POTS VFG data, PBX trunk data can use the SNPAs. Tables DNINV, DNROUTE, and TOFCNAME can use the SNPAs.
MAXRTE		0 to 1023	Number of route references. Enter the quantity of route reference numbers. This field automatically extends to the highest route index that subtable RTEREF of table HNPACONT uses. The route index has a maximum of 1023.
NOAMBIGC		0 to 159	Number of ambiguous codes. Enter the number of ambiguous codes required.

Datafill example for table HNPACONT

Sample datafill for table HNPACONT appears in the following example. In this example, the SNPA of the originating line is 613. The SNPA in table HNPACONT.

MAP example for table HNPACONT

NPA	MAXRTE	NOAMBIGC	RTEREF	HNPACODE	ATTRIB	RTEMAP
613	127	1	(1)	(1)	(0)	(0)

Datafilling a table PFXTREAT

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table PFXTREAT appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section in this document for a description of the other fields.

Datafilling table PFXTREAT

Field	Subfield or refinement	Entry	Explanation and action
TYPLCLCD		see subfields	Type of call and local code. This field contains subfields PFXSELEC, TYPCALL, and LOCAL.
	PFXSELEC	see explanation	Prefix selector. Enter the prefix selector assigned to the prefix treatment.
	TYPCALL	DD	Type of call. Enter DD for direct dial.
	LOCAL	Y	Local. Enter Y if the prefix treatment record is for a local call.
UPDTYPCA		see explanation	Updated type of call. If the system updates the type of call, enter the updated type of call. If the system does not update the type of call, enter the value assigned to field TYPCALL.
TREAT		UNDT	Treatment. If calls that route to the prefix treatment can complete, enter UNDT (undefined treatment) as the treatment.

Datafill example for table PFXTREAT

Sample datafill for table PFXTREAT appears in the following example. The routed call is a billable (DD) call. The prefix digits of billable calls are optional (OPTL).

MAP example for table PFXTREAT

TYPLCLCD	UPDTYPCA	TREAT
OPTL DD Y	DD	UNDT

Datafilling table LCASCRCN

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table LCASCRCN appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table LCASCRCN

Field	Subfield or refinement	Entry	Explanation and action
NPALOCNM		see subfields	Numbering plan area plus local calling area subtable name. This field contains subfields STS and LCANAME.
	STS	numeric	Serving translation scheme. Enter the SNPA code for the trunk group.
	LCANAME	a maximum of 4 characters	Local calling area name. Enter the name of subtable LCASCR of table LCASCRCN. The local calling area name can be a maximum of 4 characters. Note: The NLCA is not a correct entry for this field. The DMS switch software reserves NL for no local calling area screening. Accidental addition of NLCA in table LCASCRCN followed by deletion of NLCA removes NLCA from a table. For example, deletion of NLCA removes NLCA from table LINEATTR field LCANAME. The specification of no local calling area screening is not possible.
PFXSELEC		a maximum of 4 characters	Prefix selector. Enter the name of the prefix selector assigned to subtable LCASCR in table LCASCRCN. The name of the prefix selector can be a maximum of four characters.
PFXFOR10		N	Prefix for 10. Enter N.

Datafill example for table LCASCRCN

Sample datafill for table LCASCRCN appears in the following example. The LCANAME (from table LINEATTR) is L613. The LCANAME indexes table LCASCRCN as follows.

MAP example for table LCASCRCN

NPALOCNM					
LCASCR		PFXSELEC		PFXFOR10	
919	L613	(	0)	OPTL	N

Bellcore LAMA Format (continued)**Datafilling table STDPRTCT**

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table STDPRTCT appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Explanation and action
EXTPRTNM		alphanumeric	External standard pretranslator subtable name. Enter the name that the operating company defines to represent the standard pretranslator subtable. Do not enter standard pretranslator name C7PT. The ISUP trunks automatically use standard pretranslator name C7PT on test calls in offices with ISUP capability.
Note: The maximum number of tuples in table STDPRTCT is 1024.			

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following table. In this example, P621 is the pretranslator assigned to the originating line (DU). The P621 is the index in table STDPRTCT that appeared in the previous datafill.

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
P621	(1)	(0)

Datafilling table DIGCOL

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table DIGCOL appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table DIGCOL

Field	Subfield or refinement	Entry	Explanation and action
DGKEY		see subfields	Digit collection key. This field contains subfields DATNAME and DIGIT. Descriptions of these subfields follow.
	DATNAME	1- to 8-character alphanumeric name	Name of digit collection table. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL.
	DIGIT	0 to 9, STAR, or OCT	Digit. Enter the digit (0 to 9), star (STAR), or octothorpe (OCT) which applies to the record.
DGDATA		see subfield	Digit collection table. This field contains subfield DGCOLSEL.
	DGCOLSEL	RPT	Digit collection selector. Enter the selector RPT.

Datafill example for table DIGCOL

Sample datafill for table DIGCOL appears in the following example. Datapath digit collection requires table DIGCOL because IBN translation capabilities implement Datapath.

In this example, KDK is the digit collection tuple indexed. Field DGDATA specifies when action occurs. The digits dialed determine the action taken. The RPT means that each time a digit is dialed, the system receives the digit. The system reports the digit to the central control.

MAP example for table DIGCOL

DGKEY	DGDATA
KDK	9 RPT

Datafilling table CUSTHEAD

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table CUSTHEAD appears in the following table. The fields that apply to Belcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table CUSTHEAD

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		1- to 16-character name	Customer group name. Enter the 1- to 16-character name assigned to the customer group.
CUSTXLA		1- to 8-character name	Customer translator. Enter the 1- to 8-character name assigned to the block of data (customer translator) in table IBNXLA. The block of data specifies the data for the translation of digits. The digits originate from an IBN station, attendant, incoming trunk group, or incoming side of a two-way trunk group.
DGCOLNM		1- to 8-character name	Digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL. This block of data specifies the IBN digit collection for the IBN lines.
IDIGCOL		1- to 8-character name or NIL	International digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DGHEAD. This field only appears if the Open Number Translation feature (NTXB57AA) is in the load. Enter NIL if the Open Number Translation is not in the load.

Datafill example for table CUSTHEAD

Sample datafill for table CUSTHEAD appears in the following example. In this example, the customer group is COMKODAK. The CUSTXLA name is CXDK. The CUSTXLA indexes table IBNXLA. The DIGCOLNM name is KDK. The DIGCOLNM name indexes table DIGCOL.

MAP example for table CUSTHEAD

```

CUSTNAME  CUSTXLA    DGCOLNM IDIGCOL
              OPTIONS
-----
COMKODAK   CXDK      KDK      NIL
( VACTRMT 0) ( EXTNCOS 0) ( ACCT 5)
( FETXLA CUSTFEAT) ( PLMXLA PXDK) ( ERDT 7)
( AUTH COMKODAK N N) ( SUPERCNF)( ACR AUTH 1)
( CUTPAUSE 1) ( CUTMOUT10) ( OCTXLA CUSTSHRP) $

```

Belcore LAMA Format (continued)

Datafilling table LCASCR

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table LCASCR appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table LCASCR

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		000 to 999	From digits. Enter the 3-digit local NNX code (000 to 999). This number represents a single code or the first number in a block of consecutive local NNX codes.
TODIGS		000 to 999	To digits. If FROMDIGS represents the first number in a block of consecutive NNX codes, enter the last NNX code in the block. If FROMDIGS represents a single local NNX code, enter the NNX code entered in FROMDIGS.

Datafill example for table LCASCR

Sample datafill for table LCASCR appears in the following example.

MAP example for table LCASCR

FROMDIGS	TODIGS
722	722

Datafilling table TOFCNAME

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table TOFCNAME appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Note: You can add and delete tuples from this table. You cannot deallocate system store when you allocate system store.

Datafilling table TOFCNAME

Field	Subfield or refinement	Entry	Explanation and action
AREACODE		numeric	Area code. Enter the area code that contains the terminating office.
OFCCODE		numeric	Office code. Enter the office code.
			Note: A number cannot be an AREACODE and OFCCODE. For example, when 613 is an AREACODE, 613 cannot be an OFCCODE in any AREACODE.

Datafill example for table TOFCNAME

Sample datafill for table TOFCNAME appears in the following example.

Note: Do not enter the same OFCCODE in two different area codes. For example, 613 849 and 819 849 have the same OFCCODE.

MAP example for table TOFCNAME

AREACODE	OFCCODE
613	722

Datafilling table NCOS

The datafill specific to Datapath AMA Format—Call Code 072 (BR0793) for table NCOS appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table NCOS

Field	Subfield or refinement	Entry	Explanation and action
CUSTGRP		1- to 16-character name	Customer group name. If this field is the first record for the NCOS number, enter the code assigned to the customer group. The code is a 1- to 16-character code. If this field is not the first record, leave this field blank.
NCOS		0 to 511	Network class of service number. If this field is the first record for the NCOS number, enter the NCOS number. If this field is not the first record, leave this field blank.
NCOSNAME		1- to 6-character name	Network class of service name. If this field is the first record for the NCOS number, enter the name assigned to the NCOS number. Enter the number for the key and lamp display. The name is a 1- to 6-character name. If this field is not the first record, leave this field blank.
LSC		0 to 31	Line screening code. If this field is the first record for the NCOS number, enter the line screening code assigned to the NCOS number.
TRAFSNO		0 to 31 or 0	Line screening code. If this field is the first record for the NCOS number, enter the line screening code assigned to the NCOS number. If the line screening code is not necessary, enter 0.

Datafill example for table NCOS

Sample datafill for table NCOS appears in the following table. The customer group name indexes this table. Table IBNLINES contains the customer group name.

Bellcore LAMA Format (continued)**MAP example for table NCOS**

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
COMKODAK	0	KDKO	0	0	(OHQ 0 TONE_OHQ)
(CBQ 0 3 N 2)	\$				

Datafilling table LINEATTR

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table LINEATTR appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

This table provides the attributes associated with the DU. The DU originates the call. The DU provides the pretranslator route selector.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Explanation and action
LNATTIDX		0 to 31 999	Line attribute index. Enter the line attribute index.
LCC			Line class code. Enter the line class code assigned to the line attribute index. You cannot change the LCC of a current tuple.
PRTNM			Standard pretranslator subtable name. If pretranslation of digits is necessary, enter the name of the standard pretranslator subtable assigned to the line attribute index. If standard pretranslation is not necessary, enter NPRT.
LCANAME			Local calling area screening subtable name. If screening of local NNX codes is necessary, enter the name of the local calling area subtable. Enter the name of the local calling area subtable assigned to the line attribute index. If screening is not necessary, enter NLCA.
LATANM			Local access and transport area name. Enter the name of the LATA associated with this line attribute.

Belcore LAMA Format (continued)

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example. The P621 is the pretranslator that indexes subtables STDPRT and HNPACONT. The L613 indexes table LCASCRN. The LATA1 indexes table LATAXLA.

MAP example for table LINEATTR

LAIDX	LCC	CHGCLSS	COST	SCRNCL	LTG	STS	PRTNM	LCANAME
ZEROMPOS	TRAFSNO							
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS		
	RESINF		OPTIONS					
0	1FR	NONE	NT	FR01	0	613	P621	L613
TSPS	10							
MRSA1	NILSFC	LATA1	0	NIL	NIL	00		
	N			\$				

Datafilling table IBNXLA

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table IBNXLA appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfields	Key. This field contains subfields XLANAME and DGLIDX.
	XLANAME	1- to 8-character name	Translator name. Enter the 1- to 8-character name assigned to the translator.
	DGLIDX	numeric	Digilator index. Enter the digit or digits assigned as the OUTWATS access code.
RESULT		see subfields	Result. This field contains subfields TRSEL, ACR, SMDR, NOACDIGS, SDT, DGCOLNM, CRL, INTRAGRP, NETTYPE, and LNATTR.
	TRSEL	NET	Translator selector. Enter the translation selector NET.
	ACR	Y or N	Account code entry. This field specifies if an account code entry is necessary.

Bellcore LAMA Format (continued)**Datafilling table IBNXLA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	SMDR	Y or N	Station message detail recording. This field specifies if the system records calls. Note: If set to Y, the system SMDR records the feature that originates a call. This feature does not have an effect for features that do not originate a call. For features that do not originate a call, the system does not produce a SMDR record.
	NOACDIGS	0 to 7	Number of access code digits. Enter the number of digits in the OUTWATS access code.
	SDT	Y	Second dial tone. Enter Y if second dial tone is necessary.
	DGCOLNM	1- to 8-character name	Digit collection name. Enter the name assigned to the block of data in table DIGCOL for digit collection for the IBN lines. The name is 1- to 8-characters.
	CRL	N	Code restriction level. Enter N.
	INTRAGRP	N	Intragroup. Enter N.
	NETTYPE	network type	Network type. Enter the network type.
	LATTR	0 to 4095	Line attribute. Enter the line attribute assigned to the OUTWATS access code.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appears in the following example. In the datafill, the translator CXDK and the access code dialed (9) index table IBNXLA. The CXDK and access code index table IBNXLA to reach the line or trunk. The system routes the call of the line or trunk. The translation selector is NET. The network type is GEN. The DGCOLNM is POTS. The LATTR (line attribute index 0) indexes table LINEATTR.

Belcore LAMA Format (continued)

MAP example for table IBNXLA

KEY		RESULT	
CXDK	9		
NET	N N N 1 Y	POTS	N N GEN (LATTR 0) \$

Datafilling subtable HNPACODE

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for table HNPACODE appears in the following table. The fields that apply to Belcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling subtable HNPACODE

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter a numeric string where the leading three digits represent an office code in the home NPA. This number can represent a single code. This number can represent the first in a block of consecutive codes that have the same input data.
TODIGS		numeric	To digits. If field FROMDIGS represents a single code, enter the same single code as in FROMDIGS. If field FROMDIGS represents the first number of a block of consecutive numbers, enter the last number in the block.
CDRRTMT		see subfields	Code type, route reference, and treatment. This field contains subfields CD and RR.
	CD		Code type.
	RR	1 to 1023	Route reference index. Enter the route reference index of the route list in table HNPACONT.RTEREF to which translation is to proceed. Table HNPACONT.RTEREF is the same position SNPA as this table HNPACONT.HNPACODE.

Bellcore LAMA Format (continued)**Datafill example for subtable HNPACODE**

Sample datafill for subtable HNPACODE in table HNPACONT appears in the following example. In the example, 722 is the terminating office code identified for the intra-LATA Datapath call. Subtable HNPACODE routes the call to table TOFCNAME. Subtable HNPACODE uses SNPA 613 and office code 722 to route the call.

MAP example for subtable HNPACODE

FROMDIGS	TODIGS
	CDRRTMT
722	722
	DN 613 722

Datafilling subtable STDPRT

The datafill for Datapath AMA Format—Call Code 072 (BR0793) for subtable STDPRT appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. See the data schema section of this document for a description of the other fields.

**CAUTION****Possible office billing alteration**

Changes in subtable STDPRT can alter office billing because of call code types. The call type default is NP. See the data schema section of this document for additional information on subtable STDPRT.

Datafilling subtable STDPRT (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter the digit or digits to translate. If the entry represents a block of consecutive numbers, enter the first number in the block.
TODIGS		numeric	To digits. Equal to the digits entered in FROMDIGS. If FROMDIGS represents a block of consecutive numbers, enter the last number of the block here.

Belcore LAMA Format (continued)

Datafilling subtable STDPRT (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, and CARRNAME.
	PRERTSEL		Pretranslation route selector. Enter the pretranslation route selector.
	TYPCALL	DD	Type of call. Enter DD for direct dial.
	NOPREDIG	0 to 7	Number of prefix digits. Enter the number of digits that the system interprets as prefix digits. Note: Where the switching unit provides circle digit operation, include the circle digit. Include the circle digit in the number of prefix digits to remove from the digit translation.
	CARRNAME		Carrier name. Enter the IC/INC carrier name that table OCCNAME defines.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT appears in the following example.

The received leading digit dialed for the intra-LATA Datapath call is 722. The first digit is 7. The call is a billable call (DD). The system uses North American (NA) translations.

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
7	810	N DD 0 NA

Bellcore LAMA Format (continued)**Datafilling table AMAOPTS**

The datafill for Bellcore LAMA Format for table AMAOPTS appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		UNANS_LOCAL and UNANS_TOLL	Option. Enter UNANS_LOCAL and UNANS_TOLL.
SCHEDULE		see subfield	Schedule. This field contains subfield AMASEL.
	AMASEL	ON	AMA selector. Enter ON to activate UNANS_LOCAL and UNANS_TOLL.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example. If recording of unanswered local calls is necessary, set UNANS_LOCAL to ON in table AMAOPTS. If recording of unanswered toll calls is necessary, set UNANS_TOLL to ON in table AMAOPTS. If recording of unanswered local and toll calls is necessary, set UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS.

MAP example for table AMAOPTS

OPTION	SCHEDULE
UNANS_LOCAL	ON
UNANS_TOLL	ON

Belcore LAMA Format (continued)

Datafilling table BCCODES

The datafill for Bellcore LAMA Format for table BCCODES appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Explanation and action
CALLTYPE		LOCAL, TOLL, HIGHREV, TOPS	Bellcore call type. Enter one of the following Bellcore call types: • LOCAL (local calls) • TOLL (toll calls) • HIGHREV (high-revenue calls) • TOPS (TOPS calls)
CODES		numeric	Bellcore call codes. Enter any combination of the Bellcore call codes. You can enter a maximum of 46 Bellcore call codes. Separate each call code with a blank column.

Datafill example for table BCCODES

Sample datafill for table BCCODES appears in the following example. Key the entries in table BCCODES by the call type. The entries contain a list of call codes. The call codes determine when the system records unanswered and high-revenue AMA records. To generate unanswered records, set UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS. Enter LOCAL tuple in table BCCODES with call codes 072 and 117. Enter this field to generate unanswered local inter-LATA or intra-LATA Datapath calls.

MAP example for table BCCODES

CALLTYPE	CODES					
TOLL	(600)					
LOCAL	(007)	(068)	(111)	(114)	(072)	(117)

Bellcore LAMA Format (continued)**Datafill sequence of Datapath call datafill for Datapath AMA Format—Call Code 117 (BR0793)**

The following table lists the tables that require datafill to implement the Datapath AMA Format—Call Codes 072 and 117 feature. The tables are in the correct entry order to generate an inter-LATA call code 117.

Datafill requirements for datapath call datafill for an inter-LATA call code 117 (Sheet 1 of 2)

Table	Purpose of table
HNPACONT	List of HNPA code subtables. Lists the home or NPA and the STS.
STDPRTCT	List of standard pretranslation tables. Lists the names of the standard pretranslator subtables (STDPRTCT.STDPRT). The operating company defines the names of the pretranslator subtables.
DIGCOL	The IBN digit collection. Specifies the action that the line module takes. The first digit dialed determines the action. The IBN digit collection requires table DIGCOL.
CUSTHEAD	Customer group head. Lists the values and options assigned to groups.
OCCINFO	Equal Access Other Common Carrier information. Defines the attributes for carriers that serve the DMS switch. This table screens calls for carrier compatibility.
OFRT	Office route. Defines all carrier routes and operator service routes. Each tuple provides the route number and the route list. The route list must include a primary route. The route list can include alternate routes.
NCOS	Network class of service table. Describes the class of service assigned to the following: • attendant consoles • IBN stations • incoming IBN trunk groups • the incoming side of two-way IBN trunk groups • authorization codes • customer groups
LINEATTR	Line attribute. Provides a list of attributes associated with the line index assigned to every subscriber line.

Belcore LAMA Format (continued)

Datafill requirements for datapath call datafill for an inter-LATA call code 117 (Sheet 2 of 2)

Table	Purpose of table
KSETLINE	Business set feature keys. Contains data of DN appearances on business sets and DUs. Note: Enter this table through SERVORD. This document does not provide a datafill procedure. See SERVORD for an example of how to use SERVORD to enter this table.
IBNXLA	The IBN translation. Provides the instructions that use a virtual facility group to translate an OUTWATS call.
STDPRTCT. STDPRT	Standard pretranslator subtable. Sets up the translations for a specific call type.
AMAOPTS	The AMA options table. Controls the activation and scheduling of the recording options for local, toll, and high-revenue calls.
LATAXLA	Equal Access local access and transport area translation. Defines the attributes of domestic calls as inter-LATA or intra-LATA and as interstate or intrastate.
BCCODES	Bellcore codes. Allows the operating company to specify which unanswered calls create billing records.

Datafilling table HNPACONT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table HNPACONT appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table HNPACONT

Field	Subfield or refinement	Entry	Explanation and action
NPA		numeric	Serving translation scheme. Enter the three-digit SNPA or STS code. Note: A home or SNPA must have 1 or 0 for the the middle digit. Enter a home or SNPA in one of the first 16 positions. Line data, POTS VFG data, PBX trunk data, and tables DNINV, DNROUTE, and TOFCNAME can use SNPAs.
MAXRTE		numeric	Number of route references. Enter the quantity of route reference numbers. This field automatically extends to the highest route index in subtable HNPACONT.RTEREF. The maximum route index is 1023.
NOAMBIGC		0 to 159	Number of ambiguous codes. Enter the number of ambiguous codes required.

Datafill example for table HNPACONT

Sample datafill for table HNPACONT appears in the following example. The SNPA of the originating line is 613. Table HNPACONT contains the SNPA of the originating line. The SNPA appears in the following example.

MAP example for table HNPACONT

NPA	MAXRTE	NOAMBIGC	RTEREF	HNPACODE	ATTRIB	RTEMAP
613	127	1	(1)	(1)	(0)	(0)

Datafilling table STDPRTCT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table STDPRTCT appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table STDPRTCT

Field	Subfield or refinement	Entry	Explanation and action
EXTPRTNM		alphanumeric	External standard pretranslator subtable name. Enter the name that the operating company defines to represent the standard pretranslator subtable. Do not enter the standard pretranslator name C7PT. The ISUP trunks automatically use the standard pretranslator name C7PT on test calls in offices with ISUP capability.

Datafill example for table STDPRTCT

Sample datafill for table STDPRTCT appears in the following example. In this example, P621 is the pretranslator assigned to the originating line (DU). The P621 is the index into table STDPRTCT. The index into table STDPRTCT appeared in the previous datafill.

MAP example for table STDPRTCT

EXTPRTNM	STDPRT	AMAPRT
P621	(1)	(0)

Datafilling table DIGCOL

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table DIGCOL appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table DIGCOL (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DGKEY		see subfields	Digit collection key. This field contains subfields DATNAME and DIGIT.
	DATNAME	1-to 8-characters	Name of digit collection table. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL.

Bellcore LAMA Format (continued)**Datafilling table DIGCOL (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
DGDATA	DIGIT	0 to 9, STAR, OCT	Digit. Enter the digit (0 to 9), star (STAR), or octothorpe (OCT) that applies to the record.
		see subfield	Digit collection table. This field contains subfield DGCOLSEL.
	DGCOLSEL	RPT	Digit collection selector. Enter the selector RPT.

Datafill example for table DIGCOL

Sample datafill for table DIGCOL appears in the following example. Datapath digit collection requires table DIGCOL because IBN translation capabilities implement Datapath.

In this example, KDK is the digit collection tuple indexed. The DGDATA field specifies when action occurs. The digits dialed determine the actions taken. The RPT means that each time a digit is dialed, the system receives the digits. The system reports the digits to the central control.

MAP example for table DIGCOL

DGKEY		DGDATA
KDK	9	RPT

Datafilling table CUSTHEAD

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table CUSTHEAD appears in the following table. The fields that apply to Bellcore

Belcore LAMA Format (continued)

LAMA Format appears in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table CUSTHEAD

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		1- to 16-character	Customer group name. Enter the 1- to 16-character name assigned to the customer group.
CUSTXLA		1- to 8-character	Customer translator. Enter the 1- to 8-character name assigned to the block of data (customer translator) in table IBNXLA. The block of data specifies the data for the translation of digits. The digits originate from an IBN station, attendant, incoming trunk group, or incoming side of a two-way trunk group.
DGCOLNM		1- to 8-character	Digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DIGCOL. The block of data specifies the IBN digit collection for the IBN lines.
IDIGCOL		1- to 8-character, or NIL	International digit collection name. Enter the 1- to 8-character name assigned to the block of data in table DGHEAD. This field only appears when the Open Number Translation feature (NTXB57AA) is in the load. Enter NIL if you do not enter the block data name.

Datafill example for table CUSTHEAD

Sample datafill for table CUSTHEAD appears in the following example. In this example, the customer group is COMKODAK, and the CUSTXLA is CXDK. The CUSTXLA indexes table IBNXLA. The DIGCOLNM name is KDK. The DIGCOLNM indexes table DIGCOL.

MAP example for table CUSTHEAD

CUSTNAME	CUSTXLA	DGCOLNM	IDIGCOL	OPTIONS
COMKODAK	CXDK	KDK	NIL	
(VACTRMT 0)	(EXTNCOS 0)	(ACCT 5)	(FETXLA CUSTFEAT)	
(PLMXLA PXDK)	(ERDT 7)	(AUTH COMKODAK N N)		
(SUPERCNF)	(ACR AUTH 1)	(CUTPAUSE 1)	(CUTMOUT10)	
(OCTXLA CUSTSHRP)	\$			

Bellcore LAMA Format (continued)**Datafilling table OCCINFO**

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table OCCINFO appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table OCCINFO (Sheet 1 of 6)

Field	Subfield or refinement	Entry	Explanation and action
CARRNAME		1- to 16-character alphanumeric	Carrier name. Enter the carrier name or a 1- to 16-character alphanumeric abbreviation of the carrier name. Enter the carrier name as the name appears in table OCCNAME. Leave this field empty if you use the generic recursive pretranslator. The generic recursive pretranslator associates with the reserved carrier name USE_PREVIOUS.
CARRNUM		000 to 999 or NIL	Carrier number. Enter the carrier access code (000 to 999). The carrier access code is equal to the XXX digits in the equal access prefixes (10XXX or 950YXXX). Enter NIL if you do not enter the carrier code. Note: This field only accepts 256 entries for each office.
ACCESS			Access arrangement. Enter the access type that the carrier accepts to handle a call.
INTER		Y or N	Inter local access transport area. Enter Y if the carrier can handle inter-LATA traffic. Enter N if the carrier cannot handle inter-LATA traffic.
INTNTL		Y or N	International. Enter Y if the carrier can handle international traffic. Enter N if the carrier cannot handle international traffic.
INTRA		Y or N	Intra local access transport area. Enter Y if the carrier can handle intra-LATA traffic. Enter N if the carrier cannot handle intra-LATA traffic.
ANI		Y or N	Automatic number identification. Enter Y if the carrier requires ANI digits with the called number. Enter N if the carrier does not require ANI digits with the called number.

Belcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 2 of 6)

Field	Subfield or refinement	Entry	Explanation and action
FANI		Y or N	Flexible automatic number identification. Enter Y if the carrier can receive flexible ANI (FANI) information digits instead of ANI information digits. Enter N if the carrier cannot receive FANI information digits instead of ANI information digits.
ONISCRN		Y or N	Operator number identification screening. Enter Y if ONI traffic requires screening by an operator or CAMA position before outpulsing to the carrier. Enter N if ONI traffic does not require screening before outpulsing.
AD1		Y or N	Abbreviated dialing number one. Enter Y if Abbreviated Dialing can access the carrier. Enter N if Abbreviated Dialing cannot access the carrier.
OVERLAP		Y or N	Overlap. Enter Y if the carrier receives digits from the access tandem. Enter Y if the carrier receives digits from the equal access end office that uses overlap outpulsing. Enter N if the carrier does not receive digits from the access tandem or equal access end office.
INTERS		Y or N	Inter-state. Enter Y if the carrier can handle traffic between states. Enter N if the carrier cannot handle traffic between states.
INTRAS		Y or N	Intra-state. Enter Y if the carrier can handle traffic in a state. Enter N if the carrier cannot handle traffic in a state.
TERMREC		LONG or SHORT	Terminating access record. Enter the length of the terminating access record produced for the carrier. The length of the terminating access record is LONG or SHORT. Refer to the <i>Belcore Format Automatic Message Accounting Reference Guide</i> , structure codes 653/664, for a description of terminating records.

Bellcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 3 of 6)

Field	Subfield or refinement	Entry	Explanation and action
OCCSEPNO		0 to 127	Other common carrier separation number. Enter the OCC separation number for the carrier in the Traffic Separations Measurement System. The OCC separation number is from 0 to 127.
OPSIG		FGRPC, NONE, FGRPD	Operator signaling. Enter the type of operator signaling that the carrier provides. This field eliminates the need to establish two carriers with the same access code in table OCCINFO. This field allows transitional or equal access plan carriers to perform FGC operator signaling. Enter one of the following codes: - enter FGRPC for Feature Group D carriers that require Feature Group C operator signaling - enter NONE for all other Feature Group D carriers - enter FGRPD as the equivalent to NONE at this time Note: For FGC carriers, enter NONE or FGRPC. The values do not affect operator signaling to the FGC carrier. The system ignores this field for FGC carriers.
PICIND		Y or N	Presubscription indicator. Enter Y if the carrier receives the presubscription indicator. Enter N if the carrier receives the presubscription indicator. Note: Enter the PICIND for every entry in table OCCINFO.

Belcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 4 of 6)

Field	Subfield or refinement	Entry	Explanation and action
NOA950		Y or N	Nature of address indicator. Enter Y to indicate that the type of address indicator in the calling party number parameter is set. Enter N to indicate that the nature of address indicator in the calling party number parameter is set to the normal value. Note: The default value of N does not cause a change in the current operation of the switch. A value of Y indicates a call from a public station, a hotel/motel line, or a non-EAEO (equal access end office).
INCCPN		Y or N	Include calling party number. Enter N to remove the calling party number parameter from initial address messages sent to this carrier. Enter Y if a change in the current operation of the switch is not necessary. The Y is the default value.
DTMFIND		Y or N	Rotary dial/dual tone multifrequency (DTMF) indicator. Enter Y if the carrier receives the rotary dial/DTMF indicator on operator services calls that route directly to the carrier. Enter N if the carrier does not receive the rotary dial/DTMF indicator. Note: Enter the DTMFIND for every entry in table OCCINFO. The DTMFIND is active when feature package NTX888 is present.
OPSERV		Y or N	Operator services. Enter Y if the carrier accepts EAOSS. The carrier does not require the operating company to process 10XXX+0 and 00 calls to the carrier. Enter N if the carrier does not accept EAOSS. The carrier requires the operating company to process 10XXX+0 and 00 calls to the carrier. Note: Enter OPSERV for every entry in table OCCINFO. The OPSERV is active when feature package NTX888AA is present.

Bellcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 5 of 6)

Field	Subfield or refinement	Entry	Explanation and action
CACBLOCK		Y or N	Carrier access code blocking. Enter Y if the carrier blocks all calls dialed with a carrier access code. Enter N for all other carriers. Note: Enter CACBLOCK for every entry in table OCCINFO. The CACBLOCK is active when feature package NTX989AA is present.
CTDOA		Y or N	Carrier toll deny (CTD) operator assisted. Enter Y to block OA calls to this carrier. The subscriber has the CTD line option applied for this carrier. Enter N if the system does not block calls to this carrier. The N is the default value.
CMCMON		Y or N	Cellular mobile carrier monitor. Enter Y to monitor the connection between the CMS and IC/INC. Enter Y to place the called DN in the originating IC/INC and terminating CMC billing records. Enter N if the system does not monitor the connection or place the called DN in the billing records.
SCRNWATS		Y or N	Enhanced WATS screening. Enter Y if the carrier requires band screening on digits dialed from an Enhanced WATS line. Enter N if the carrier does not require band screening. Note: The SCRNWATS applies when software package NTXA16AA is present.
CRMCRA		Y or N	Circuit reservation and acknowledgment messages. Enter Y if an access tandem (AT) sends a circuit reservation message (CRM) to an interexchange carrier (IEC). The AT sends the CRM on FGD calls outgoing over SS7 trunk group type ATC trunks. The AT receives a circuit reservation acknowledgment (CRA) message from the IEC. The AT receives the CRA on FGD calls incoming to the AT. The calls are incoming to the AT on multifrequency intertoll or SuperCAMA trunks. Multifrequency trunks belong to trunk type IT. SuperCAMA trunks belong to trunk group SC. Enter N if these conditions do not occur.

Belcore LAMA Format (continued)

Datafilling table OCCINFO (Sheet 6 of 6)

Field	Subfield or refinement	Entry	Explanation and action
ATPINCL		Y or N	Access transport parameter included. Enter Y if the IAM message to the IEC includes an access transport (ATP). Enter N if an IAM message sent to the IEC does not contain an ATP.
INTRAOPR		Y or N	Intra-LATA operator. Enter Y if a carrier can handle intra-LATA operator calls. Enter N if the carrier cannot handle intra-LATA calls.

Datafill example for table OCCINFO

Sample datafill for table OCCINFO appears in the following example. The carrier for the inter-LATA Datapath call that the datafill translates is ABC. The datafill translates the 121 ABC access code according to the following datafill.

MAP example for table OCCINFO

```

CARRNAME CARRNUM ACCESS INTER INTNTL INTRA ANI FANI
ONISCRN AD1 OVERLAP
INTERS INTRAS TERMREC OCCSEPNO OPSIG PICIND NOA950
INCCPN DTMFIND OPSERV
CACBLOCK CTDOA CMCMON SCRNWATS CRMCRA ATPINCL
INTRAOPR

```

ABC	121	EAP	Y	Y	Y	Y	Y
Y	Y	Y					
Y	Y	LONG	0	NONE		N	N
N	Y	N					
N	Y	N	N	Y		N	
N							

Datafilling table OFRT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table OFRT appears in the following table. The fields that apply to Belcore LAMA

Bellcore LAMA Format (continued)

Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table OFRT

Field	Subfield or refinement	Entry	Explanation and action
RTE		0 to 1023	Route reference index. If the record is the first in the route list, enter the route reference number assigned to the route list.
RTELIST		see subfields	Route list. This field contains the subfields RTESEL, CONNTYPE, CLLI, and ROUTATTR_INDEX.
	RTESEL	S or SX	Route selector. Enter S and datafill refinements CONNTYPE and CLLI if the route is standard. Enter SX and datafill refinements CLLI and ROUTATTR_INDEX if the route is expanded standard.
	CONNTYPE	D	Connection type. Enter D to satisfy the table editor. The system logic does not use this field.
	CLLI	alphanumeric	Common language location identifier. Enter the code in table CLLI to which translation is to route.
	ROUTATTR_INDEX	alphanumeric	Route attribute index. Enter the index in table ROUTATTR that contains the expanded routing information to apply to the call.

Datafill example for table OFRT

Sample datafill for table OFRT appears in the following example. The key is 321. The key is indexed from subtable STDPRT. The route selector is S. Standard digit manipulation is necessary. The system routes the call over the OGEEABC trunk to complete the call.

MAP example for table OFRT

RTE	RTELIST
321	(S D OGEEABC) \$

Belcore LAMA Format (continued)

Datafilling table NCOS

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table NCOS appears in the following table. The fields that apply to Belcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table NCOS

Field	Subfield or refinement	Entry	Explanation and action
CUSTGRP		1- to 16- characters	Customer group name. Enter the 1- to 16-character code assigned to the customer group.
NCOS		0 to 511	Network class of service number. If this field is the first record for the NCOS number, enter the NCOS number. If this is not the first record, leave this field blank.
NCOSNAME		1- to 6-characters	Network class of service name. If this field is the first record for the NCOS number, enter the name assigned to the NCOS number. The name is for the key and lamp display. The name assigned to the NCOS number is a 1- to 6-character name. If this field is not the first record, leave this field blank.
LSC		0 to 31	Line screening code. If this field is the first record for the NCOS number, enter the line screening code assigned to the NCOS number.
TRAFSNO		0 or 10 to 127	Traffic separation number. If this field is the first record for the NCOS number, enter the traffic separation number. Enter the traffic separation number assigned to the NCOS number in table TFANINT. Enter O if the traffic separation number is not necessary.

Datafill example for table NCOS

Sample datafill for table NCOS appears in the following example. The customer group name in table IBNLINES indexes this table.

Bellcore LAMA Format (continued)**MAP example for table NCOS**

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
COMKODAK	0	KDKO	0	0	(OHQ 0TONE_OHQ) (CBQ 0 3 N 2) \$

Datafilling table LINEATTR

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table LINEATTR appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document. This table provides the attributes associated with the data unit that originates the call. This table provides the pretranslator route selector.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Explanation and action
LNATTIDX		0 to 4095	Line attribute index. Enter the line attribute index.
LCC		1- to 5- alphanumeric or NLCC	Line class code. Enter the LCC assigned to the line attribute index. You cannot change the LCC of a current tuple.
		1- to 5- alphanumeric	
PRTNM		1- to 4- alphanumeric or NPRT	Standard pretranslator subtable name. If pretranslation of digits is necessary, enter the name of the standard pretranslator subtable assigned to the line attribute index. If standard pretranslation is not necessary, enter NPRT.
LCANAME		1- to 5- alphanumeric or NLCA	Local calling area screening subtable name. If screening of local NNX codes is necessary, enter the name of the local calling area subtable. Enter the name of the local calling area subtable assigned to the line attribute index. If screening is not necessary, enter NLCA.
LATANM		1- to 8- alphanumeric	Local access and transport area name. Enter the name of the LATA associated with this line attribute.

Belcore LAMA Format (continued)

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example. In the datafill example, P621 is the pretranslator that indexes subtables STDPRT and HNPACONT. The L613 indexes table LCASCRN. The LATA1 indexes table LATAXLA.

For BCS34 and later versions, LCABILL and HOT are removed as fields in table LINEATTR and placed as options in field OPTIONS.

MAP example for table LINEATTR

LNATTIDX	LCC	CHGCLSS	COST	SCRNCL	LTG	STS	PRTNM	LCANAME
ZEROMPOS	TRAFSNO							
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS		
		RESINF				OPTIONS		
0	1FR	NONE	NT	FR01	0	613	P621	L613
	TSPS	10						
NIL	NILSFC	LATA1	0	NIL		NIL	00	
			N				\$	

Datafilling table IBNXLA

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table IBNXLA appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfields	Key. This field contains subfields XLANAME and DGLIDX.
	XLANAME	alphanumeric	Translator name. Enter the 1- to 8-character name assigned to the translator.
	DGLIDX	1- to 18-digits	Digilator index. Enter the digits or digits assigned as the OUTWATS access code.
RESULT		see subfields	Result. This field contains subfields TRSEL, ACR, SMDR, NOACDIGS, SDT, DGCOLNM, CRL, INTRAGRP, NETTYPE, and LNATTR.
	TRSEL	NET	Translator selector. Enter the translation selector NET.

Bellcore LAMA Format (continued)

Datafilling table IBNXLA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	ACR	Y or N	Account code entry. Enter N when an account entry is not necessary.
	SMDR	Y or N	Station message detail recording. Enter N when the system does not record calls. Note: If set to Y, only the feature that originates a call is SMDR recorded. For features that do not originate a call, this field does not have an effect. The system does not produce an SMDR record.
	NOACDIGS	0 to 7	Number of access code digits. Enter the number of digits in the OUTWATS access code.
	SDT	Y or N	Second dial tone. Enter Y if second dial tone is necessary.
	DGCOLNM	1- to 8- digit alphanumeric	Digit collection name. Enter the name assigned to the block of data in table DIGCOL for digit collection for the IBN lines. The name is a 1- to 8-character name.
	CRL	N	Code restriction level. Enter N.
	INTRAGRP	N	Intragroup. Enter N.
	NETTYPE		Network type. Enter the network type.
	LATTR	0 to 4095	Line attribute. Enter the line attribute index assigned to the OUTWATS access code.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appears in the following example. In the datafill, the translator CXDK and the access code dialed (9) index table IBNXLA. The translator and the access code index IBNXLA to reach the line or trunk. The call routes over the line or trunk. The translation selector is NET. The network type is GEN. The DGCOLNM is POTS. The LATTR (line attribute index 0) indexes table LINEATTR.

Belcore LAMA Format (continued)

MAP example for table IBNXLA

KEY		RESULT
CXDK	9	
NET N N N 1 Y	POTS N N GEN (LATTR	0) \$

Datafilling subtable STDPRT

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for subtable STDPRT appears in the following table. The fields that apply to Bellcore LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.



CAUTION

Possible office billing alteration

Changes in subtable STDPRT can alter office billing because of call code types. The call type default is NP. Refer to the data schema section of this document for additional information on subtable STDPRT.

Datafilling subtable STDPRT (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter the digit or digits to translate. If the entry represents a block of consecutive numbers, enter the first number in the block.
TODIGS		numeric	To digits. Enter the number equal to the digits entered in FROMDIGS. If FROMDIGS represents a block of consecutive numbers, enter the last number of the block at this time.
PRETRTE		see subfields	Pretranslation route. This field contains subfields PRERTSEL, TYPCALL, NOPREDIG, CARRNAME, RTEAREA, RTEPRSNT, EXTRTEID, TABID, KEY, MINIDIGSR, MAXDIGSR, and OCS.

Bellcore LAMA Format (continued)**Datafilling subtable STDPRT (Sheet 2 of 3)**

Field	Subfield or refinement	Entry	Explanation and action
	PRERTSEL		Pretranslation route selector. Enter the pretranslation route selector.
	TYPCALL	DD	Type of call. Enter DD for direct dial.
	NOPREDIG	0 to 7 digits	Number of prefix digits. Enter the number of digits that the system interprets as prefix digits. When the switching unit provides for circle digit operation, include the circle digit in the number of prefix digits. Include the circle digit in the number of prefix digits to remove from the digit translation.
	CARRNAME		Carrier name. Enter the IC/INC carrier name that table OCCNAME defines.
	RTEAREA	see subfields	Route area. This field contains subfields RTEPRSNT, EXTRTEID, MINIDIGSR, and MAXDIGSR.
	RTEPRSNT	Y or N	Route present. Enter Y if the system sends a call to a route from pretranslation. If this condition occurs, enter all the fields that remain.
	EXTRTEID	see subfields	External route identifier. This field contains subfields TABID and KEY.
	TABID	OFRT	Table name. Enter OFRT. Table OFRT contains the route for the FGB call.
	KEY	0 to 1023	Index. Enter the index in table OFRT that the call uses for routing.
	MINIDIGSR	1 to 15 digits	Minimum digits received. If field RTEPRSNT is Y, enter the minimum number of digits to collect before the system routes the call.

Belcore LAMA Format (continued)

Datafilling subtable STDPRT (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	MAXDIGSR	1 to 24 digits	Maximum digits received. If field RTEPRSNT is Y, enter the minimum number of digits to collect before the system routes the call.
	OCS	Y or N	Overlap carrier selection. If field RTEPRSNT is N, leave this field blank. To establish Overlap Carrier Selection, set fields RTEPRSNT, OCS, and OVERLAP in table OCCINFO to Y. In any other condition, an overlap does not occur.

Datafill example for subtable STDPRT

Sample datafill for subtable STDPRT in table STDPRTCT appears in the following example.

The leading digits dialed for the inter-LATA Datapath call are 10121. When the 10121 tuple is indexed, the call is an Equal Access billable (DD) call. The carrier that routes the call is ABC. The system translates the call to table OFRT for additional routing instructions. The 321 indexes table OFRT.

MAP example for subtable STDPRT

FROMDIGS	TODIGS	PRETRTE
10121	10121	EA DD 5 N ABC Y OFRT 321 6 20 N

Datafilling table AMAOPTS

The datafill for Datapath AMA Format—Call Code 117 (BR0793) for table AMAOPTS appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Explanation and action
OPTION		UNANS_LOCAL and UNANS_TOLL	Option. Enter UNANS_LOCAL and UNANS_TOLL.
SCHEDULE		see subfield	Schedule. This field contains subfield AMASEL.
	AMASEL	ON	The AMA selector. Enter ON to activate UNANS_LOCAL and UNANS_TOLL.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example. If recording of unanswered local calls is necessary, set UNANS_LOCAL to ON in table AMAOPTS. If recording of unanswered toll calls is necessary, set UNANS_TOLL to ON in table AMAOPTS. If recording of unanswered local and toll calls is necessary, set UNANS_LOCAL and UNANS_TOLL to ON in table AMAOPTS.

MAP example for table AMAOPTS

OPTION	SCHEDULE
UNANS_LOCAL	ON
UNANS_TOLL	ON

Datafilling table LATAXLA

Table LATAXLA defines the attributes of calls as inter-LATA or intra-LATA and as interstate or intrastate. The system compares the attributes of the calls with the attributes of the carriers in table OCCINFO. This procedure determines that the carrier handles the call.

Datafill for Datapath AMA Format—Call Code 117 (BR0793) for table LATAXLA appears in the following table. The fields that apply directly to

Belcore LAMA Format (continued)

Belcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table LATA XLA

Field	Subfield or refinement	Entry	Description and action
LATACODE		refer to subfields	LATA code. This field is the key to LATA XLA. This field contains subfields LATANM and DIGITS. Descriptions of these subfields follow.
	LATANM	alphanumeric	Calling LATA name. Enter the LATA name as defined in table LATANAME.
	DIGITS	1 to 18 digits	Dialed digits. Enter the digits (NPA or NPANXX) that the originator of the call dialed.
LATA		INTER or INTRA	LATA call attribute. Enter INTER or INTRA to define an NPA or NPANXX code as inter-LATA or intra-LATA.
STATE		INTER or INTRA	State call attribute. Enter INTER or INTRA to define an NPA or NPANXX code as interstate or intrastate.
EATYPE		STD, CORRIDOR, PRIVILEGE, or NON_EA	Equal access call type. Enter the appropriate EA call type to identify the call as standard (STD), CORRIDOR, PRIVILEGE, or NON_EA. Refer to the data schema section of this document for a description of the other fields.

Datafill example for table LATA XLA

Sample datafill for table LATA XLA appears in the following example.

MAP example for table LATA XLA

	LATACODE	LATA	STATE	EATYPE
LATA1	314	INTER	INTER	STD

This table determines the call type of each BC call code.

Datafilling table BCCODES

Datafill for Datapath AMA Format—Call Code 117 (BR0793) for table BCCODES appears in the following table. Only the fields that apply directly

Bellcore LAMA Format (continued)

to Bellcore LAMA Format appear in the table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table BCCODES

Field	Subfield or refinement	Entry	Description and action
CALLTYPE		LOCAL, TOLL, HIGHREV	Bellcore call type. Enter one of the following Bellcore call types: • LOCAL (local calls) • TOLL (toll calls) • HIGHREV (high-revenue calls)
CODES		alphanumeric	Bellcore call codes. Enter any group of the Bellcore call codes. A blank column must separate each call code. For a complete list of Bellcore call codes, refer to table BCCODES in the data schema section of this document.

Datafill example for table BCCODES

The call type keys the entries in table BCCODES. The entries contain a list of call codes that determine when the system records unanswered and high revenue AMA records. To generate these unanswered records, the parameters UNANS_LOCAL and UNANS_TOLL are set to ON in table AMAOPTS. The LOCAL tuple must have data entries of call codes 072 and 117 in table BCCODES. This entry causes the system to generate unanswered local inter-LATA or intra-LATA Datapath calls.

Sample datafill for table BCCODES appears in the following example.

MAP example for table BCCODES

CALLTYPE	CODES
TOLL	(006)
LOCAL	(007) (068) (111) (114) (072) (117)

Belcore LAMA Format (continued)

Datafill sequence for Universal Bellcore Centrex Billing (NC0267) (North American offices)

The following table lists the tables that require datafill to use Universal Bellcore Centrex Billing (NC0267) in North American offices. The tables appear in the correct entry order.

Datafill requirements for Universal Bellcore Centrex Billing (NC0267) (North American)

Table	Function of table
AMATKOPT	AMA Trunk Group Option Table. This table allows the application of AMA Bellcore format options to occur on a trunk group or to specific members of the trunk group.
DNROUTE	Directory Number Route Table. This table lists information for directory numbers (DNs) that identify a route.
VIRTGRPS	Virtual Facility Group Table. This table provides a mechanism to remove the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS and provide equal access abilities.
AMAOPTS	AMA Options Table. This table controls the activation and schedule of the record options for local, toll, and high-revenue calls.
AMAGRPID	AMA Group Identification Table. This table identifies the AMA group.
AMAXLAID	AMA Translations Identification Table. This table allows the system to define a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned against the table determine the AMA record.
FLEXAMA	Flexible AMA Table. This table allows definition of a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned against the table determine the AMA record.
LINEATTR	Line Attribute Table. This table provides a list of attributes associated with the line index assigned to each subscriber line.
STDPRTCT. AMAPRT	AMA Pretranslator Subtable. This table generates call codes 009, 033, 088, 121, and 800 to 999 with AMA pretranslation.

Datafilling table AMATKOPT

Datafill for Universal Bellcore Centrex Billing (NC0267) in North American offices for table AMATKOPT appears in the following table. Only the fields

Bellcore LAMA Format (continued)

that apply to Bellcore LAMA Format appear in the table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMATKOPT

Field	Subfield or refinement	Entry	Description and action
CLLI		alphanumeric	Common language location identifier. Enter the code that indicates the trunk group in table CLLI.
OPTIONS		AMACLID \$	Options. Enter \$ to terminate the tuple.

Datafill example for table AMATKOPT

Sample datafill for table AMATKOPT appears in the following example.

MAP example for table AMATKOPT

CLLI	OPTIONS
ISUP2W	(AMACLID) \$

Note 1: For customers that enter data for ENTRYID for DISA stations, enter ENTRYID in subfield DISAOPT in table DNROUTE. For customers that enter data ENTRYID for VFGs, enter ENTRYID in subfield OPTION in table VIRTGRPS. Do not enter data in table DNROUTE and table VIRTGRPS.

Note 2: New option TERMNPA in table AMATKOPT can specify an NPA of the trunk that terminates for offices that serve two or more NPAs. The customer can dial a maximum of a seven digit office code. In this event, the NPA in subfield CONNGNPA of table AMATKOPT is for the NPA field that terminates in the billing record.

Datafilling table VIRTGRPS

Datafill for Universal Bellcore Centrex Billing (NC0267) for table VIRTGRPS appears in the following table. The fields that apply to Bellcore LAMA Format

Belcore LAMA Format (continued)

appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Description and action
	OPTION	ENTRYID	Option. Enter ENTRYID.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example.

MAP example for table VIRTGRPS

KEY	DATA OPTIONS
VFG1 SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N	(ENTRYID) \$

Datafilling table DNROUTE

Datafill for Universal Bellcore Centrex Billing (NC0267) for table DNROUTE appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table DNROUTE

Field	Subfield or refinement	Entry	Description and action
	DISAOPT	ENTRYID	DISA Option. Enter ENTRYID.

Datafill example for table DNROUTE

Sample datafill for table DNROUTE appears in the following example.

MAP example for table DNROUTE

AREACODE	OFCCODE	STNCODE	DNRESULT
062	879	4390	FEAT DISA CUSTOMER1 0 N N N N
(ENTRYID)	\$		

Belcore LAMA Format (continued)

Datafilling table AMAOPTS

Datafill for Universal Bellcore Centrex Billing (NC0267) for table AMAOPTS appears in the following table. The fields that apply to Belcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		CRSEQNUM	Option. Enter CRSEQNUM.
SCHEDULE		refer to subfield	Schedule. This field contains the following subfields: AMASEL, ONDATE, ONTIME, OFFDATE, OFFTIME, SCHED, TV, and TU. A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate CRSEQNUM.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
CRSEQNUM	ON

Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS. This action occurs because base AMA now provides the function of the tuples.

Datafilling table AMAGRPID

Datafill for Universal Bellcore Centrex Billing (NC0267) for table AMAGRPID appears in the following table. Only the fields that apply directly

Bellcore LAMA Format (continued)

to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMAGRPID

Field	Subfield or refinement	Entry	Description and action
GRPID		alphanumeric	Group identification key. Enter the group identification key.
DFLT		refer to subfield	Default. Enter the option associated with the key.
	DFLTSEL	DFLT or NODFLT	Default selector key. If you enter NODFLT, the system does not prompt you for other options. If you enter DFLT, the system does not prompt you for the GRPOPTN and OCI. Enter FLEXOCI when the system prompts for the GRPOPTN. Enter the OCI (1 to 255) value when the system prompts for the OCI. The value given populates the originating charge information field of any AMA record.

Note: Table AMAGRPID allows only 63 entries.

Datafill example for table AMAGRPID

Sample datafill for table AMAGRPID appears in the following example.

MAP example for table AMAGRPID

GROUPKEY	DEFAULT
GROUP1	
GROUP2	NODFLT
DFLT (FLEXOCI 100) \$	

Datafilling table AMAXLAID

Datafill for Universal Bellcore Centrex Billing (NC0267) for table AMAXLAID appears in the following table. The fields that apply to Bellcore

Bellcore LAMA Format (continued)

LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMAXLAID

Field	Subfield or refinement	Entry	Description and action
XLAIKEY		alphanumeric	Translations identifications key. Enter the translations identifications key. The key can have a maximum of eight characters.
DEFAULT		refer to subfield	Default. This field contains subfield DFLTSEL. A description of this subfield follows.
	DFLTSEL	DFLT, NODFLT	Default selector. If you enter NODFLT, the system does not prompt you for other options. If you enter DFLT, the system prompts you for the following: - The FLEXCTYP sets up one of the following call types to be used in the call: — STNPAID — FLATRATE — NONDA555 — DA555 — DATAPATH — DA411 — GENERIC 800 to 999 — FREE - The FLEXSF is entered and follows the FLEXSF entry that ranges from 800 to 999. After you enter a call type, the system prompts you for an override selector (OVERDSEL). Enter one of the following: — OVRDALL (overrides all other call types) — PRCDENCE Enter LOCAL, TOLL, IC, or VPN. The assignment of these call types override this AMA assignment.

Datafill example for table AMAXLAID

Sample datafill for table AMAXLAID appears in the following example.

Belcore LAMA Format (continued)

MAP example for table AMAXLAID

XLAIIDKEY	DEFAULT
XLAI1	
XLAI2	NODFLT
DFLT (FLEXCTYP STNPAID OVRDALL)(FLEXSF 800) \$	
XLAI3	
DFLT (FLEXCTYP FREE PRCDENCE (TOLL) \$)\$	

Datafilling table FLEXAMA

Datafill for Universal Bellcore Centrex Billing (NC0267) for table FLEXAMA appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table FLEXAMA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
FLEXKEY			Flexama key. Enter the GRPID assigned in table AMAGRPID. Enter the XLAIID assigned in table AMAXLAID.
CONTENT		refer to subfields	Content. This field contains subfields GRPDATA, XLADATA, and ALLDATA. Descriptions of these subfields follow.
	GRPDATA	GRPDATA, GRPOPTN	Group data. If you enter GRPDATA, the system prompts you for the GRPOPTN and OCI. Enter the group option (GRPOPTN) assigned in table AMAGRPID. Enter the OCI.

Bellcore LAMA Format (continued)**Datafilling table FLEXAMA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
	XLADATA	XLADATA, FLEXCTYP or FLEXSF	Translations data. If you enter XLADATA, the system prompts you for XLAOPTN. Enter FLEXCTYP or FLEXSF. Refer to the data schema section of this document for a description of this option and other options.
	ALLDATA	ALLDATA, FLEXOCI, FLEXCTYP, or FLEXSF	All data. If you enter ALLDATA, the system prompts you for OPTN. Enter FLEXOCI, FLEXCTYP, or FLEXSF. Refer to the data schema section of this document for a description of this option and other options.

Datafill example for table FLEXAMA

Sample datafill for table FLEXAMA appears in the following example.

MAP example for table FLEXAMA

FLEXKEY	CONTENT
GROUP1 XLA2	
ALLDATA \$	
GROUP2 XLA2	
GRPDATA (FLEXOCI 150) \$	

Datafilling table LINEATTR

Datafill for Universal Bellcore Centrex Billing (NC0267) for table LINEATTR appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Description and action
OPTION		AMAGRPID and GROUP2	Option. Enter AMAGRPID and enter GROUP2.

Belcore LAMA Format (continued)

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following example.

MAP example for table LINEATTR

```

LAIDX LCC CHGCLSS COST SCRNL LTG STS PRTNM LCANAME
ZEROMPOS TRAFSNO
MRSA SFC LATANM MDI      IXNAME DGCLNAME FANIDIGS
                RESINF                OPTIONS
-----
15 IBN      NONE    NT   NSCR  0  071  NPRT   NLCA
NONE        0
NIL NILSFC NILLATA 0 PX   CG5   NIL   00
                N   (AMAGRPID GROUP2) ( HOT) $

```

Datafilling subtable AMAPRT

Datafill for Universal Bellcore Centrex Billing (NC0267) for subtable AMAPRT in table STDPRTCT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling subtable AMAPRT

Field	Subfield or refinement	Entry	Description and action
AMARSLT		refer to subfield	AMA result. This field contains the subfields that appear below.
	CALLCODE	AMAXLAID	Call code. Enter AMAXLAID to generate an AMA record of a specified call code.

Datafill example for subtable AMAPRT

Sample datafill for subtable AMAPRT in table STDPRTCT appears in the following example.

MAP example for subtable AMAPRT

```

FROMDIGS                TODIGS                AMARSLT
-----
780                      781  GENERIC 800 Y OVRDALL N
782                      782  AMAXLAID GENERIC2
783                      785  AMAXLAID GENERIC1

```

Bellcore LAMA Format (continued)

Note: If subtable AMAPRT does not contain data for the received leading digits, AMA pretranslation does not affect the call code generated.

Datafill sequence for Universal Bellcore Centrex Billing (NC0267) (Universal offices)

The tables that require datafill to use Universal Bellcore Centrex Billing (NC0267) in Universal offices appear in the following table. The tables appear in the correct entry order.

Datafill tables requirements for Universal Bellcore Centrex Billing (NC0267) (Universal offices)

Table	Function of table
AMATKOPT	AMA Trunk Group Option Table. This table allows AMA Bellcore format specified options to function on a trunk group or to specified members of the trunk group.
DNROUTE	Directory Number Route Table. This table lists information for directory numbers (DNs) that identify a route.
VIRTGRPS	Virtual Facility Group Table. This table provides a mechanism to remove the loop-around trunks. Loop-around trunks implement IBN INWATS and OUTWATS and provide equal access abilities.
AMAOPTS	AMA Options Table. This table controls the activation and time of the record options for local, toll, and high-revenue calls.
AMAGRPID	AMA Group Identification Table. This table identifies the AMA group.
AMAXLAID	AMA Translations Identification Table. This table defines the AMA translation identifiers.
FLEXAMA	Flexible AMA Table. This table allows the system to define a set of AMA characteristics for the call. The AMAGRPID and AMAXLAID assigned to the table determine the AMA records.
LINEATTR	Line Attribute Table. The attributes associated with the line index assigned to each subscriber line appear in this table.
PXHEAD	Prefix Code Head Table. This table defines the instance of code and route tables and the characteristics of these tables.
PXCODE	Prefix Code Table. This table defines the instance of code and route tables and the characteristics of these tables.

Note: Feature NC0267 allows entry of option AMAXLAID in tables PXHEAD and PXCODE. The following tables can replace the datafill

Belcore LAMA Format (continued)

option AMAXLAID in the CONT, DNRTE, or RTE selector of table PXHEAD:

- ACHEAD
- AMHEAD
- CTHEAD
- FAHEAD
- FTHEAD
- OFCHEAD
- NSCHEAD as a table required for NC0267

Tables ACCODE, AMCODE, CTCODE, FACODE, FTCODE, OFCCODE, and NSCCODE can also replace table PXC CODE. Refer to local requirements to determine the head and code tables that apply to the specified office. Replace tables PXHEAD and PXC CODE with the correct head and code tables for the specified office.

Datafilling table AMATKOPT

Datafill for Universal Bellcore Centrex Billing (NC0267) in Universal offices for table AMATKOPT appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMATKOPT

Field	Subfield or refinement	Entry	Description and action
CLLI		alphanumeric	Common language location identifier. Enter the code that indicates the trunk group in table CLLI.
OPTIONS		AMACLID, \$	Options. Enter AMACLID. Enter \$ to terminate the tuple.

Datafill example for table AMATKOPT

Sample datafill for table AMATKOPT appears in the following example.

Bellcore LAMA Format (continued)**MAP example for table AMATKOPT**

CLLI	OPTIONS
ISUP2W	(AMACLID) \$

Note 1: For customers that enter ENTRYID for DISA stations, enter ENTRYID in subfield DISAOPT in table DNROUTE. For customers that enter ENTRYID for VFGs, enter ENTRYID in subfield OPTION in table VIRTGRPS. Do not enter data in table DNROUTE and table VIRTGRPS.

Note 2: New option TERMNPA in table AMATKOPT can specify an NPA of a trunk. This trunk terminates for offices that serve a minimum of NPAs when the customer dials a maximum of a seven-digit office code. If the customer dials this office code, the system uses data NPA in subfield CONNGNPA of table AMATKOPT. The system uses data NPA in subfield CONNGNPA of table AMATKOPT for the NPA field that terminates in the billing record.

Datafilling table DNROUTE

Datafill for Universal Bellcore Centrex Billing (NC0267) in Universal offices or table DNROUTE appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table DNROUTE

Field	Subfield or refinement	Entry	Description and action
	DISAOPT	ENTRYID	DISA Option. Enter ENTRYID.

Datafill example for table DNROUTE

Sample datafill for table DNROUTE appears in the following example.

MAP example for table DNROUTE

AREACODE	OFCCODE	STNCODE	DNRESULT
062	879	4390	FEAT DISA CUSTOMER1 0 N N N N
(ENTRYID)	\$		

Belcore LAMA Format (continued)

Datafilling table VIRTGRPS

Datafill for Universal Bellcore Centrex Billing (NC0267) in Universal offices for table VIRTGRPS appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Description and action
	OPTION	ENTRYID	Option. Enter ENTRYID.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example.

MAP example for table VIRTGRPS

KEY	DATA OPTIONS
VFG1 SIZE 2 IBN 0628770770 CUSTOMER1 0 0 0 Y Y N	
(ENTRYID) \$	

Datafilling table AMAOPTS

Datafill for Universal Bellcore Centrex Billing (NC0267) in Universal offices for table AMAOPTS appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		CRSEQNUM	Option. Enter CRSEQNUM.
SCHEDULE		refer to subfield	Schedule. This field contains the following subfields: AMASEL, ONDATE, ONTIME, OFFDATE, OFFTIME, SCHED, TV, and TU. A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate CRSEQNUM.

Bellcore LAMA Format (continued)

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

MAP example for table AMAOPTS

OPTION	SCHEDULE
CRSEQNUM	ON

Note: Feature AF3078 removes tuples RECORD_UMCD and SST from table AMAOPTS. This action occurs because base AMA now provides the function of the tuples.

Datafilling table AMAGRPID

Datafill for Universal Bellcore Centrex Billing (NC0267) in Universal offices for table AMAGRPID appears in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMAGRPID

Field	Subfield or refinement	Entry	Description and action
GRPID		alphanumeric	Group identification key. Enter the group identification key.
DFLT		refer to subfield	Default. Enter the option associated with the key.
	DFLTSEL	DFLT, NODFLT	Default selector key. If you enter NODFLT, the system does not prompt you for other options. If you enter DFLT, the system prompts you for the GRPOPTN and OCI. Enter FLEXOCI when the system prompts you for the GRPOPTN. Enter the OCI (1 to 255) value when the system prompts you for the OCI. The value given populates the originating charge information field of any AMA record.

Note: Table AMAGRPID allows only 63 entries.

Datafill example for table AMAGRPID

Sample datafill for table AMAGRPID appears in the following example.

Bellcore LAMA Format (continued)

MAP example for table AMAGRPID

GROUPKEY	DEFAULT
GROUP1	
GROUP2	NODFLT
DFLT (FLEX0CI 100) \$	

Datafilling table AMAXLAID

Datafill for Universal Bellcore Centrex Billing (NC0267) in Universal offices for table AMAXLAID appear in the following table. The fields that apply to Bellcore LAMA Format appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table AMAXLAID (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
XLAIIDKEY		alphanumeric	Translations identifications key. Enter the translations identifications key. The key can have a maximum of 8 characters.
DEFAULT		refer to subfield	Default. This field contains subfield DFLTSEL. A description of this subfield follows.
	DFLTSEL	DFLT or NODFLT	Default selector. If you enter NODFLT, the system does not prompt you for other options.

Bellcore LAMA Format (continued)

Datafilling table AMAXLAID (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
			If you enter DFLT, the system prompts you for the following. - FLEXCTYP sets up one of the following call types to use in the call: — STNPAID — FLATRATE — NONDA55 — DA555 — DATAPATH — DA411 — GENERIC 800 to 999 — FREE - The FLEXSF is entered. An entry follows FLEXSF that ranges from 800 to 999. After you enter a call type, the system prompts you for an override selector (OVERDSEL). Enter one of the following: — OVERDALL (overrides all other call types) — PRCDENCE. Enter LOCAL, TOLL, IC, or VPN. The assignment of these call types overrides this AMA assignment.

Datafill example for table AMAXLAID

Sample datafill for table AMAXLAID appears in the following example.

Belcore LAMA Format (continued)

MAP example for table AMAXLAID

XLAIIDKEY	DEFAULT
XLAI1	
XLAI2	NODFLT
DFLT (FLEXCTYP STNPAID OVERDALL)(FLEXSF 800) \$	
XLAI3	
DFLT (FLEXCTYP FREE PRCDENCE (TOLL) \$)\$	

Datafilling table FLEXAMA

Datafill for Universal Bellcore Centrex Billing for table FLEXAMA appears in the following table. The fields that apply to Universal Bellcore Centrex Billing appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table FLEXAMA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description and action
FLEXKEY			Flexama key. Enter the GRPID assigned in table AMAGRPID. Enter the XLAIID assigned in table AMAXLAID.
CONTENT		refer to subfields	Content. This field contains subfields GRPDATA, XLADATA, and ALLDATA. Descriptions of these subfields follow.
	GRPDATA	GRPDATA, GRPOPTN	Group data. If you enter GRPDATA, the system prompts you for the GRPOPTN and OCI. Enter the group option (GRPOPTN) assigned in table AMAGRPID. Enter the OCI.

Bellcore LAMA Format (continued)**Datafilling table FLEXAMA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description and action
	XLADATA	XLADATA, FLEXCTYP, or FLEXSF	Translation data. If you enter XLADATA, the system prompts you for XLAOPTN. Enter FLEXCTYP, or FLEXSF. Refer to the data schema section of this document for a description of this option and other options.
	ALLDATA	ALLDATA, FLEXOCI, FLEXCTYP, or FLEXSF	All data. If you enter ALLDATA, the system prompts you for OPTN. Enter FLEXOCI, FLEXCTYP, or FLEXSF. Refer to the data schema section of this document for a description of this option and other options.

Datafill example for table FLEXAMA

Sample datafill for table FLEXAMA appears in the following example.

MAP example for table FLEXAMA

FLEXKEY	CONTENT
GROUP1 XLA2	
ALLDATA \$	
GROUP2 XLA2	
GRPDATA (FLEXOCI 150) \$	

Datafilling table LINEATTR

Datafill for Universal Bellcore Centrex Billing for table LINEATTR appears in the following table. Only the fields that apply to Universal Bellcore Centrex Billing appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table LINEATTR

Field	Subfield or refinement	Entry	Description and action
OPTION		AMAGRPID and GROUP2	Option. Enter AMAGRPID. Enter GROUP2.

Belcore LAMA Format (continued)

Datafill example for table LINEATTR

Sample datafill for table LINEATTR appears in the following table.

MAP example for table LINEATTR

LAX	15	IBN	NONE	NT	NSCR	0	071	NPRT	NLCA
ZEROMPOS		NONE	0						
MRSA	SFC	LATANM	MDI	IXNAME	DGCLNAME	FANIDIGS			
			RESINF			OPTIONS			
NIL	NILSFC	NILLATA	0	PX	CG5		NIL	00	
		N			(AMAGRPID	GROUP2)	(	HOT)	\$

The following examples describe the datafill of the CONT, DNRTE, or RTE selector with option AMAXLAID in tables PXHEAD and PXCODE appears in the following examples. The AMAXLAID option can be entered in the following tables:

- ACHEAD
- AMHEAD
- CTHEAD
- FAHEAD
- FTHEAD
- OFCHEAD
- NSCHEAD
- ACCODE
- AMCODE
- CTCODE
- FACODE
- FTCODE
- OFCCODE
- NSCCODE

Refer to the data schema documents for a description of the other head and code tables.

Bellcore LAMA Format (continued)**Datafilling table PXHEAD**

Datafill for Universal Bellcore Centrex Billing for table PXHEAD appears in the following table. The fields that apply to Universal Bellcore Centrex Billing appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table PXHEAD

Field	Subfield or refinement	Entry	Description and action
	XLASEL	CONT, DNRTE, RTE, AMAXLAID	Translation selector. Enter CONT, DNRTE, or RTE. When the system prompts for the OSEL, enter AMAXLAID. When the system prompts for the XLAID, enter the translation identifier.

Datafill example for table PXHEAD

Sample datafill for table PXHEAD appears in the following example.

MAP example for table PXHEAD

XLANAME				DFLT
				DFOP
		CON	MAXIDX	
LCLXLA				
				SDFLT
DFOP	(MM 7 10)	(XLT PX CG1)	(AMAXLAID XLA1)	\$
NOCON	STD			

Datafilling table PXC CODE

Datafill for Universal Bellcore Centrex Billing for table PXC CODE appears in the following table. Only the fields that apply to Universal Bellcore Centrex

Belcore LAMA Format (continued)

Billing appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table PXC CODE

Field	Subfield or refinement	Entry	Description and action
	XLASEL	CONT, DNRTE, RTE, AMAXLAID	Translation selector. Enter CONT, DNRTE, or RTE. When the system prompts for the OSEL, enter AMAXLAID. When the system prompts for the XLAID, enter the translation identifier.

Datafill example for table PXC CODE

Sample datafill for table PXC CODE appears in the following example.

MAP example for table PXC CODE

XLANAME	FROMD	TOD	XLADATA
CG2	200	200	
CONT	(MM 10 10)	(XLT PX CG2)	(AMAXLAID XLA1) \$
CG3	200	200	
RTE	(DEST 131)	(AMAXLAID XLA2)	\$

Tools to verify translations

The Bellcore LAMA Format feature uses the following tools to verify translations.

VFG AMA Support for FX and ETS Calls (AF1093)

In tables VIRTGRPS and VFGDATA, assign the VFGAMA option to an IBN incoming VFG. Specify the facility type FX or ETS. If the call is an NP call and routes through the designated VFG, the system generates call code 011 or 085. The system generates these call codes for the call if other types of billing do not apply for that call.

The following examples describes the output from TRAVER. This action occurs when the output implements the translations of a call routed through a VFG. This VFG is assigned the VFGAMA option FX. For the call, the system generates one AMA record with call code 011 for the second leg of the call and two SMDR records. One of the SMDR records associates with the first leg of

Belcore LAMA Format (continued)

the call. The second SMDR record associates with the second leg of the call. The system generates two SMDR records because SMDR record generation is active in table IBNXLA.

The following TRAVER example describes only one of many TRAVER results. The TRAVER results can be different on separate switches.

The output describes the first leg of translation of a call routed through a VFG assigned the VFGAMA option FX. The call is no prefix (NP).

Belcore LAMA Format (continued)

TRAVER output example for VFG Support for FX and ETS Calls

```

1      >TRAVER L 6215001 86221424 B RTEVFG ALL
2      TABLE IBNLINES
3      HOST 00 0 08 01 DT STN IBN 6215001 IBNTST 0 0 613 $
4      TABLE DNATTRS
5      613 621 5001 (PUBLIC (NAME TOM_WATSON)$)
6      TABLE NCOS
7      IBNTST 0 0 0 TST10 ( XLAS CXT1 NXLA NDGT) ( OHQ 0 TONE_OHQ) $
8      TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, DIGCOL
9      IBNTST NXLA CXT3 NXLA 09 TST1
10     TABLE IBNXLA: XLANAME CXT1
11     CXT1 8 NET N Y 1 N POTS N N GEN ( LATTR 0) ( RTE IBNRTE 500) $
12     TABLE DIGCOL
13     POTS specified: POTS digit collection
14     TABLE LINEATTR
15     0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC LATA1
16     0 NIL NIL 00 N RESGRP 0 2 (LCABILL) $
17     TABLE STDPRTCT
18     P621 ( 1) ( 0)
19     SUBTABLE STDPRT
20     WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
21     BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
22     DOCUMENTATION.
23     .622 632 N NP 0 NA
24     .SUBTABLE AMAPRT
25     .DEFAULT VALUE IS: NONE N
26     TABLE HNPACONT
27     613 128 2 ( 35) ( 1) ( 0)
28     .SUBTABLE HNPACODE
29     .622 622 LRTE 5
30     .SUBTABLE RTEREF
31     .5 S D CARYIBNT0
32     .EXIT TABLE RTEREF
33     EXIT TABLE HNPACONT
34     TABLE LCASCRCN
35     613 L613 ( 27) OPTL N
36     .SUBTABLE LCASCR
37     .622 622
38     TABLE PFXTREAT
39     OPTL NP Y NP UNDT
40     TABLE CLSVSCRC
41     DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
42     OVERLAP CARRIER SELECTION (OCS) APPLIES

```

Bellcore LAMA Format (continued)**TRAVER output example for VFG Support for FX and ETS Calls (continued)**

```

1  TABLE LATAXL
2  ASSUMED TO BE DEFAULT intra-LATA, INTRASTATE, STD
3  USING ROUTE FROM IBNXL GEN SELECTOR RTE OPTION
4  TABLE IBNRTE
5  500 VFG N N N NCSUVFG 1
6  .TABLE DIGMAN
7  .1 (INC 9)
8  .EXIT TABLE DIGMAN
9  EXIT TABLE IBNRTE
10 DIGIT TRANSLATION ROUTES
11 1 VFG: NCSUVFG 96221424

```

Note: In line 11, field SMDR in table DIGCOL is set to Y. Line 45 displays the route that the call follows. Line 51 displays the route of the SMDR record.

The following TRAVER describes the second leg of translation of the call that appears in the previous example.

TRAVER output example for VFG Support for FX and ETS Calls

```

1  TABLE VIRTGRPS
2  NCSUVFG SIZE 1 IBN 6137224000 IBNTST 0 0 0 N N N ( VFGAMA FX)$
3  TABLE NCOS
4  IBNTST 0 0 0 TST10 ( XLAS CXT1 NXLA NDGT) ( OHQ 0 TONE_OHQ) $
5  TABLE CUSTHEAD: CUSTGRP, PRELIMXL, CUSTXL, FEATXL,
   VACTRMT, AND DIGCOL
6  IBNTST NXLA CXT3 NXLA 0 TST1
7  TABLE DIGCOL
8  TST1 9 POTS Y
9  TABLE IBNXL: XLANAME CXT1
10 CXT1 9 NET N N 1 Y NDGT N Y GEN ( LATTR 0)$
11 TABLE DIGCOL
12 NDGT specified: digits collected individually
13 TABLE LINEATTR
14 0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC LATA1
   0 NIL NIL 00 N RESGRP 0 2 $
15 TABLE STDPRTCT
16 P621 ( 1) ( 0)
17 .SUBTABLE STDPRT

```

Belcore LAMA Format (continued)

TRAVER output example for VFG Support for FX and ETS Calls (continued)

```

1  WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
2  BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
3  DOCUMENTATION.
4  .622 632 N NP 0 NA
5  .SUBTABLE AMAPRT
6  .KEY NOT FOUND
7  .DEFAULT VALUE IS: NONE N
8  TABLE HNPACONT
9  613 128 2 ( 35) ( 1) ( 0)
10 .SUBTABLE HNPACODE
11 .622 622 LRTE 5
12 .SUBTABLE RTEREF
13 .5 S D CARYIBNT0
14 .EXIT TABLE RTEREF
15 EXIT TABLE HNPACONT
16 TABLE LCASCRCN
17 613 L613 ( 27) OPTL N
18 .SUBTABLE LCASCR
19 .622 622
20 TABLE PFXTREAT
21 OPTL NP Y NP UNDT
22 TABLE CLSVSCRC
23 DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
24 OVERLAP CARRIER SELECTION (OCS) APPLIES
25 TABLE EASAC
26 TUPLE NOT FOUNG
27 TABLE LATA XLA
28 ASSUMED TO BE DEFAULT intra-LATA, INTRASTATE, STD
29 +++ TRAVER: SUCCESSFUL CALL TRACE +++
30
31 DIGIT TRANSLATION ROUTES
32
33 1 CARYBINT0 6221424 ST
34 BILL 06137224000 ST

```

Note: Line 30 displays the IBNT0 trunk termination. Line 50 indicates that the system generated an AMA record. Line 51 indicates that the system generated an SMDR record.

The call with the same datafill described in the previous paragraph, generates call codes 011 or 085 for the second leg of the call. This condition occurs in switches that have the MDRRAO feature activated. The call has module code 100 appended to the record. In module 100, the incoming facility type is 011 (FX) or 085 (ETS). Module 100 appends to the AMA record generated.

Bellcore LAMA Format (continued)

Module 100 indicates the incoming facility type of calls routed through VFGs with facility types assigned. The type of call does not affect this condition.

Call Codes 009, 033, 121 Assignment via Translation (BR0759)

The output from TRAVER when the output implements feature BR0759 appears in the following example.

When data is entered in subtable AMAPRT for the received leading digits of the called number, TRAVER displays the subtable AMAPRT datafill. If subtable AMAPRT does not have data for the received leading digits, the default datafill appears as NONE. A TRAVER display when digits dialed are not entered as data in subtable AMAPRT appears in the following example. A TRAVER display when the leading digits of the called number index subtable AMAPRT appears in the following figure.

The following TRAVER example describes only one TRAVER result. The TRAVER results can be different on separate switches.

Belcore LAMA Format (continued)

TRAVER output example for Call Codes 009, 033, 121 Assignment through Translations

```

1  >TRAVER L 6211234 9501488
2  TABLE LINEATTR
3  0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC LATA1 0
4  NIL NIL 00 Y RESGRP 0 2 (LCABILL) $
5  TABLE DNATTRS
6  TUPLE NOT FOUND
7  TABLE DNGRPS
8  TUPLE NOT FOUND
9  TABLE STDPRTCT
10 P621 ( 1) ( 0)
11 .SUBTABLE STDPRT
12 WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
13 BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
14 DOCUMENTATION.
15 .9501488 9501488 FGB DD 0 ITT Y OFRT 1002 7 7
16 ..TABLE OFRT
17 ..1002 N D OCAMDCM 0 N N
18 ..EXIT TABLE OFRT
19 . SUBTABLE AMAPRT
20 . KEY NOT FOUND
21 . DEFAULT VALUE IS: NONE OVRNONE N
22
23 +++ TRAVER: SUCCESSFUL CALL TRACE +++
24
25 DIGIT TRANSLATION ROUTES
26 1 OCAMDCM 9501488 ST
27 TREATMENT ROUTES. TREATMENT IS: GNCT
28 1 OFLO
29 2 LKOUT
30 +++ TRAVER: SUCCESSFUL CALL TRACE +++

```

BC AMA inter-LATA WATS Call Code 111 (BC1698)

The output from TRAVER appears in the following example. This condition occurs when the output processes an IBN OUTWATS call that is translated with an incoming VFG.

The output from TRAVER when the output verifies Belcore LAMA Format appears in the following example.

Bellcore LAMA Format (continued)**TRAVER output example for BC AMA Inter-LATA WATS Call Code 111**

```

> TRAVER L 5485122 417042572157 B
HOST 02 1 03 10 DT STN IBN 5485122 UNIV 0 1 919 (RAG) (CDC) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE NCOS
UNIV 1 0 0 NOREST $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
  AND DIGCOL
UNIV NXLA UNIVXLA FXUNIV 0 UNIVDIG
TABLE DIGCOL
UNIVDIG 4 POTS N
NCOS PRELIM XLA name is NIL. Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME UNIVXLA
UNIVXLA 4 NET N N 1 N POTS N N OWT 4 0 1 IBNRTE 65
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
4 OWT NONE NT NSCR 0 919 OWT2 LCA1 OPER 0 NIL NILSFC LATA1 0
  NIL NIL 00 N RESGRP 0 2 $
TABLE STDPRTCT
OWT2 ( 1) ( 0)
  .SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
  .17 19 T DD 1 IBNRTE 65 7 11 NONE
  .  .TABLE IBNRTE
  .  . 65 OW N Y N 0 V UNIVOW 0
  .  .EXIT TABLE IBNRTE
  .SUBTABLE AMAPRT
  .KEY NOT FOUND
  .DEFAULT VALUE IS: NONE N
TABLE IBNRTE
65 OW N N N 0 V UNIVOW 0
EXIT TABLE IBNRTE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Belcore LAMA Format (continued)

TRAVER output example for BC AMA Inter-LATA WATS Call Code 111 (continued)

DIGIT TRANSLATION ROUTES

1 VFG: UNIVOW 17042572157

TREATMENT ROUTES. TREATMENT IS: GNCT

1 T120

2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Datapath AMA Format—Call Codes 072 and 117 (BR0793)

Output from TRAVER appears in the following example. An intra-LATA station paid data unit to data unit call appears in the following example. The originating number is 722-4880. The terminating number is (9)722-4881. The TRAVER is an output example that describes the translation and the route of an Intra-LATA Datapath call.

The following TRAVER example describes only one TRAVER result. The TRAVER results can be different for each switch.

Bellcore LAMA Format (continued)**TRAVER output example for Datapath AMA Format—Call Codes 072 and 117**

```

> TRAVER L 7224880 97224881 T
TABLE KSETLINE
HOST 00 0 08 15 1 DN Y 7224880 COMKODAK 0 0 613 (NDC) (RAG)$
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE NCOS
COMKODAK 0 0 0 NCOS0 $
TABLE CUSTHEAD
COMKODAK CXDK KDK
(VACTRMT 0) (EXTNCOS 0) (ACCT 5) (FETXLA CUSTFEAT)
(PLMXLA PXDK) (ERDT 7) (AUTH COMKODAK N N) (SUPERCNF)
(ACR AUTH 1) (CUTPAUSE 1) (CUTIMOUT 10) (OCTXLA CUSTSHRP)
TABLE DIGCOL
KDK 9 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA
CXDK 9 NET N N 1 Y POTS Y N GEN (LATTR 0)$
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 B0B LATA1 0 NIL NIL
00 Y RESGRP 0 2 $
TABLE STDPRTCT
P621 ( 1) ( 0)
P621 ( 1) ( 0)
.SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
.7 810 N DD 0 NA
TABLE HNPACONT
613 127 2 ( 1) ( 1) ( 0)
.SUBTABLE HNPACODE
.722 722 DN 613 722
TABLE TOFCNAME
613 722
TABLE DNINV
613 722 4881 L HOST 00 0 09 15

```

Belcore LAMA Format (continued)

TRAVER output example for Datapath AMA Format—Call Codes 072 and 117 (continued)

```
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRCN
613 L613 ( 0) OPTL N
    .SUBTABLE LCASCR
    .722 722
TABLE PFXTREAT
OPTL DD Y DD UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

The following TRAVER example describes an inter-LATA station paid data unit to data unit call with an Equal Access trunk. The originating number is 722-4880. The terminating number is 10121-(314) 333-4881. The TRAVER is an output example that describes the translation and the route of an Inter-LATA Datapath call.

The following TRAVER example describes only one TRAVER result. The TRAVER results can be different for each switch.

Bellcore LAMA Format (continued)**TRAVER output example for Datapath AMA Format—Call Codes 072 and 117**

```

> TRAVER L 7224880 9101213143334881 T
TABLE KSETLINE
HOST 00 0 08 15 1 DN Y 7224880 COMKODAK 0 0 613 (NDC) (RAG)$
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE NCOS
COMKODAK 0 0 0 NCOS0 $
TABLE CUSTHEAD
COMKODAK CXDK KDK
(VACTRMT 0) (EXTNCOS 0) (ACCT 5) (FETXLA CUSTFEAT)
(PLMXLA PXDK) (ERDT 7) (AUTH COMKODAK N N) (SUPERCNF)
(ACR AUTH 1) (CUTPAUSE 1) (CUTIMOUT 10) (OCTXLA CUSTSHRP)
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA
CXDK 9 NET N N 1 Y POTS Y N GEN (LATTR 0)$
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 BOB LATA1 0 NIL NIL
00 Y RESGRP 0 2 $
TABLE STDPRTCT
P621 ( 1)
.SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
.10121 10121 EA DD 5 N ABC Y OFRT 321 6 20 N
..TABLE OFRT
..321 S D OGEEAABC
..EXIT TABLE OFRT
TABLE OCCINFO
ABC 121 EAP Y Y Y Y Y N Y Y LONG 0 N
TABLE LATA1
LATA1 314 INTER INTER STD
TABLE OFRT
321 S D OGEEAABC

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Features verification

The following procedures describe how to activate and verify Bellcore LAMA Format features.

Belcore LAMA Format (continued)

Call Codes 009, 033, 121 Assignment via Translations (BR0759)

Activation sequence of call code 009

Activation of BR0759 is immediate. A system restart is not a requirement.

Verification sequence of call code 009

The following procedure verifies the generation of call code 009.

At your current location:

- 1** Make sure an active AMA file for AMA recording is available.
- 2** Make sure that table AMAOPTS has the following tuples set to ON.
 - DA411
 - CHG411
 - UNANS_LOCAL
 - UNANS_TOLL
 - LOGAMA
- 3** Make sure that table BCCODES contains call code 009 in the list of local codes.
- 4** Set up translations so that 621-1235 dialing 766 does not generate a billing record. Make sure that table LINEATTR or table TRKGRP specifies a pretranslator that indexes to table STDPRTCT.
- 5** From 621-1235, dial 766. Make sure that the system does not generate an AMA record.
- 6** Add the tuple 766 766 DA411 N to subtable AMAPRT.
- 7** From 621-1235, dial 766. Answer the call.
- 8** Leave the call connected for a minimum of 5 s to make sure the system generates an ANSWERED AMA record.
- 9** Check that the system generates an AMAB log with call code 009.
- 10** Perform an AMADUMP of the AMA file that contained the call record. Make sure that the system generates an AMA record with call code 009 with structure code 00028 (answered).
- 11** Repeat step 7. Do not answer the call.
- 12** Check that the system generates an AMAB log with call code 009.
- 13** Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates an AMA record with call code 009 with structure code 00068 (unanswered).

Verification sequence of call code 033

The following procedure verifies the generation of call code 033.

At your current location:

- 1** Make sure an active AMA file for AMA recording is available.

Bellcore LAMA Format (continued)

- 2 Make sure that table AMAOPTS has the following tuples set to ON:
 - UNANS_LOCAL
 - UNANS_TOLL
 - LOGAMA
- 3 Make sure that table BCCODES contains call code 033 in the list of local codes.
- 4 Set up translations so that 621-1235 dialing 555-1212 does not generate a billing record. The DA555 and CHG555 are set to OFF in table AMAOPTS. Make sure that table LINEATTR or table TRKGRP specifies a pretranslator that indexes to table STDPRTCT.
- 5 From 621-1235, dial 555-1212. Make sure that the system does not generate an AMA record.
- 6 Add the tuple 5551212 5551212 DA555 N to subtable AMAPRT.
- 7 Make sure that the DA555 and CHG555 options are turned ON in table AMAOPTS.
- 8 From 621-1235, dial 555-1212. Answer the call.
- 9 Leave the call connected for a minimum of 5 s to make sure the system generates an ANSWERED AMA record.
- 10 Check that the system generated an AMAB log with call code 033.
- 11 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates an AMA record with call code 033 with structure code 00028 (answered).
- 12 Repeat step 8. Do not answer the call.
- 13 Check that the system generates an AMAB log with call code 033.
- 14 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates an AMA record with call code 033 with structure code 00068 (unanswered).

Verification sequence of call code 121

The following procedure verifies the generation of call code 121.

At your current location:

- 1 Make sure an active AMA file for AMA recording is available.
- 2 Make sure that two data units connect to digital line cards on a line module and that both units function correctly.
- 3 Make sure that the modem pool functions correctly.
- 4 Originate a Datapath call routed over an ATC trunk. Press the DN key on a data unit and dial another data unit.
- 5 Press the DN key on the terminating data unit to answer the call. The Connect Lamp is lit. This condition indicates that the two data units are in sync.
- 6 Leave the call connected for a minimum of 5 s to make sure the system generates an ANSWERED AMA record.

Belcore LAMA Format (continued)

- 7 Press the RELEASE keys on both originating and terminating data units to disconnect the call.
- 8 Check that the system generates an AMAB log with call code 119.
- 9 Add the tuple 7224 7224 Datapath to subtable AMAPRT: .
- 10 Set up translations such that 621-1235 dialing 722-4XXX specifies a pretranslator that indexes to table STDPRTCT.
- 11 Originate a Datapath call routed over an ATC trunk. Press the DN key on a data unit and dial another data unit.
- 12 Press the DN key on the terminating data unit to answer the call. The Connect Lamp is lit. This condition indicates that the two data units are in sync.
- 13 Leave the call connected for a minimum of 5 s to make sure the system generates an ANSWERED AMA record.
- 14 Press the RELEASE keys on both originating and terminating data units to disconnect the call.
- 15 Check that the system generates an AMAB log with call code 121.
- 16 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates an AMA record with call code 121 with structure code 00656 (answered).

Datapath AMA Format—Call Codes 072 and 117 (BR0793)**Activation sequence of call code 072 or 117**

Activation of BR0793 is immediate. Activation does not require a system restart.

Verification sequence of call code 072 or 117

The following procedure verifies the generation of call code 072 or 117. This verification occurs when the system originates an inter-LATA or intra-LATA Datapath call from a data unit.

At your current location:

- 1 Make sure that two data units connect to digital line cards on a line module and that both units function correctly.
- 2 Make sure that the modem pool functions correctly.
- 3 Make sure that data entry for the data tables listed in the datafill sequence for the data unit is correct.
- 4 Make sure that data entry for the tables listed in the datafill sequence for inter-LATA and intra-LATA is correct.
- 5 Make sure that table AMAOPTS has the following tuples set to ON:
 - UNANS_LOCAL
 - UNANS_TOLL
 - LOGAMA
- 6 Make sure that table BCCODES contains call code 072 and 117 in the list of local calls.

Bellcore LAMA Format (continued)

- 7 Make sure that an active AMA file for AMA recording is available.
- 8 Press the DN key on a data unit. Dial another data unit. Dial 9+7 digits for intra-LATA calls. Dial 9+10-XXX+7 digits for inter-LATA calls with an Equal Access trunk.
- 9 Press the DN key on the terminating data unit to answer the call. The Connect Lamp is lit. This condition indicates that the two data units are in sync.
- 10 Leave the call connected for a minimum of 5 s to make sure an "ANSWERED" AMA record is present.
- 11 Press the RELEASE keys on both originating and terminating data units to disconnect the call.
- 12 Check that the system generates an AMAB log with call code 072 or 117.
- 13 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates one of the following records. The system can correct an AMA record with call code 072 with structure code 00190 (answered). The system can also generate an AMA record with call code 117 with structure code 00645.
- 14 Repeat step 8. Do not answer the terminating data unit. Release the call and perform an AMADUMP. Make sure that the system generates call code 072 with structure code 00191 (unanswered) or 117 with structure code 00645.

BC AMA inter-LATA WATS Call Code 111 (BC1698)**Activation sequence of call code 111**

Activation of BC1698 is immediate. A system restart is not required.

Verification sequence of call code 111

The following procedure verifies that the system generates AMA records identified by call codes 111 and 114. This condition occurs when an inter-LATA Interstate OUTWATS call originates from an IBN line:

At your current location:

- 1 Make sure that data entry for the data tables listed in the datafill sequence table for OUTWATS is correct.
- 2 Make sure that the VIRTGRPS/VFGDATA data tables have the BILLNUM field set to N if the system generates call code 111. Assign a special billing number in the BILLNUM field if the system generates call code 114.
- 3 Enter data for table LATA1 with LATA1 918 INTER INTER.
- 4 Make sure that table AMAOPTS has the following tuples set to ON.
 - OUTWATS
 - UNANS_LOCAL
 - UNANS_TOLL
- 5 Make sure that table BCCODES contains call codes 111 and 114 in the list of local codes.
- 6 Make sure that an active AMA file for AMA recording is available.

Belcore LAMA Format (continued)

- 7 Go off-hook from an IBN line (7224121). Dial the access code to access an OUTWATS line (142) and the NPA and digits of the terminating number (142+9182411111).
- 8 Answer the terminating DN.
- 9 Remain off-hook from both originator and terminator for a minimum of 5 s to make sure an ANSWERED AMA record is present.
- 10 Go on-hook with both sets.
- 11 Enter OPEN AMAB at the MAP to verify that the system generates an AMAB log with call code 111 or 114. If the system generates call code 111, make sure that the originating DN displayed is the billing number (6137224121). If a the system generates 114 call code, perform the following action. Make sure that the originating number is the special billing number (6136214455) entered in tables VIRTGRPS and VFGDATA .
- 12 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates an AMA record identified by call code 111 with structure code 00629 (inter-LATA). Verify that the digits in the originating NPA and originating number fields are the same as originating DN (6137224121) for call code 111. The digits can also be the same as a special billing number. This number is the number assigned in the BILLNUM field in tables VIRTGRPS and VFGDATA for call code 114 (6136214455).
- 13 Repeat step 7. Do not answer the terminating end. Perform an AMADUMP. Make sure that the system generates call code 111 or 114 with answer field of the structure code 00629 set to 1. This value indicates the answer field is set for no answer.

AMA Test Call Capability (AF1462)**Activation sequence**

Activation of AF1462 is immediate. Activation does not require a system restart.

Verification sequence

You can use the following procedure to verify that the originating or terminating MDC or POTS line has the designation of an AMA test call line.

Verification sequence of AMA test call line***At your current location:***

- 1 Make sure that table AMAOPTS has the LOGTEST option set to ON.
- 2 Make sure that addition of the AMATEST option added to the line in table IBNLINES or LENLINES occurred.
- 3 Make sure the AMATEST option complies with the other line class codes in table LCCOPT.
- 4 Make sure the AMATEST option does not comply with the line options in table OPTOPT.
- 5 Make sure that an active AMA file for AMA recording is available.
- 6 Create an AMA record for the line.

Bellcore LAMA Format (continued)

- 7 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the system generates the AMA record with a 1 in the fourth character of the Study Indicator field.
- 8 Make sure the system generates an AMAB200 log.

Verification sequence

The following procedure verifies that the system records answered calls with a duration under the minimum call duration:

Verification sequence of short duration call recording*At your current location:*

- 1 Make sure that table AMAOPTS has the RECORD_UMCD option set to ON.
- 2 Make sure that an active AMA file for AMA recording is available.
- 3 Make an answered billable call under the minimum call duration.
- 4 Perform an AMADUMP of the AMA file that contains the call record. Make sure that the AMA record generated contains a 2 in the second character of the Timing Indicator field.

AMA Compliance—TR-508 (AF3078)**Activation/deactivation of MCD using NOMCD**

The NOMCD command allows customers to enable/disable the removal of minimum charge duration (MCD) in AF3078. All switches default to MCD billing. The MCD billing is for calls with elapsed times of less than the value of MINIMUM_CHARGE_DURATION that are marked as unanswered calls. The MINIMUM_CHARGE_DURATION is normally 2 s. If suppression of MCD occurs, all billable calls that a terminating party goes off-hook records a non-zero elapse time. The length of time the terminating call is off-hook does not affect this condition.

The following are values used for NOMCD:

ENABLE

allows the suppression of MCD billing

DISABLE

disables the suppression of MCD billing

QUERY

indicates if MCD billing is in use

Bellcore LAMA Format (continued)

The actions required to query, enable, or disable MCD appear in the following table. The prompt responses also appear in this table.

Activation/deactivation of MCD with NOMCD

Step	Action	Response
	HELP NOMCD	This command provides a method to enable or disable the suppression of minimum charge duration billing for switches. These switches record AMA data in Bellcore format. Check the documentation for feature AF3078 to determine the effect of this procedure before you attempt to use this command. Parms: <FUNCTION> {ENABLE, DISABLE, QUERY}
	NOMCD QUERY	The switch suppresses the use of minimum charge duration billing. Billing records for all answered calls are marked as answered. A conversation time with a greater value than the value OFCENG office parameter of MINIMUM_CHARGE_DURATION does not affect this condition. This command can also indicate that the switch performs minimum charge duration billing. Billing records for calls with conversation times less than the value of OFCENG office parameter MINIMUM_CHARGE_DURATION are marked unanswered.

Bellcore LAMA Format (continued)

Enter QUERY NOMCD. If the switch reads that the switch performs minimum charge duration billing, you can use the following command to deactivate MCD.

Deactivation of MCD with NOMCD

Step	Action	Response
	NOMCD ENABLE	The request suppresses minimum charge duration billing. Billing records for all answered calls are marked answered. A conversation time less than OFCENG office parameter MINIMUM_CHARGE_DURATION does not affect this condition. This request requires a reload restart. After the restart, all call processing peripherals require loading exec software again. Do you want to continue? Confirm ("YES" or "NO"): >YES The system accepts this request. Activation of the request occurs during the next reload restart. This command allows you to change the request, without need of a restart. The change in request cannot occur when a reload restart already occurred. After a restart occurs to activate this request, all line and trunk peripherals must have the exec software loaded again immediately. Use the EXEC option of the LOADPM command to perform this action when the peripheral posts at the PM map level.

Belcore LAMA Format (continued)

Enter QUERY NOMCD. If the switch suppresses the use of minimum charge duration billing, use the following command to activate MCD.

Activation of MCD with NOMCD

Step	Action	Response
	NOMCD DISABLE	The request starts minimum charge duration billing. Billing records for calls with conversation times less than the value of OFCENG office parameter MINIMUM_CHARGE_DURATION are marked unanswered. Activation of the request requires a reload restart. After the restart, all call processing peripherals require exec software loaded again. Do you wish to continue? Confirm ("YES" or "NO"): >YES The system accepts the request. Activation of the request occurs during the next reload restart. You can use this command to change this request without need of a restart. The request cannot change after a reload restart occurs. After a restart occurs, all line and trunk peripherals require the exec software reloaded. Use the EXEC option of the LOADPM command to perform this procedure while the system posts at the PM map level.

SERVORD

The AMA Test Call Capability (AF1462) feature introduces line option AMATEST. This option allows an originating or terminating line (IBN, POTS) to function as an AMA test call line. The AMA Test Call Enhancements (AF1981) allows the AMATEST option to function on business sets, data-units, and RES lines with SERVORD.

The TR-862 AMA Compliance: Circuit (AF3556) feature introduces the new line option, ISDNAMA. The ISDNAMA option specifies a GRPNAME for each DN/CT. Entry of the GRPNAME occurs in table ISDNBILL.

Data entry for following tables occurs through SERVORD:

- table IBNFEAT
- table IBNLINES

Bellcore LAMA Format (continued)

- table LENFEAT
- table LENLINES
- table LCCOPT
- table OPTOPT

The addition of AMATEST option to tables IBNLINES and LENLINES occurs. This option helps to determine an originating or terminating IBN or POTS line as an AMA test call line. If a call to a line or from a line with AMATEST enabled generates a billing record, a 1 appears. The value 1 appears in the fourth character of the Study Indicator field.

SERVORD limits

The following describes service order limits for features AMA Test Call Capability (AF1462) and AMA Test Call Enhancements (AF1981).

- The AMATEST option does not comply with the ONI option.
- The AMATEST option does not comply with the following line class codes: CSD, ISDNKSET, 8FR, and 10FR.

The following describes service order limits for feature TR-862 AMA Compliance: Circuit (AF3556):

- Assignment of the ISDNAMA option can only occur to a DN or logical terminal identifier (LTID) with line class code of ISDNKSET.
- Assignment of the ISDNAMA option can only occur with the ADO command to a DN key of a basic rate interface (BRI) functional set.
- The SERVORD does not allow attempts to add this option to a LCC other than ISDNKSET or to a non-DN key.

Query command changes

The query group (QGRP) command can query information that relates to the ISDNAMA option. The information provided for the queried ISDNAMA group name displays the signaling abilities associated with the group. The information contains a list of all the lines from the ISDNAMA group name with the DN/CT. The ISDNAMA group name, DN, or line terminal identifier (LTID) can query the ISDNAMA option.

The ISDNAMA option provides a short or complete option. The short option displays the signaling abilities associated with an ISDNAMA group, the group name and DN/CT. The complete option displays all the DN/CTs with a given ISDNAMA group name and services associated with the ISDNAMA group. The complete option displays the number of members the ISDNAMA group.

Belcore LAMA Format (continued)

The ISDNAMA group name, DN, and LTID query the ISDNAMA option in the following figures.

QGRP command—group name case

```
>qgrp isdnama isdn1 full
```

ISDNAMA GROUP

NAME: ISDN1

SERVICES: (CDS) (CGS) (LLC) (HLC) \$

DN	CT
6215901	VBINFO
6215902	VBINFO
6215902	CMDATA
6215904	VBINFO

The number of members in the ISDNAMA GROUP is 4.

QGRP command—DN case

```
>qgrp isdnama 6215910 full
```

ISDNAMA INFORMATION

DN	CT	
	GROUP NAME	SERVICES
6215910	VBINFO	ISDN1
CGS CDS HLC LLC \$		

QGRP command—LTID case

```
>qgrp isdnama func 1 full
```

ISDNAMA INFORMATION

DN	CT	
	GROUP NAME	SERVICES
6215910	VBINFO	ISDN1
CGS CDS HLC LLC \$		
6215930	VBINFO	ISDN1
CGS CDS HLC LLC \$		

Bellcore LAMA Format (continued)

SERVORD prompts

The SERVORD prompts that assign the AMA Test Call Capability (AF1462) to a line appear in the following table.

SERVORD prompts for AMA Test Call Capability

Prompt	Correct input	Description
DN	Correct DN, without spaces or hyphens	Enter the DN associated with the service to add.
LCC	The LCC appropriate to the switch	Enter the line class code of the service to add.
LATANAME	LATA name defined in table LATANAME	Enter the calling LATA name associated with the originator of the call.
LTG	0 to 511	Enter the line treatment group number.
LEN_OR_LTID	Correct LEN or LTID	Enter the line equipment number (LEN) or logical terminal identifier (LTID) for the line.
OPTION	AMATEST	Enter AMATEST to assign the AMATEST option to the line.

The service order prompts that assign and delete the AMA Test Call Capability (AF1462) to a current line appear in the following table.

Service order prompts for AMA Test Call Capability

Prompt	Correct input	Description
DN_OR_LEN	Correct DN or LEN	Enter the correct DN or the LEN.
OPTION	AMATEST	Enter AMATEST to specify the option that the system is to add or delete.

Belcore LAMA Format (continued)

The service order prompts that AMA Test Call Enhancements (AF1981) use appear in the following table. These prompts assign the AMATEST feature to a PSET line.

Service order prompts for AMA Test Call Enhancements

Prompt	Correct input	Description
DN_OR_LEN	Correct DN or LEN	Enter the correct seven-digit DN or the LEN.
OPTION	AMATEST	Enter AMATEST to assign the AMATEST option to a PSET line.

The service order prompts that assign feature TR-862 AMA Compliance: Circuit (AF3556) to an ISDN set appear in the following table.

Service order prompts for the ISDNAMA option

Prompt	Correct input	Description
DN_OR_LEN	correct DN or LEN	Enter the seven-digit DN or LEN.
OPTKEY	\$ or alphanumeric	Enter the alphanumeric number.
OPTION	ISDNAMA	Enter ISDNAMA to record signaling and supplementary services.
CALLTYPE_AND_ISDNBILL_GRP	VBINFO and group name entered in table ISDNBILL	Enter VBINFO for circuit-mode voice calls and the correct group name from table ISDNBILL. A space or carriage return separates call type and the correct group name. If the system receives a response at the prompt that is not correct, the system prompts CALLTYPE and GRP one at a time.
CALLTYPE	VBINFO	Enter VBINFO for circuit-mode voice calls.
GRP	correct GRPNAME	Enter the correct group name from table ISDNBILL.

Bellcore LAMA Format (continued)

The following table describes the service order prompts that delete feature TR-862 AMA Compliance: Circuit (AF3556) from an ISDN set.

Service order prompts for the ISDNAMA option

Prompt	Correct input	Description
DN_OR_LEN	Correct DN or LEN	Enter the seven-digit DN or LEN.
OPTKEY	\$ or alphanumeric	Enter the alphanumeric number.
OPTION	ISDNAMA	Enter ISDNAMA to record signaling and supplementary services.
CALLTYPE_ AND_ISDNB ILL_GRP	VBINFO and group name entered in table ISDNBILL	Enter VBINFO for circuit-mode voice calls and the correct group name from table ISDNBILL. A space or carriage return separates the call type and the correct group name. If the system receives a response at the prompt that is not correct, the system prompts CALLTYPE and GRP one at a time.
CALLTYPE_ AND_ISDNB ILL_GRP	CMDATA and group name entered in table ISDNBILL	Enter CMDATA for circuit-mode data calls and the correct group name from table ISDNBILL. A space or carriage return separate call type and the correct group name. If the system receives a response at the prompt that is not correct, the system prompts CALLTYPE and GRP one at a time.
CALLTYPE	VBINFO	Enter VBINFO for circuit-mode voice calls.
GRP	Valid GRPNAME	Enter the correct group name from table ISDNBILL.

SERVORD example for AMATEST option

The following SERVORD example describes how to add AMATEST to a new line. The AMA Test Call Capability (AF1462) feature adds the line with the NEW command.

Belcore LAMA Format (continued)

SERVORD example for creating a new line with the AMATEST option

```
>SERVORD
S0:
> NEW
SONUMBER: NOW 91 8 4 AM
>
DN:
> 4818591
LCC:
>1FR
LATANAME:
> NILLATA
LTG:
> 0
LEN_OR_LTID:
>0 0 0 2
OPTION:
> AMATEST
OPTION:
> $
COMMAND AS ENTERED:
NEW NOW 91 8 4 AM 4818591 1FR NILLATA 0 0 0 0 2
  (AMATEST)$
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y
```

SERVORD example for AMATEST option in no-prompt mode

```
> NEW $ 4818591 1FR NILLATA 0 0 0 2 AMATEST $
```

The following service order example describes how AMA Test Capability (AF1462) adds AMATEST to a current line with the ADO command.

Bellcore LAMA Format (continued)

Adding AMATEST to a current line

```

> SERVORD
S0:
> ADO
SONUMBER: NOW 91 8 4 AM
>
DN_OR_LEN:
>62111234
OPTION:
>AMATEST
OPTION:
> $
COMMAND AS ENTERED:
ADO NOW 91 8 4 AM 6211234 ( AMATEST ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
> Y

```

Adding AMATEST to a current line in no-prompt mode

```

> ADO $ 6211234 AMATEST $

```

The following service order example describes how AMA Test Call Capability (AF1462) deletes AMATEST. The AMA Test Call Capability deletes AMATEST from a current line with the DEO command.

Deleting AMATEST option from the current line

```

> SERVORD
S0:
>DEO
SONUMBER: NOW 91 8 4 AM
>
DN_OR_LEN:
>6211234
OPTION:
>AMATEST
OPTION:
>$
COMMAND AS ENTERED:
DEO NOW 91 8 4 AM 6211234 ( AMATEST ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO
EDIT
>Y

```

Bellcore LAMA Format (end)

Deleting AMATEST option in no-prompt mode

```
> DEO $ 6211234 AMATEST $
```

SERVORD example for option ISDNAMA

The following SERVORD example describes how option ISDNAMA uses the ADO command to add an ISDN set. Billing occurs for a circuit-mode voice call. Table ISDNBILL specifies the signaling and supplementary service abilities that are billed for group ISDNGRP1.

SERVORD example using the ADO command to set option ISDNAMA

```
>SERVORD
S0:
> NEW
SONUMBER: NOW 91 8 4 AM
>
DN_OR_LEN:
> 7225040
OPTKEY:
>1
OPTION:
> ISDNAMA
CALLTYPE_AND_ISDNBILL_GRP
> VBINFO ISDNGRP1
CALLTYPE_AND_ISDNBILL_GRP
> $
OPTKEY:
> $
COMMAND AS ENTERED:
ADO NOW 90 8 4 PM 7225040 (1 ISDNAMA (VBINFO ISDNGRP1) )
$
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y
```

SERVORD example for ISDNAMA option in no-prompt mode

```
> ADO $ 7225040 1 ISDNAMA VBINFO ISDNGRP1 $ $
```

CAC Blocking for IEC/INC

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

BCS30 and later versions

Requirements

To operate, CAC Blocking for IEC/INC has the following requirements:

- EQALocal, EQA00001
- LEAS Toll, LEA00001

Description

With this feature package, an operating company can block CAC calls for a carrier. This feature is enabled or disabled with table control.

If a subscriber dials a CAC and the carrier requests CAC blocking, the system routes the call to the CACB treatment. The subscriber hears an announcement. The announcement states that the carrier does not accept calls dialed with a CAC.

Operation

This feature package affects call processing for LEAS and Equal Access calls. If a carrier does not want to receive CAC calls, field CACBLOCK in table OCCINFO must be set to Y.

Call processing checks the CAC blocking condition after checking other call processing options. If another condition blocks a CAC call, the CAC blocking feature is not activated. The system selects other types of blocking before CAC blocking. They are

Subscriber CAC blocking indicates that the system denies subscriber access to a carrier. Subscriber CAC blocking occurs when

The system selects CAC blocking before abbreviated dialing blocking. When a carrier chooses to block abbreviated dialing and CAC calls, the subscriber receives the CACB treatment.

Translations table flow

The CAC Blocking for IEC/INC does not affect table flow.

CAC Blocking for IEC/INC (continued)

Limits

The CAC Blocking for IEC/INC does not have limits.

Interactions

The CAC Blocking for IEC/INC does not have functionality interactions.

Activation/deactivation by the end user

The CAC Blocking for IEC/INC does not require activation or deactivation by the end user.

Billing

The CAC Blocking for IEC/INC does not affect billing.

Station Message Detail Recording

The CAC Blocking for IEC/INC does not affect Station Message Detail Recording.

Datafilling office parameters

The CAC Blocking for IEC/INC does not affect office parameters.

Datafill sequence

The tables that require datafill to implement CAC Blocking for IEC/INC appear in the following table. The tables appear in the correct entry order.

Datafill requirements for CAC Blocking for IEC/INC

Table	Purpose of table
OCCINFO	Table OCCINFO (other common carrier information) defines the attributes for the carriers that serve a DMS switch. Table OCCINFO screens calls for carrier compatibility.

Datafilling table OCCINFO

The datafill for CAC Blocking for IEC/INC for table OCCINFO appears in the following table. Only the fields that apply to CAC Blocking for IEC/INC

CAC Blocking for IEC/INC (end)

appear in this table. For a description of the other fields, see the data schema section of this document.

Datafilling table OCCINFO

Field	Subfield or refinement	Entry	Explanation and action
CTDOA		Y or N	Carrier toll deny operator assisted. Enter Y to block OA calls to this carrier when the subscriber has the CTD line option applied for this carrier. To allow OA calls to this carrier, enter N. The N is the default value.
CACBLOCK		Y or N	Carrier access code blocking. Enter Y if the carrier wants to block all calls dialed with a CAC. If the carrier does not want to block the CAC calls, enter N.

Datafill example for table OCCINFO

Sample datafill for table OCCINFO appears in the following example.

MAP example for table OCCINFO

```
CARRNAME CARRNUM ACCESS INTER INTNTL INTRA ANI FANI
ONISCRN AD1 OVERLAP INTERS INTRAS TERMREC OCCSEPNO OPSIG
PICIND NOA950 INCCPN DTMFIND OPSERV CACBLOCK CTDOA CMCMON
SCRNWATS CRMCRA ATPINCL INTRAOPR
```

C111	111	EAP	Y	Y	N	Y	N
N Y							
Y	Y	Y	LONG		O	FGRPC	Y
N							
N	N	N	N	N	N	N	N
Y							
	N	N					

Tools for verifying translations

The CAC Blocking for IEC/INC does not use tools to verify translations.

SERVORD

The CAC Blocking for IEC/INC does not use SERVORD.

Cancel Call Waiting-per Line

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

BCS29 and later versions

Requirements

To operate, Cancel Call Waiting—per Line requires Meridian Digital Centrex (MDC) Minimum, MDC00001.

Description

Cancel Call Waiting—per Line enhances the current Cancel Call Waiting (CCW) feature. Cancel Call Waiting—per Line allows the telephone operating company to choose how to offer CCW. This feature allows the operating company to control the users that can activate CCW when in the talking state. This feature allows end users to choose to have CCW on the line of that end user.

Operation

Earlier, the CCW was an office-wide feature. Every plain old telephone service (POTS) line with call waiting (CWT) had CCW. Users set office parameter CCW_ACTIVE to Y. When this condition occurred, POTS end users with CWT were able to dial an access code to activate CCW. The end user was able to dial the access code before making a call. The end user was able to dial the access code during a call. When a user set this parameter to N, a POTS end user in the office was not able to activate CCW.

With MDC, a MDC line that belonged to a group with a CCW access code was able to use CCW. Table datafill defined the code. An MDC end user was able to dial the access code. An MDC end user was able to dial the access code if the line did not have the CWT option. Some MDC features, like call waiting origination (CWO), allowed the user to dial the access code when the line did not have CWT. Features like CWO make a line seem to have CWT. The MDC end users were able to activate CCW before the end users made a call. The MDC end users were able to activate CCW flashing during a call.

Some end users do not want CCW on the lines. Some end users want CCW on the lines. Some operating companies want to offer CCW as an option that end users. Other operating companies want to keep CCW as an office-wide feature. Office parameter CCW_AS_LINE_OPTION allows the operating

Cancel Call Waiting-per Line (continued)

company to choose how to offer CCW. The CCW line option allows end users to choose to have CCW on the line of the end user. Office parameter LINE_WITH_CWT_CAN_FLASH allows the operating company to control the users that can flash.

The possible changes for POTS, Subscriber Services (SS), and MDC lines, appear in the following table. The changes depend on the different office settings.

Combinations of settings for office parameters and line types (Sheet 1 of 2)

Office parameter/ line type	Status	Status	Status	Status
CCW_ACTIVE	N	N	Y	Y
CCW_AS_LINE_OPTION	N	Y	N	Y
LINE_WITH_CWT_CAN_FLASH (Note)	N	Y	N	Y
POTS lines	Cannot use cancel call waiting. Cannot use flash option.	Cannot use cancel call waiting. Cannot use flash option.	These lines can use cancel call waiting when the line has option CWT. Cannot use flash option.	These lines must have the option CWT and option CCW to use cancel call waiting. Can use flash option.
Note: This office parameter does not affect SS and MDC lines. The SS and MDC lines can flash without features.				

Cancel Call Waiting-per Line (continued)

Combinations of settings for office parameters and line types (Sheet 2 of 2)

Office parameter/ line type	Status	Status	Status	Status
MDC lines	These lines do not need option CCW to use cancel call waiting.	These lines need option CCW to use the feature. These lines do not need option CWT to have CCW.	These lines do not need option CCW to use cancel call waiting.	These lines need option CCW to use the feature. These lines do not need option CWT to have CCW.
SS lines	Cannot use cancel call waiting.	Cannot use cancel call waiting.	These lines do not need option CCW to use cancel call waiting.	These lines need option CCW to use the feature. These lines do not need option CWT to have CCW.
Note: This office parameter does not affect SS and MDC lines. The SS and MDC lines can flash without features.				

Office parameter CCW_AS_LINE_OPTION determines how the system offers CCW. If you set this office parameter to Y, a line must have option CCW to use cancel call waiting. Set the current parameter CCW_ACTIVE to Y for CCW to be on POTS lines.

If CCW_ACTIVE is N, and an attempt occurs to change office parameter CCW_AS_LINE_OPTION to Y, a message appears. The message indicates that CCW_ACTIVE is N.

The SS lines are like MDC lines. The system allows CCW, with the same requirements. If you set office parameter CCW_AS_LINE_OPTION to Y, the SS line must have the CCW option. The SS line must have an access code that table datafill defines. Set the CCW_ACTIVE to Y.

The line option CCW determines if the system allows CCW. This feature works in a different way for POTS, MDC and SS lines.

For example, on a POTS line, you must assign the line option CWT to the line. You must assign the CWT to the line to assign the option CCW. For SS and MDC lines, CWT is not required.

Cancel Call Waiting-per Line (continued)

Set office parameter CCW_ACTIVE to Y to allow POTS and SS lines to use CCW. The MDC lines do not refer to CCW_ACTIVE. For SS and MDC lines to use CCW, the lines must have the option CCW and an access code. A POTS line only needs the CCW option.

To assign option CCW to a line, set CCW_AS_LINE_OPTION to N. This setting allows the addition of the to a line before you make CCW a line option. This action does not disrupt service.

Office parameter LINE_WITH_CWT_CAN_FLASH determines the users that can flash and activate CCW during a call. This parameter determines the users that can go off-hook and activate CCW. When this parameter is Y, POTS end users with CWT can flash the hookswitch and dial the CCW access code. These users can go off-hook and dial the CCW access code. End users with CWT and CCW, with CCW_AS_LINE_OPTION set to Y, can perform these actions also.

When this parameter is N, POTS end users must go off-hook and dial the access code to activate CCW. The CCW_ACTIVE must be Y for the flash option to work.

The CCW_AS_LINE_OPTION and LINE_WITH_CWT_CAN_FLASH are separate parameters. The two parameters do not affect each other.

Translations table flow

Descriptions of the Cancel Call Waiting—per Line translations tables appear in the following list:

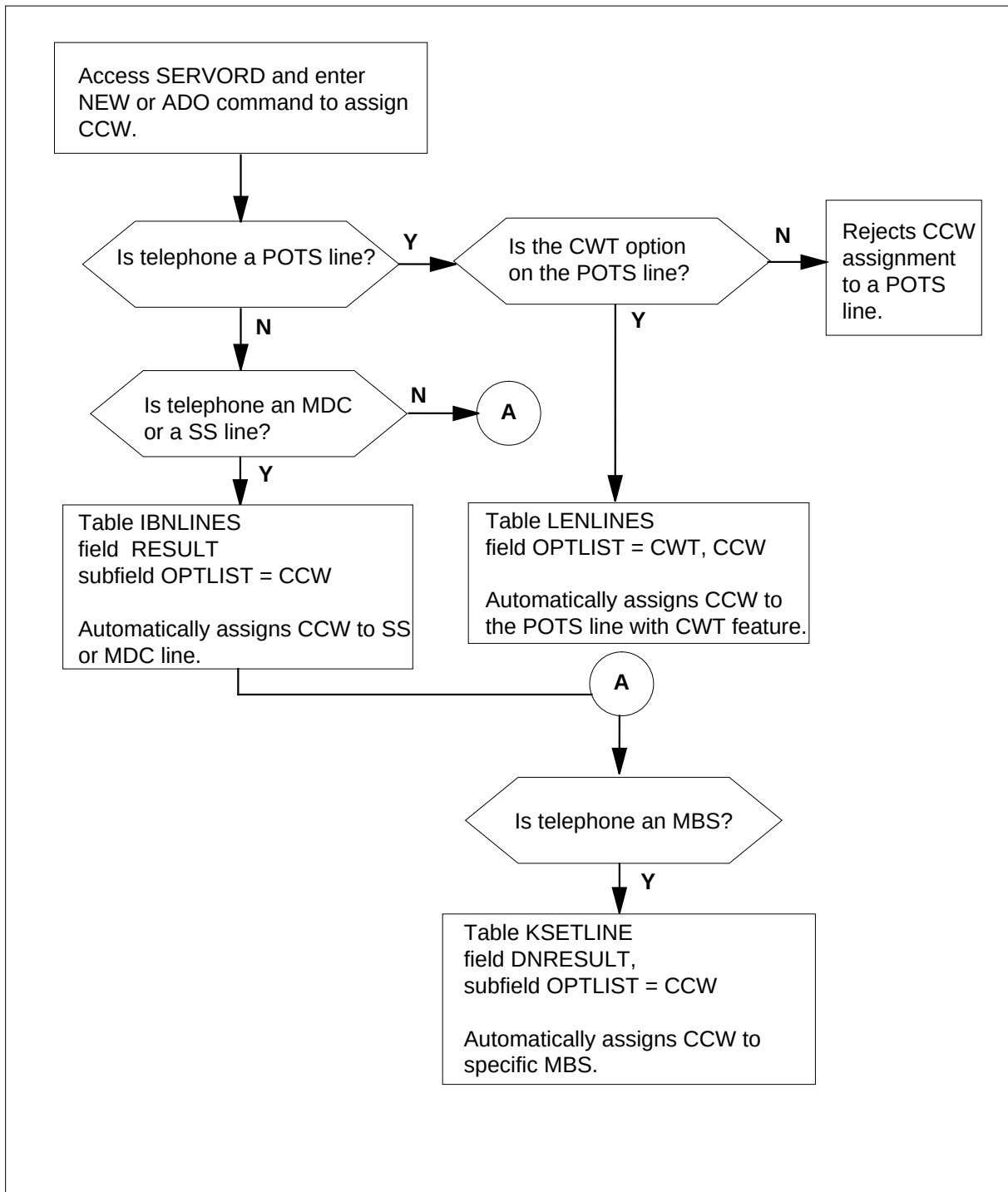
- Table Integrated Business Network Line Assignment (IBNLINES). This table defines the integrated business network (IBN) station numbers, attendant consoles, and Multiple Appearance Directory Numbers (MADN) the switch supports. This table also defines the numbers and consoles that the hardware options, assigned to each number and console, support. Entry of this table occurs when assignment of the line occurs in SERVORD.
- Table LENLINES (IBN Line Assignment). This table defines the POTS directory number (DN), line equipment number (LEN) and options assigned to each telephone. Entry of this table occurs when assignment of the line occurs in SERVORD.
- Table KSETLINE (Business Set and Data Unit Line Assignment). This table defines the business set and data unit numbers support. The switch and the hardware options assigned to each support. Entry of this table occurs when assignment of the line occurs in SERVORD.

Cancel Call Waiting-per Line (continued)

The Cancel Call Waiting—per Line translation process appears in the following flowchart.

Cancel Call Waiting-per Line (continued)

Table flow for Cancel Call Waiting—per Line



The datafill content in the flowchart appears in the following list.

Cancel Call Waiting-per Line (continued)

LEN of MDC =

HOST 00 0 00 01

LEN of POTS line =

HOST 00 0 02 01

Len of MBS line =

HOST 00 1 05 01

Datafill example for Cancel Call Waiting—per Line

Datafill table	Example data
IBNLINES	HOST 00 0 00 03 0 DP BL
IBNLINES	HOST 00 0 00 01 0 DT STN IBN 5554667 919 (CCW) \$
LENLINES	HOST 00 0 02 01 S 0 5551212 DT 45 (CWT) (CCW) \$ 12
KSETLINE	HOST 00 1 05 01 1 DN Y 5551234 MDCGRP1 0 0 919 (CCW) \$

Limits

The following limits apply to Cancel Call Waiting—per Line:

When operating companies offer CCW as a line option, a SS or MDC line needs option CCW and an access code. Definition of the access code must occur to CCW in table datafill. The POTS lines only need the CCW option.

Note: The limits that apply to the current Cancel Call Waiting feature also apply here. These limits are POTS and MDC.

Interactions

Descriptions of the interactions between Cancel Call Waiting—per Line and other functionalities appear in the following paragraphs.

The CCW improves CWT. When a POTS line has CCW, the POTS line must have CWT. If the removal of CWT from a POTS line occurs, the removal of CCW must occur. The assignment of CCW to MDC and SS lines that do not have the CWT option can occur.

The Sourcing of Patch FPA75, AF7524 feature adds the service order option No Cancel Call Waiting Without Call Waiting (NCCW). This option applies

Cancel Call Waiting-per Line (continued)

to customers who do not want the CCW feature on POTS and residential (RES) lines.

If the office parameter CCW_WITHOUT_CWT_ALLOWED is Yes (Y) in office parameter table OFCVAR, the operating company can assign NCCW. NCCW prevents individual lines from using the CCW feature through SERVORD.

If you set the office parameter CCW_WITHOUT_CWT_ALLOWED to No (N) in office parameter table OFCVAR, you cannot assign NCCW to any line. Setting CCW_WITHOUT_CWT_ALLOWED to N overrides the office-wide activation of the feature on a per-line basis.

NCCW updates table LCCOPT. NCCW also updates table OPTOPT to include the incompatibility of NCCW and CCW.

When adding NCCW through SERVORD, SERVORD automatically checks that CCW is present. If CCW is present, a message appears. This message states that CCW is present and there is no need to assign NCCW.

Note: NCCW is incompatible with the IBN line class code.

Activation/deactivation by the end user

—per Line does not require activation or deactivation by the end user.

Billing

—per Line does not affect billing.

Station Message Detail Recording

—per Line does not affect Station Message Detail Recording.

Datafilling office parameters

—per Line does not affect office parameters.

The office parameters Cancel Call Waiting—per Line uses appear in the following table. Refer to *Office Parameters Reference Manual* for more information about office parameters.

Cancel Call Waiting-per Line (continued)

Datafill procedure for CCW_ACTIVE

The datafill for CCW_ACTIVE appears in the following procedure.

Office parameters Cancel Call Waiting—per Line

Table name	Parameter name	Explanation and action
OFCOPT	CCW_ACTIVE	Specifies if CCW is active. If set to N, POTS and IBN lines with CWT cannot have CCW. If set to Y (default), the lines can have CCW.

Datafill procedure for CCW_AS_LINE_OPTION

The datafill for CCW_AS_LINE_OPTION appears in the following procedure.

Office parameters for Cancel Call Waiting—per Line

Table name	Parameter name	Explanation and action
OFCVAR	CCW_AS_LINE_OPTION	Specifies how operating companies offer CCW to subscribers. If set to Y, the line must have CCW to use CCW. If set to N, POTS lines can use CCW. With access codes, MDC and SS lines can use CCW.

Datafill procedure for LINE_WITH_CWT_CAN_FLASH

The datafill for LINE_WITH_CWT_CAN_FLASH appears in the following procedure.

Office parameters for Cancel Call Waiting—per Line

Table name	Parameter name	Explanation and action
OFCVAR	LINE_WITH_CWT_CAN_FLASH	Provides SS lines with the same disconnect and signal timing as POTS lines. The default is Y.

Cancel Call Waiting—per Line (continued)

Datafill sequence

The tables that require datafill to implement Cancel Call Waiting—per Line appear in the following table. The tables appear in the correct entry order.

Datafill requirements for Cancel Call Waiting—per Line

Table	Purpose of table
OFCOPT	Office Option. This table contains data on engineering options for the office. Refer to <i>Office Parameters Reference Manual</i> for how Cancel Call Waiting—per Line affects office parameters.
OFCVAR	Variable Office Parameter. This table contains data on variable office parameters for the office. Refer to <i>Office Parameters Reference Manual</i> for how Cancel Call Waiting—per Line affects office parameters.
LENLINES (Note)	Line Assignment. This table provides data for each line that has entries.
IBNLINES (Note)	The IBN Line Assignments. This table contains the line assignments for data channel links for the Bulk Calling Line Identification (BCLI) feature under the format name of BL.
KSETLINE (Note)	Keyset Line. This table associates call appearances (ISDN LT call activators and indicators) to DN's and different feature options. This table is a current MDC table.
Note: Use SERVORD to enter datafill in this table through SERVORD. A datafill procedure or example is not available. See SERVORD for an example of how to use SERVORD to enter data in this table.	

Tools for verifying translations

—per Line does not use tools to verify translations.

SERVORD

Line option called CCW impacts service orders. This option is available on lines in the POTS, SS and MDC environments. For POTS, the line must have option CWT to have CCW. For SS and MDC lines, assignment of CCW can occur on the line. To use CCW, the definition of an access code must occur in datafill.

SERVORD limits

—per Line does not have SERVORD limits.

Cancel Call Waiting—per Line (continued)

SERVORD prompts

The SERVORD prompts you use to assign Cancel Call Waiting—per Line appear in the following table.

SERVORD prompts for Cancel Call Waiting—per Line

Prompt	Correct input	Explanation
SNPA	three digits	Specifies the service numbering plan area (area code).
LATENAME	alphanumeric	Specifies the calling Local Access and Transport Area (LATA) name associated with the originator of the call.

SERVORD example of how to Cancel Call Waiting—per Line

How to add Cancel Call Waiting—per Line to a new line with the NEW command appears in the following service order example.

SERVORD example for Cancel Call Waiting—per Line in prompt mode

```
S0:
> NEW
DN:
> 6211234
LCC:
> 1 FR
LATENAME:
> LATA1
LTG: 0
>
LEN_OR_LTID:
> 02 0 00 00
OPTION:
> CWT
OPTION:
> CCW
OPTION:
> $
```

SERVORD example for Cancel Call Waiting—per Line in no-prompt mode

```
>NEW 6211234 1FR LATA1 2 0 0 0 CWT CCW $
```

How to add option CCW to a current line with the ADO command appears in the following example.

Cancel Call Waiting-per Line (continued)

SERVORD example for Cancel Call Waiting—per Line in prompt mode

```
SO:  
> ADO  
DN_OR_LEN:  
> 2260000  
OPTION:  
> CCW  
OPTION:  
> $
```

SERVORD example for Cancel Call Waiting—per Line in no-prompt mode

```
>ADO 2260000 CCW $
```

How to delete option CCW from a line with the DEO command appears in the following example.

SERVORD example for Cancel Call Waiting—per Line in prompt mode

```
SO:  
> DEO  
DN_OR_LEN:  
> 2260000  
OPTION:  
> CCW  
OPTION:  
> $
```

SERVORD example for Cancel Call Waiting—per Line in no-prompt mode

```
>DEO 5550000 CCW $
```

The following is an example of how to create a DN on a new business set with option CCW with the NEW command.

Cancel Call Waiting-per Line (end)

SERVORD example for Cancel Call Waiting—per Line in prompt mode

```
>  
SO:  
> NEW  
SONUMBER:  
>  
DN:  
> 6211234  
LCC:  
> M5209  
GROUP:  
> IMDCGRP1  
SUBGRP:  
> 0  
NCOS:  
> 0  
SNPA:  
> 919  
KEY:  
> 1  
RINGING:  
> Y  
LATANAME:  
> LATA1  
LTG:  
> 0  
LEN_OR_LTID:  
> 0 0 0 1  
OPTKEY:  
> 1  
OPTION:  
> CCW  
OPTKEY:  
> $
```

SERVORD example for Cancel Call Waiting—per Line in no-prompt mode

```
>NEW $ 6211234 M5209 MDCGRP1 0 0 919 1 Y LATA1 0 0 0 0 1 1  
CCW $
```

CCS7 equipment tables

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

BCS36 and later versions

The feature packages on which functional group BAS00003 (BAS Generic) is based were introduced in BCS25.

Requirements

BAS Generic does not have requirements.

Description

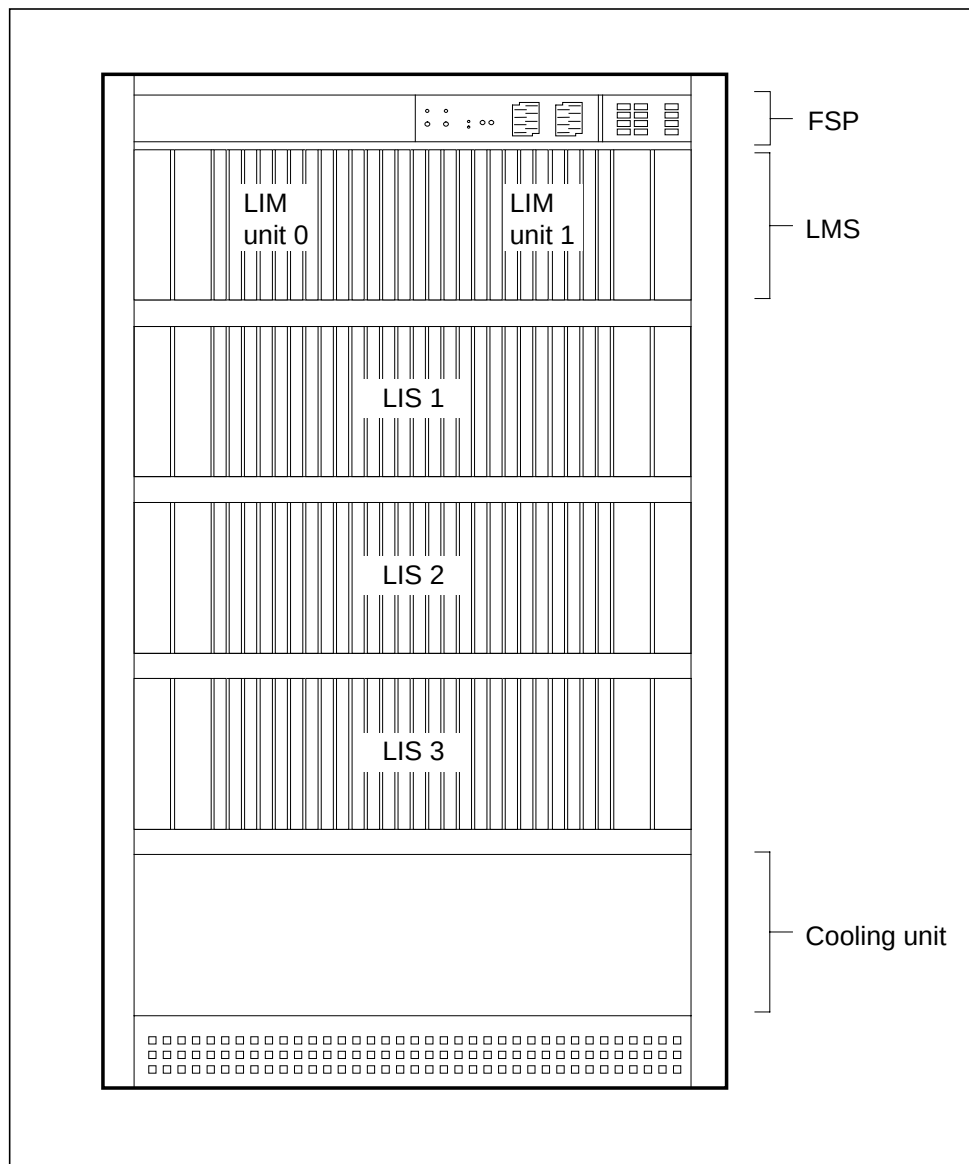
BAS Generic supports the functions of the DMS SuperNode link peripheral processor (LPP) and the enhanced link peripheral processor (ELPP). The LPP and ELPP are DMS SuperNode equipment cabinets that provide the interface between the DMS-core, DMS-bus, and the CCS7 network.

Link peripheral processor configuration

The following figure shows the physical configuration of an LPP or ELPP. Each LPP and ELPP contains a local message switch (LMS) shelf and three link interface shelves (LIS).

CCS7 equipment tables (continued)

Layout of an LPP or ELPP frame



Local message switch shelf

The LMS shelf is the top shelf of the LPP or ELPP. In the LPP, the LMS shelf contains cards and paddle boards for two LIM units with a single F-bus configuration. In the ELPP, the LMS shelf contains cards and paddle boards for two LIM units and a triple F-bus configuration. The triple F-bus configuration provides one F-bus for each LIS.

CCS7 equipment tables (continued)

Link interface shelves

Each LIS allows plug-in provisioning of the cards and paddle boards contained in each application-specific unit (ASU). The ASUs provide the interface between external signaling links and the internal signal processing functions of the node. Types of available ASUs include the following:

- CCS7 link interface unit (LIU7)
- ethernet interface unit (EIU)
- high-speed link interface unit (HLIU)
- high-speed link router (HSLR)

Operation

Enter loadfiles in table PMLOADS. Tables LIUINV and LIMINV use the loadfile entries entered in table PMLOADS

Tables LIMINV, LIMCDINV and LIMPTINV allow LIM configuration using the table editor.

Table SUSHELF provides a common interface for LIS identification.

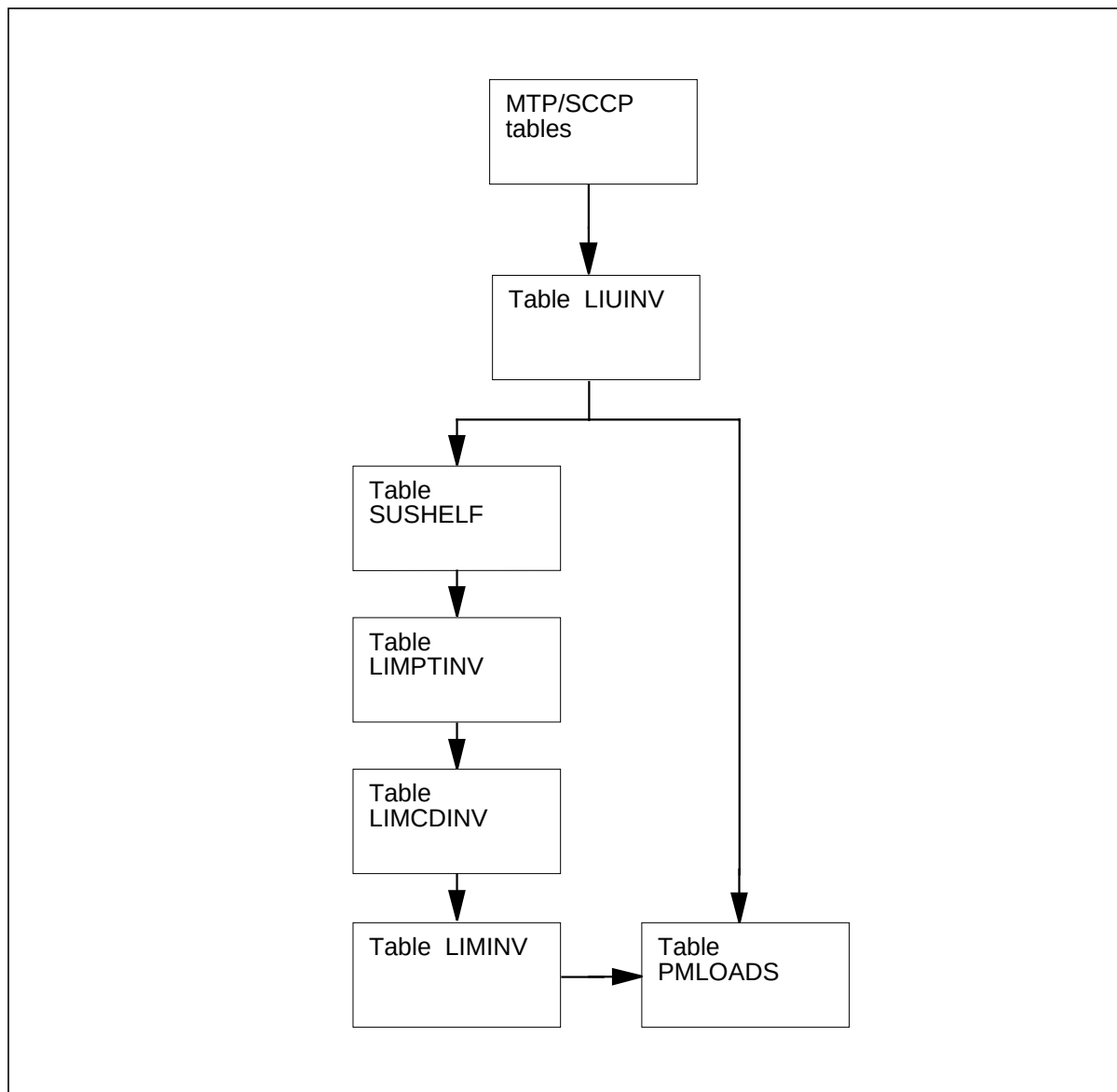
Translations table flow

The following list describes the CCS7 equipment tables. The translation process appears in the following flowchart.

- Table LIUINV holds the configuration data for each LIU7, SVR7, EIU, HLIU, and HSLR in the LPP or ELPP.
- Table SUSHELF inventories the frame transport bus (F-bus) parts of the link interface shelf (LIS).
- Table LIMPTINV describes the port connections of each port on the LIM.
- Table LIMCDINV describes the cards and paddle boards in the LIM cabinet.
- Table LIMINV describes the location, cabinet type and shelf type for each LIM in a building.
- Table LTCINV lists the inventory data for the peripheral module (PM).
- Table PMLOADS stores the device location of every PM loadfile.

CCS7 equipment tables (continued)

Table flow for CCS7 equipment tables



Sample datafill content for the flowchart appears in the following table. In the example, the LIU7 is 102. The LIM is 1.

Limitations and restrictions

The CCS7 equipment tables do not have limits.

Interactions

The CCS7 equipment tables do not have functionality interactions.

CCS7 equipment tables (continued)

Activation/deactivation by end user

Does not apply

Billing

The CCS7 equipment tables do not affect billing.

Datafilling office parameters

The CCS7 equipment tables do not affect office parameters.

Datafill sequence

The tables that require datafill to implement CCS7 equipment tables appear in the following table. The tables appear in the correct entry order.

Datafill requirements for CCS7 equipment tables

Table	Purpose of table
PMLOADS	The peripheral module loads table stores the device location of each PM load file
LTCINV	The line trunk controller inventory table contains inventory data for PM type
LIMINV	The link interface module inventory table describes the location of each LIM in a building
LIMCDINV	The link interface module card inventory table describes the cards and paddle boards in the LIM
LIMPTINV	The link interface module port inventory table describes the port connections of each LIM
SUSHELF	The service unit shelf table identifies the LIU shelves to the MS or LIM
LIUINV	The link interface unit inventory table contains the configuration data for each ASU in the LPP or ELPP

Datafilling table PMLOADS

Table PMLOADS stores the device location of every PM load file.

Adding a loadname to table PMLOADS

Table PMLOADS must contain data for the XMS-based peripheral modules (XPM) and PM loadfiles before inventory tables can use the loadfiles. The inventory tables enforce this rule. The system automatically adds tuples in table PMLOADS during initial data entry and dump and restore. The system adds the tuples when the user adds tuples to inventory tables such as LIUINV.

CCS7 equipment tables (continued)

Deleting a loadname from table PMLOADS

Ensure no references to the loadname to be deleted exist in inventory tables.

Table size

This table can contain a maximum of 255 tuples.

Datafill sequence

Enter data in table PMLOADS before tables LIMINV, LTCINV, and LIUINV.

The datafill for table PMLOADS appears in the following table. The fields that apply to CCS7 equipment tables appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table PMLOADS

Field	Subfield	Entry	Explanation and action
LOADNAME		alphanumeric (1 to 32 characters)	Peripheral module load name. Enter a string to specify a load file name.
ACTFILE		alphanumeric (1 to 32 characters)	Active load file name. Enter a string to specify the active load file name.
ACTVOL		alphanumeric (1 to 16 characters)	Active volume. Enter a string to specify the device that stores the active load file.
BKPFIL		alphanumeric (1 to 32 characters)	Backup load file name. Enter a string to specify the backup load file name. In BCS36 and higher, this load file is the load file that Northern Telecom (NT) shipped. The load file must be the same as the entry in field LOAD in the inventory tables.
BKPVOL		alphanumeric (1 to 16 characters)	Backup volume. Enter a string to specify the device that stores the backup load file.
UPDACT		Y or N	Update active load file. Enter Y for the system to automatically update the entry in field ACTFILE with the patched load file name.

Datafill example for table PMLOADS

Sample datafill for table PMLOADS appears in the following example.

CCS7 equipment tables (continued)

MAP example for table PMLOADS

LOADNAME	ACTFILE	ACTVOL	BKPFIL
BKPVOL	UPDACT		
LRS77CW	LRS77CW	S00DPMLADS	LRS77CW
S01DPMLADS	Y		

Datafilling table LTCINV

Table LTCINV contains the inventory data for different PM types. When you enter an XPM in this table, the system automatically makes an entry in table LTCPSINV (P-side link inventory). The key is the same for both tables.

Table size

This table can contain a maximum of 210 tuples. Memory is allocated as required to allow a maximum of 210 tuples in tables LTCINV and LTRINV combined.

Datafill sequence

Enter data in table LTCINV after table PMLOADS.

The datafill for table LTCINV appears in the following table. Only the fields that apply to CCS7 equipment tables appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table LTCINV (Sheet 1 of 4)

Field	Subfield	Entry	Explanation and action
LTCNAME		see subfields	Line trunk controller name. This field contains subfields XPMTYPE and XPMNO.
	XPMTYPE	alphanumeric	Peripheral module type. Enter the type of PM.
	XPMNO	numeric (0 to 255)	Peripheral module number. Enter a number to specify the PM.
			Note: Operating company personnel can number the XPMs from 0 to 255 but the total number of tuples in tables LTCINV and LTRINV combined cannot exceed 210 XPMs. The XPM types can be any combination of types accepted by the two tables.

CCS7 equipment tables (continued)**Datafilling table LTCINV (Sheet 2 of 4)**

Field	Subfield	Entry	Explanation and action
ADNUM		numeric (0 to 4095)	External administrative number. Enter the external administrative number associated with the PM.
FRTYPE		alphanumeric	Frame Type. Enter the frame type that contains the PM.
FRNO		numeric (0 to 511)	Frame number. Enter a number for the frame type specified in field FRTYPE.
SHPOS		18, 32, 51, or 65	Shelf position. Enter the position of the shelf on the frame.
FLOOR		numeric (0 to 99)	Floor. Enter a number to specify the floor that contains the PM frame.
ROW		alphanumeric A to Z, AA to ZZ, excluding I, O, II, and OO	Row. Enter one or two alphabetical characters to specify the row that contains the cabinet.
FRPOS		numeric (0 to 99)	Frame position. Enter a number to specify the bay position in the row that contains the PM frame.
EQPEC		alphanumeric	Equipment PEC. Enter the PM PEC.
LOAD		alphanumeric (1 to 8 characters)	Load file name. Enter the PM software issue name specified in table PMLOADS.
EXECTAB		see subfields	Executive table. This field is a vector of a maximum of eight entries. This field contains subfields TRMTYPE and EXEC. Enter \$ to signify the end of the vector.
	TRMTYPE	alphanumeric	Terminal type. Enter the type of PM terminal used.
	EXEC	alphanumeric	Executive programs. Enter the set of executive programs required for the PM specified in TRMTYPE.

CCS7 equipment tables (continued)**Datafilling table LTCINV (Sheet 3 of 4)**

Field	Subfield	Entry	Explanation and action
CSLNKTAB		see subfields	The C-side link table. This field is a vector of a maximum of 16 entries. Make at least three entries to satisfy the messaging requirements of the PM. Enter \$ to signify the end of the vector. For switches with a junctored network (JNET), this field contains subfields NMPAIR and NMPORT. For switches with an enhanced network (ENET), this field contains subfields ENSHELF, ENSLOT, ENLINK, and ENDS30. For DS30 copper links, subfields ENSHELF, ENSLOT and ENLINK define the location of each copper link on the ENET. Subfield ENDS30 must be 0. For DS512 fiber links, subfields ENSHELF, ENSLOT and ENLINK are the same. Field ENDS30 must contain an unbroken sequence from 0.
	NMPAIR	numeric (0 to 31)	Network module pair number. Enter a number to specify the network link that contains the PM.
	NMPORT	numeric (0 to 63)	Network port. Enter a number to specify the network port.
	ENSHELF	numeric (0 to 7)	The ENET pair number. Enter a number to specify the network pair of the assigned PM.
	ENSLOT	numeric (10 to 16 or 25 to 32)	The ENET slot number. Enter the number of the ENET slot for the PM.
	ENLINK	numeric (0 to 18)	The ENET link number. Enter the number of the link on the card for the PM.

CCS7 equipment tables (continued)

Datafilling table LTCINV (Sheet 4 of 4)

Field	Subfield	Entry	Explanation and action
CSLNKTAB	ENDS30	numeric (0 to 15)	The ENET DS30 link number. The ENDS30 number specifies the DS30 equivalents in a C-side DS512 fiber link to the ENET. For DS30 links, enter 0. For fiber DS512 links, enter a number from 0 to 15. Enter the number in an unbroken sequence from 0. This number corresponds to the C-side link of the PM.
OPTCARD		card PECs	Optional card. This field is a vector of a maximum of ten entries. Enter \$ to signify the end of the vector.
TOESET		alphanumeric	Tone set. Enter the correct tone set for the switch being entered. Enter NORTHAM for North America.
PROCPEC		alphanumeric	The 6X45 equipment PEC. Enter the two PECs of the 6X45 cards. Each unit of the XPM requires one PEC. Enter the unit 0 PEC first. The PEC entered for a unit must correspond to the 6X45 with minimum firmware capabilities.
EXTLINKS		0 to 6	Number extension links range. Enter the number of pairs of extended links.
E2LOAD		alphanumeric	Electrically erasable programmable read only memory load. This field stores the NTMX77AA electrically erasable programmable read only memory (EEPROM) file name. If the shelf has a processor that is not NTMX77, the system automatically enters NILLOAD in this field.
OPTATTR		alphanumeric	Optional attribute. Enter CCS7 if the XPMTYPE field value is DTC and used for CCS7 ISUP call processing. If this field does not contain an attribute, enter \$.
PEC6X40		alphanumeric	The 6X40 equipment PECs. Enter the version of the 6X40 card in the PM. The default is 6X40AA. This field allows diagnostic checks.
EXTINFO		Y or N	Extension shelf informatation. Enter N.

CCS7 equipment tables (continued)

Datafill example for table LTCINV

The following example shows sample datafill for CCS7 equipment tables in table LTCINV. In the example, the PM type is a PCM-30 DTC (PDTC).

MAP example for table LTCINV

LTCNAME	ADNUM	FRTYPE	FRNO	SHPOS	FLOOR	ROW
FRPOS	EQPEC	LOAD	EXECTAB	CSLINKTAB	OPTCARD	
TONESET	PROCPEC	EXTLINKS	E2LOAD	OPTATTR	PEC6X40	EXTINFO
PDTC 0	1005	LTEI	0	18 1	B	3
6X02UA	UDT36BA	(ABTRK DTCEX)	\$	(0 0) (0 8)	(0 16)	(0
24)	\$	(RAM6X69)	(NT6X28)	\$		
NORTHAM	6X45BA	6X45BA	0	NILLOAD	\$	6X40AC
N						

Datafill example for table LTCINV in an ENET using DS512 fiber links

The following example shows sample datafill for CCS7 equipment tables in table LTCINV. In the example, subfields ENSHELF, ENSLOT, and ENLINK are 0, 12, and 2 for each link entry. The ENDS30 link number is an unbroken sequence from 0 to 15.

LTCNAME	ADNUM	FRTYPE	FRNO	SHPOS	FLOOR	ROW
FRPOS	EQPEC	LOAD	EXECTAB	CSLINKTAB	OPTCARD	
TONESET	PROCPEC	EXTLINKS	E2LOAD	OPTATTR	PEC6X40	EXTINFO
DTC 27	1013	DTE	9 51	0 DD	2	6X02AA
DC736CR1	(ABTRK DTCEX)	\$	(0 12 2 0)	(0 12 2 1)	(0 12 2	2)
(0 12 2 4)	(0 12 2 5)	(0 12 2 6)	(0 12 2 7)	(0 12 2 8)	(0 12 2 9)	(0 12 2 10)
(0 12 2 11)	(0 12 2 12)	(0 12 2 13)	(0 12 2 14)	(0 12 2 15)	\$	(UTR15)
(MSG6X69)	\$	NORTHAM	6X45BA	6X45BA	0	NILLOAD
(CCS7)	\$	6X40CA	N			

Datafill example for table LTCINV in an ENET using DS30 copper links

The following example shows sample datafill for CCS7 equipment tables in table LTCINV. In the example, the ENDS30 link number is 0.

CCS7 equipment tables (continued)

```

LTCNAME ADNUM  FRTYPE  FRNO    SHPOS      FLOOR
ROW FRPOS   EQPEC      LOAD      EXECTAB
CSLINKTAB
OPTCARD      TONESET
PROCPEC EXTLINKS    E2LOAD  OPTATTR PEC6X40 EXTINFO
-----
DTC 0      1012    DTE      13  51  0
GG  2    6X02AA DC736CR1  (ABTRK DTCEX)$
(0 10 0 0) (0 16 1 0) (0 16 2 0) (0 16 3 0)
(0 16 4 0) (0 16 5 0) (0 16 6 0) (0 16 7 0)
(0 16 8 0) (0 16 9 0) (0 16 10 0) (0 16 11 0)
(0 16 12 0) (0 16 13 0) (0 16 14 0) (0 16 15 0) $
(CONTINUITY) (MSG6X69) $    NORTHAM
6X45BA 6X45BA  0  NILLOAD (CCS7) $      6X40AA  N

```

Error messages for table LTCINV

The following error message applies to table LTCINV.

Error message for table LTCINV

Error message	Explanation and action
INFO: E2LOAD has been datafilled with "NILLOAD".	The shelf is not equipped with an NTMX77AA card. Enter field E2LOAD with a string other than NILLOAD. The system automatically enters this field with NILLOAD.

Datafilling table LIMINV

Table LIMINV provides an inventory of the LIMs in an office. This table contains the following information on LIMs:

- the location of the LIM in the building
- the type of cabinet that contains the LIM
- the type of shelf that contains the LIM

Adding tuples to table LIMINV

Table LIMINV automatically enters tuples in tables LIMCDINV and LIMPTINV.

CCS7 equipment tables (continued)

Deleting a tuple in table LIMINV

To delete a tuple in table LIMINV, the LIM must be offline and all ports on the LIM detached. See the section Datafilling table LIMPTINV. To change the configuration of a LIM, the LIM must be offline or manual busy.

Table size

Enter one tuple for each LIM. The maximum size is 17 tuples.

Datafill sequence

Enter data in table LIMINV before table SUSHELF.

The datafill for table LIMINV appears in the following table. Only the fields that apply to CCS7 equipment tables appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table LIMINV (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
LIM		numeric (0 to 16)	Link interface module number. Enter the number assigned to the LIM.
FLOOR		numeric (0 to 99)	Floor. Enter a number to specify the floor that contains the LIM.
ROW		alphabetic A to Z, AA to ZZ, excluding I, O, II, and OO	Row. Enter one or two alphabetical characters to specify the row that contains the cabinet.
POSITION		numeric (0 to 99)	Frame position. Enter the number to specify the bay position of the LIM.
CABTYPE		LIM	Cabinet type. Enter LIM.
CABNUM		numeric (0 to 511)	Cabinet number. Enter the number assigned to the cabinet.
LOAD		alphanumeric (1 to 8 characters)	Software load name. Enter the current software load name in the LIM. Table PMLOADS contains the load name.
CABPEC		NT9X70AA NT9X70BA NT9X70CA NT9X70BB	Cabinet PEC. Enter the cabinet PEC.

CCS7 equipment tables (continued)

Datafilling table LIMINV (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
SHLF0PEC		NT9X71AA NT9X71AB	PEC for shelf 0. Enter the PEC for the local MS shelf—the top shelf in the cabinet.
MTCVERSN		'0.0', '1.0', or '2.0'	LIM maintenance version. This field is read-only. Note: Use single quotes around the entry.

Datafill example for table LIMINV

Sample datafill for the CCS7 equipment tables in table LIMINV appears in the following table. In the example, LIM 1 is in row Z in bay position 2.

LIM FLOOR LOAD	ROW POSITION CABPEC	CABTYPE SHLF0PEC	CABNUM MTCVERSN
1 0 LPC77CW	Z 2 NT9X70BA	LIM NT9X71AB	1 1.0

Datafilling table LIMCDINV

Table LIMCDINV describes the cards and paddle boards in the LIM cabinet. Table LIUINV contains the data for cards associated with the LIU and ASU.

Each LIM contains two units, 0 and 1. Each slot in the LIM can hold two cards. The slots hold one card in the front and one card in the back. The card in the front is F. The card in the back is B.

The LIM slots can contain the following system cards.

LIM cards (Sheet 1 of 2)

Card type	Front PEC	Back PEC
Message switch processor (MSP)	NT9X13DA NT9X13DB NT9X13DD NT9X13DE	NT9X26AA NT9X26AB
Processor bus (P-bus) terminator	NT9X49CA	

CCS7 equipment tables (continued)**LIM cards (Sheet 2 of 2)**

Card type	Front PEC	Back PEC
Transaction bus (T-bus) access	NT9X52AA	
T-bus/F-bus interface (TFI)	NT9X73BA NT9X73BB NT9X73CA	NT9X79BA NT9X79BB
Frame transport bus (F-bus) terminator	NT9X74AA	NT9X79AA NT9X79BA
Clock	NT9X53AA NT9X53AD	
Memory (24 Mbyte)	NT9X14DB	
Mapper	NT9X15AA	
DS30 interface	NT9X17AA NT9X17DA	NT9X23BA
DS512 interface	NT9X17AD	NT9X62BB

Adding or deleting a card in table LIMCDINV

The NT9X13DD processor card has 16 Mbytes of resident memory. The NT9X14 memory card is optional. You can delete the NT9X14 memory card.

You cannot add or delete the other system cards. You can change only the PEC and version fields. To change the configuration of a card, the LIM unit you work on must be manual busy or offline. Use the PMRESET command to download information to the LIM.

When you enter data in table LIMINV, the system automatically enters all the fields in table LIMCDINV. To change the configuration of the NT9X13 card, perform the following steps:

1. Manually busy the LIM.
2. If you have an NT9X13DB or NT9X13DD card, change the value of subfield FRONTPEC (in field CARDINFO) in table LIMCDINV. Change the value from NT9X13DA to NT9X13DB or NT9X13DD.
3. Use the PMRESET command to reset the LIM unit. If you do not reset the LIM unit, a mismatch of data can occur between the computing module and the LIM unit.
4. Return the LIM to service.

CCS7 equipment tables (continued)

The datafill for table LIMCDINV appears in the following table. Only the fields that apply to CCS7 equipment tables appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table LIMCDINV

Field	Subfield	Entry	Explanation and action
LIM		numeric (0 to 16)	Link interface module number. Enter the number assigned to the LIM.
SHELF		0 to 3	Shelf. Enter 0.
SLOT		numeric (7 to 32)	Card slot position. Enter the number of the slot that contains the card.
CARDTYPE		alphanumeric	Card type. Enter the card type.
CARDINFO		see subfields	Card information. This field contains subfields FRONTPEC and BACKPEC.
	FRONTPEC	alphanumeric	Front PEC. Enter the PEC of the card in the front of the slot.
	BACKPEC	alphanumeric	Back PEC. Enter the PEC of the card in the back of the slot. If the back position does not contain a card, leave this subfield blank.

Datafill example for table LIMCDINV

Sample datafill for CCS7 equipment tables in table LIMCDINV appear in the following table. In the example, LIM 0 is on shelf 0. The following list describes the cards in each slot:

- 7 and 32 are P-bus cards
- 8 and 31 are TFI cards
- 9, 10, 29, and 30 are DS30 cards
- 15 and 24 are mapper cards
- 16 and 23 are memory cards
- 17 and 22 are the message switch processor (MSP) cards. The CPU card is in the front. The remote terminal interface (RTIF) card is in the back.
- 18 and 21 are clock cards
- 19 and 20 are T-bus access cards

Sample datafill for table LIMCDINV appears in the following example.

CCS7 equipment tables (continued)

LIM	SHELF	SLOT	CARDTYPE	CARDINFO	
1	0	7	PBUS	NT9X49CA	
1	0	8	TFI	NT9X73BA	NT9X79BA
1	0	9	DS30	NT9X17AD	NT9X23BA
1	0	10	DS30	NT9X17AD	NT9X23BA
1	0	15	MAPPER	NT9X15AA	
1	0	17	MSP	NT9X13DD	NT9X26AB
1	0	18	CLOCK	NT9X53AA	
1	0	19	TBUSACC	NT9X52AA	
1	0	20	TBUSACC	NT9X52AA	
1	0	21	CLOCK	NT9X53AA	
1	0	22	MSP	NT9X13DD	NT9X26AB
1	0	24	MAPPER	NT9X15AA	
1	0	29	DS30	NT9X17AD	NT9X23BA
1	0	30	DS30	NT9X17AD	NT9X23BA
1	0	31	TFI	NT9X73BA	NT9X79BA
1	0	32	PBUS	NT9X49CA	

Datafilling table LIMPTINV

Table LIMPTINV describes the port connections for each LIM.

To change the configuration of a port, the LIM must be offline or manual busy.
To delete a port entry from LIMPTINV, the LIM must be offline.

To define a link that connects the two units of a LIM, add one tuple to the table. The other tuple represents the link from the point of view of the destination port. The system automatically enters the other tuple using information entered in the first tuple. When you delete an inter-LIM unit link, you only need to delete manually one of the tuples. The system automatically deletes the other tuple.

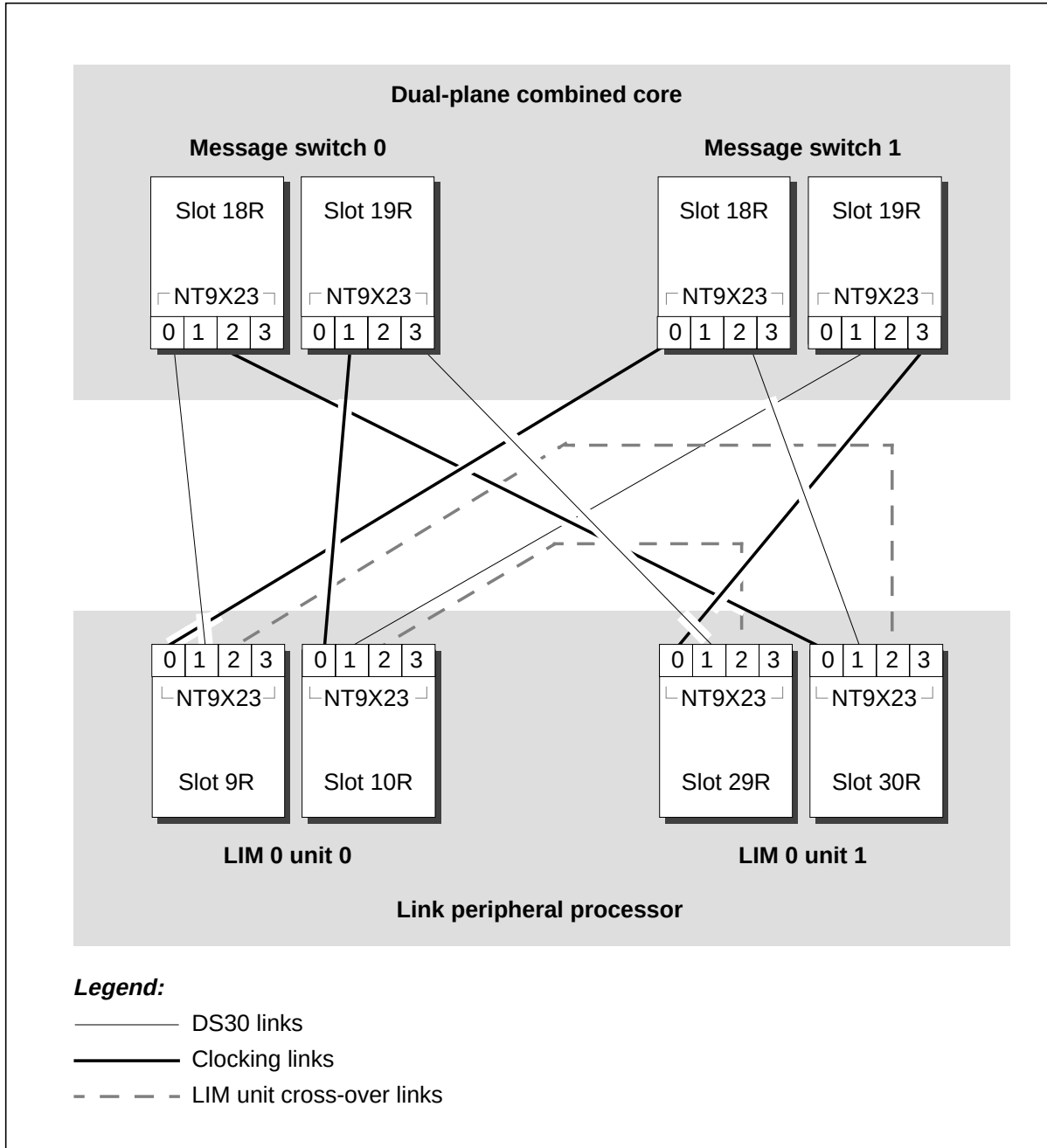
The following rules for a LIM in an office assume two 4-port cards per LIM unit.

- Link 0 from each DS30 card on the LIM unit routes to a different MS and provides clocking to the LIM.
- Link 1 on a DS30 card routes to the opposite MS from link 0 on the same card.
- Link 2 on a DS30 card is a LIM cross link.
- Link 3 on a DS30 card is not equipped.

CCS7 equipment tables (continued)

- Link 0 and link 1 on a DS30 card (LIM side) route to the same MS card and port on different MSs.
- Links divide across two cards for each MS for a total of four MS cards. Each LIM uses half of the ports. Two LIMs can share the same MS port cards.
- The four clocking links have to span the four MS port cards that connect the LIM.

The clocking links of each unit must connect to a different plane of the DMS-bus. Two interface cards provide clocking; slots 9 and 10 of LIM 0 unit 0 and slots 29 and 30 of LIM 0 unit 1 contain the cards. Assign port 0 to a different DMS-bus plane than port 0 in slot 10. Assign port 0 in slot 29 to a different DMS-bus plane than port 0 in slot 30. The recommended LPP link configuration appears in the following table.

CCS7 equipment tables (continued)**LPP link configuration**

CCS7 equipment tables (continued)

The slots and ports for each LIM appear in the following table. This example uses slots 18R and 19R of the MS. You can use any slots from 6R to 26R. Links marked with an asterisk (*) indicate clocking links.

LIM unit to MS slots and ports

LIM	LIM unit	Slot	Port	MS	Slot	Port
N	0	10R	0	0	19R	1*
N	0	10R	1	1	19R	1
N	0	9R	0	1	18R	0*
N	0	9R	1	0	18R	0
N	1	29R	0	1	18R	2*
N	1	29R	1	1	18R	2
N	1	30R	0	1	19R	3*
N	1	30R	1	0	19R	3
N+1	0	10R	0	0	18R	1
N+1	0	10R	1	1	18R	1
N+1	0	9R	0	1	19R	0
N+1	0	9R	1	0	19R	0
N+1	1	29R	0	0	19R	2
N+1	1	29R	1	1	19R	2
N+1	1	30R	0	1	18R	3
N+1	1	30R	1	0	18R	3

The LIM unit cross-over links appear in the following table.

LIM unit cross-over links

FromLIM unit	Slot	Port	ToLIM unit	Slot	Port
0	9R	2	1	30R	2
0	10R	2	1	29R	2

CCS7 equipment tables (continued)

The datafill for table LIMPTINV appears in the following table. Only the fields that apply to CCS7 equipment tables appear in this table. For a description of the other fields, see the data schema section of this document.

Datafilling table LIMPTINV (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
LIM		numeric (0 to 16)	Link interface module number. Enter the number assigned to the LIM.
SLOT		9, 10, 29, or 30	Card slot position. Enter the number of the slot that contains the card. For unit 0, enter 9 or 10. For unit 1, enter 29 or 30.
PORT		numeric (0 to 3)	Port. Enter the number of the port that contains the card.
SHELF		0 to 3	Shelf. Enter 0.
PROTOCOL		DMSY	Protocol. Enter DMSY to specify the protocol used at the port.
LINKDEST		MS or LIM	Link destination. This field describes the node at the other end of the link. If the node is a message switch, enter MS. If the node is a link interface module, enter LIM.
LINKINFO		see subfields	Link information. If the entry for field LINKDEST is LIM, complete subfields LIM, SLOT, and PORT. If the entry for field LINKDEST is MS, complete subfields MS, SLOT, and PORT.
	LIM	numeric (0 to 16)	Link interface module number. If the entry for LINKDEST is LIM, enter the number assigned to the LIM at the other end of the link.
LINKINFO	MS	0 or 1	Message switch number. If the entry for LINKDEST is MS, enter 0 or 1. Enter the value to specify the number assigned to the MS at the other end of the link.

CCS7 equipment tables (continued)

Datafilling table LIMPTINV (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
	SLOT	numeric (7 to 32)	Card position . If the entry for LINKDEST is LIM, enter 9, 10, 29, or 30. Enter the value to specify the card position at the other end of the link. If the entry for LINKDEST is MS, enter a number from 6 to 26. Enter the number to specify the card position at the other end of the link.
	PORT	numeric (0 to 3)	Port. If the entry for LINKDEST is LIM, enter a number from 0 to 3 to specify the port on the card. If the entry for LINKDEST is MS, enter a number from 0 to 15 to specify the port on the card.

Datafill example for table LIMPTINV

Sample datafill for the CCS7 equipment tables in table LIMPTINV appear in the following table. In the example, the third, sixth, ninth and twelfth tuples identify the cross-over links.

MAP example for table LIMPTINV

LIM	SLOT	PORT	SHELF	PROTOCOL	LINKDEST	LINKINFO
0	9	0	0	DMSY	MS	1 14 0
0	9	1	0	DMSY	MS	0 14 0
0	9	2	0	DMSY	LIM	0 30 2
0	10	0	0	DMSY	MS	0 15 1
0	10	1	0	DMSY	MS	1 15 1
0	10	2	0	DMSY	LIM	0 29 2
0	29	0	0	DMSY	MS	0 14 2
0	29	1	0	DMSY	MS	1 14 2
0	29	2	0	DMSY	LIM	0 10 2
0	30	0	0	DMSY	MS	1 15 3
0	30	1	0	DMSY	MS	0 15 3
0	30	2	0	DMSY	LIM	0 9 2

Datafilling table SUSHELF

Table SUSHELF provides a common interface for LIS identification.

The LIM supports three LISs. Table SUSHELF identifies the LIU shelves to the controlling LPP or ELPP.

CCS7 equipment tables (continued)

A SuperNode SE combines the computing module/system load module (CM/SLM), DMS-bus, LIU7 and ENET functions in one cabinet. The controlling entity is an MS. The frame type is an SCC cabinet. A single-shelf LPP (SSLPP) connects to the SuperNode cabinet if more LIU7s are necessary. The controlling entity is an MS. The frame type is an EMC. If more LIU7s are necessary, an LPP connects to the SuperNode SE cabinet. The controlling entity is a LIM.

The following conditions apply when you enter data in table SUSHELF for a LIS on an LPP or ELPP:

- All F-buses of an LPP or ELPP must be offline.
- You cannot add, delete or modify a shelf with table SUSHELF if table LIUINV contains the ASU for that shelf. The ASUs that table LIUINV can contain are LIU7, SVR7, EIU, HLIU or HSLR. You must delete the corresponding LIU7, SVR7, EIU, HLIU or HSLR from table LIUINV first.
- The LIS PEC must be compatible with the supporting T-bus to F-bus interface (TFI) cards. The LIS PEC must be compatible with the other LIS shelves that correspond to the same F-bus.
- The location of a LIS in an LPP or ELPP must be identical to the cabinet location of the specified LPP or ELPP.
- For a SuperNode SE cabinet with no additional LIU7s, SVR7s, HLIUs, or HSLRs
 - You cannot add, delete or modify a shelf with table SUSHELF, if table LIUINV contains the ASU for that shelf. The ASUs that table LIUINV can contain are: LIU7, SVR7, EIU, HLIU or HSLR. Delete the corresponding LIU7, SVR7, EIU, HLIU or HSLR from table LIUINV first.
 - The LIS PEC must be compatible with the supporting TFI cards and with other LISs of the same F-bus.
 - The location of a LIS connected to an MS from a TFI card must have the same cabinet location as the other shelves.
- For an SSLPP connected to a SuperNode SE cabinet
 - You cannot add, delete or modify a shelf by table SUSHELF if table LIUINV contains the ASU for that shelf. The ASUs that table LIUINV can contain are LIU7, SVR7, EIU, HLIU or HSLR. Delete the corresponding LIU7, SVR7, EIU, HLIU or HSLR from table LIUINV first.
 - Enter the card in table MSCDINV as a TFI card.

CCS7 equipment tables (continued)

Table size

This table can contain a maximum of 55 tuples.

Datafill sequence

Enter data in table SUSHELF before table LIUINV, but after LIMINV.

Datafill for table SUSHELF appears in the following table. Only the fields that apply to CCS7 equipment tables appear in this table. For a description of other fields, see the data schema section of this document.

Datafilling table SUSHELF (Sheet 1 of 3)

Field	Subfield	Entry	Explanation and action
SHELFKEY		see subfields	Shelf key. This field contains subfields CONTROL, CTRLNUM, CARDNUM, PORTNUM and LIUSHELF.
	CONTROL	LIM or MS	Control. Enter LIM or MS.
	CTRLNUM	NIL or numeric (0 to 16)	Control number. Enter a number to specify the LIM. Enter NIL for MS.
	CARDNUM	numeric (5 to 23)	Interface card number. Enter a number to specify the interface card on the MS or LIM.
	PORTNUM	numeric (0 to 3)	Port number. Enter a number to specify the port on the interface card.
	LIUSHELF	numeric (0 to 3)	Link interface unit shelf. Enter the number of the shelf in the cabinet.
FLOOR		numeric (0 to 99)	Floor. Enter a number to specify the floor that contains the cabinet.
ROW		alphanumeric A to Z, AA to ZZ, excluding I, O, II, and OO	Row. Enter one or two alphabetical characters to specify the row that contains the cabinet.
FRAMEPOS		numeric (0 to 99)	Frame position. Enter a number to specify the position of the LIS cabinet in the row.
FRAMETYP		LIM, EMC, or SCC	Frame type. Enter LIM, EMC, or SCC to specify the type of cabinet.

CCS7 equipment tables (continued)**Datafilling table SUSHELF (Sheet 2 of 3)**

Field	Subfield	Entry	Explanation and action
FRAMENUM		numeric (0 to 511)	Frame number. Enter a number to specify the cabinet.
SHELFPOS		numeric (0 to 77)	Shelf position. Enter a number to specify the base mounting position.
SHELFPEC		alphanumeric	Shelf PEC. Enter the PEC of the LIU shelf.
CARDINFO		see subfields	Card information. This field contains two vectors of a maximum of two multiples of subfields SLOT, FRONTPEC, and BACKPEC. Do not mix the TFI and LIS F-bus controller (LFC) card PECs.
	SLOT	7, 8, 30, 31, 32	Slot number. Enter the slot number of the card on the LIS as follows: • slot 7 for the required F-bus 0 card • slot 32 for the required F-bus 1 card • slot 31 for optional F-bus 0 termination on an NT9X72AA shelf • slot 8 for optional F-bus 1 termination on an NT9X72AA shelf • slot 30 for an SSLPP

CCS7 equipment tables (continued)

Datafilling table SUSHELF (Sheet 3 of 3)

Field	Subfield	Entry	Explanation and action
	FRONTPEC	alphanumeric	Front card PEC. Enter the PEC of the front card as follows: • NT9X74AA/BA/CA—F-bus repeater card for TFI-supported LIS only • NT9X74DA—F-bus repeater card for channelized access • NT9X96AA—LFC card for SR512-supported LIS only • NIL—for optional termination datafill only, no front card
	BACKPEC	alphanumeric	Back card PEC. Enter the PEC of the back card as follows: • NT9X79AA/BA—F-bus extension paddle board • NT9X98AA—SSLPP interface paddle board • NTEX20AA/BA—optional DS512 interface paddle board. The NTEX20AA terminates F-bus 0. The NTEX20BA terminates F-bus 1.

Datafill example for table SUSHELF

Sample datafill for table SUSHELF appears in the following example. In the first example, the controlling entity is LIM 1. F-bus 0 is in slots 7 and 30. F-bus 1 is in slots 8 and 32. In both occurrences, the front card PEC is NT9X74BA and the paddle board PEC is NT9X79AA.

In the second example, the controlling entity is an MS. The shelf PEC for the SCC is NT9X0810.

The third example uses an SSLPP. The frame is an EMC.

CCS7 equipment tables (continued)**MAP example for table SUSHELF**

SHELFKEY	FLOOR	ROW	FRAMEPOS	FRAMETYP
FRAMENUM	SHELFPOS	SHELFPEC		
CARDINFO				

LIM 1 12 0 1	1	Z	2	LIM
1	26	NT9X72AA		
(7 NT9X74BA NT9X79AA)	\$	(32 NT9X74BA NT9X79AA)	\$	

MS NIL 12 0 1	1	F	4	SCC
0	13	NT9X0810		
(7 NT9X74CA NT9X79BA)	\$	(30 NIL NT9X79BA)	\$	
(32 NT9X74CA NT9X79BA)	\$	(8 NIL NTEX20BA)	\$	

MS NIL 15 2 1	1	A	1	EMC
1	0	NT9X72CA		
(7 NT9X96AA NT9X98AA)	\$	(30 NIL NTEX20AA)	\$	
(32 NT9X96AA NT9X98AA)	\$	(8 NIL NTEX20BA)	\$	

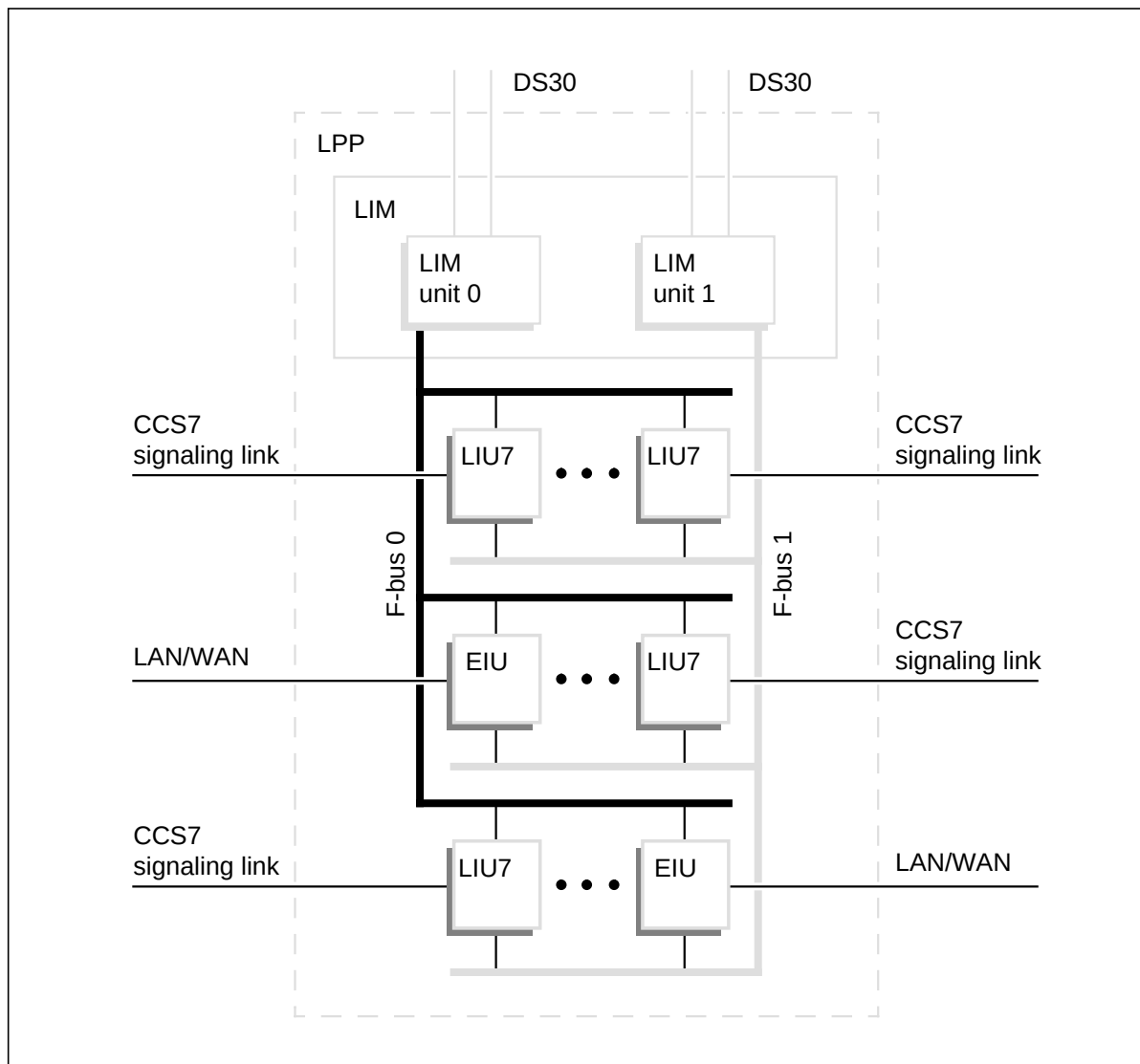
Datafilling table LIUINV

Table LIUINV contains the configuration data for each ASU in an LPP or ELPP.

Two types of ASUs in the LPP appear in the following figure. The two ASU types are LIU7s and Ethernet interface units (EIU). The EIU is an interface between the DMS-bus and an Ethernet local area network (LAN).

CCS7 equipment tables (continued)

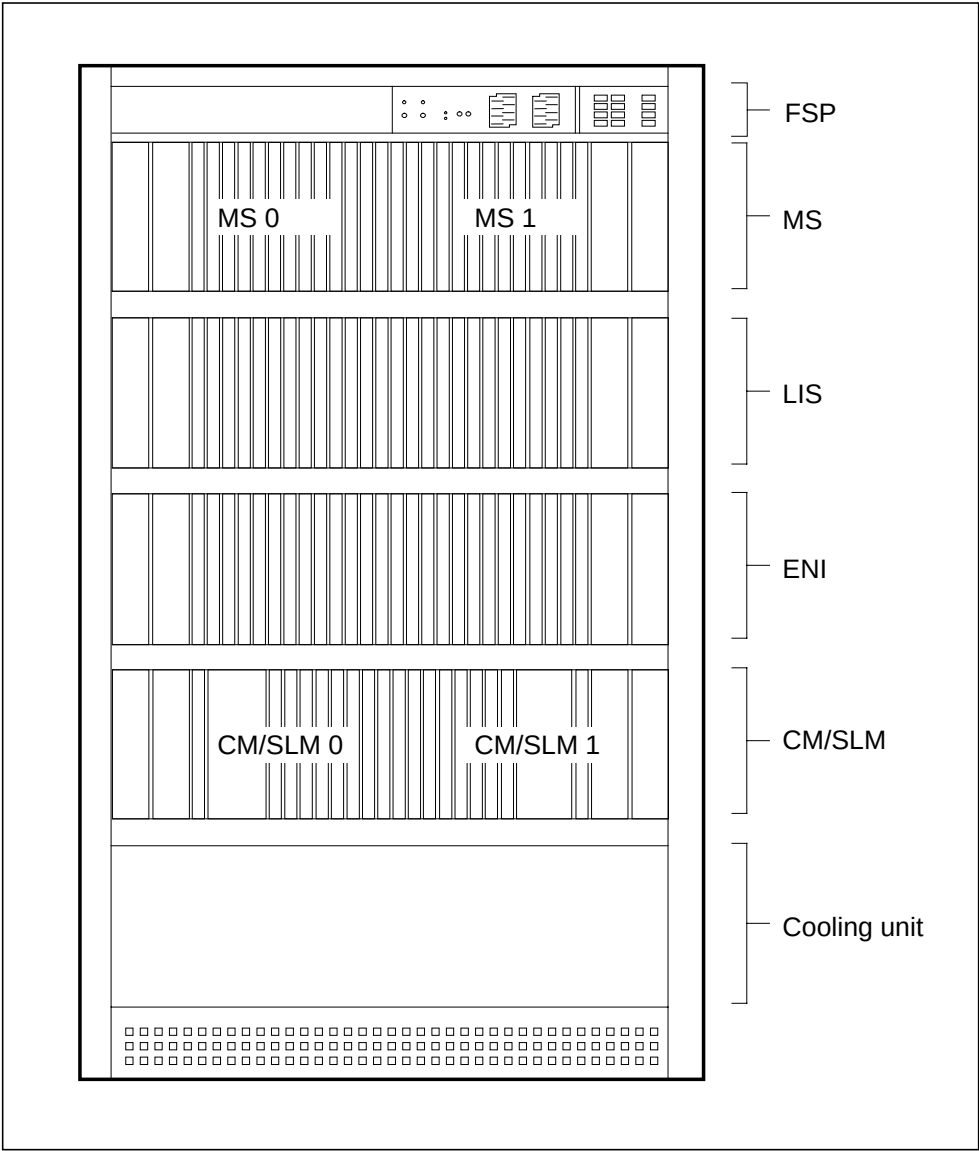
Two types of ASUs in the LPP



A SuperNode SE combines the CM/SLM, DMS-bus, ASU and ENET functions in one cabinet. The controlling entity is an MS. The frame type is an SCC. This cabinet appears in the following figure.

CCS7 equipment tables (continued)

DMS SuperNode SE core configuration

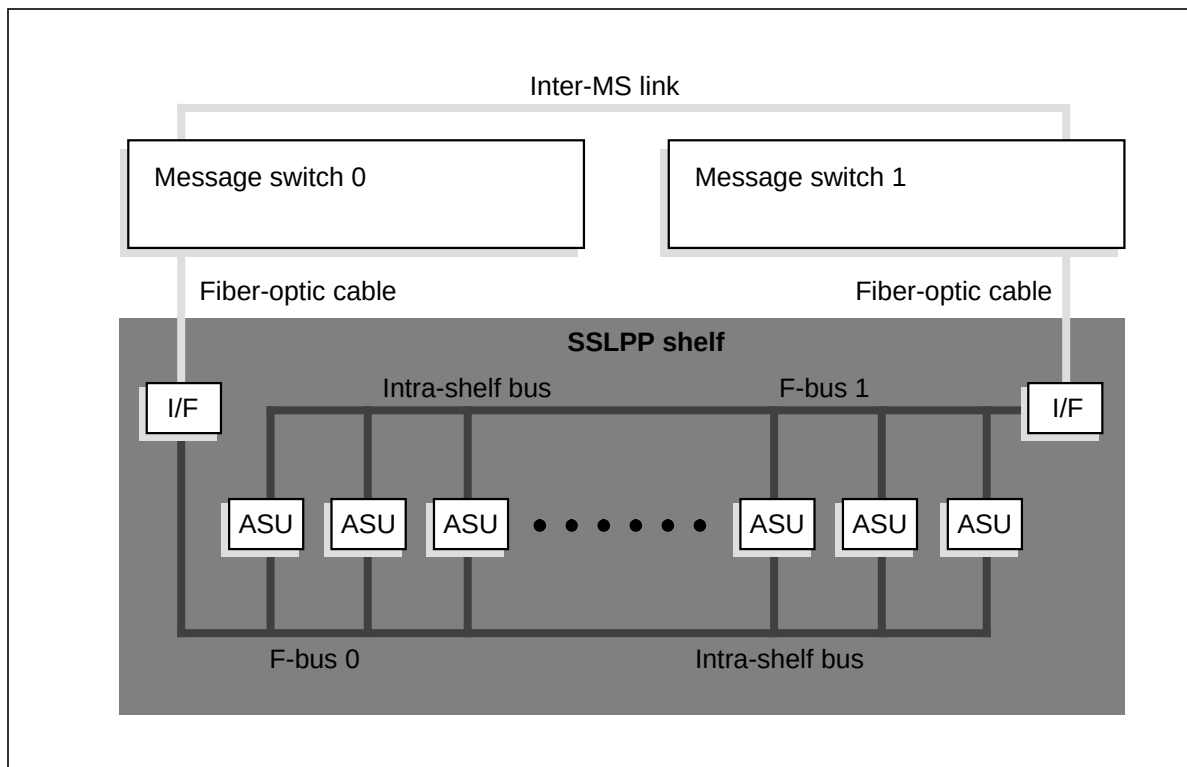


DMS SuperNode SE core configuration

An SSLPP can connect to the SuperNode cabinet to provide more ASUs. The controlling entity is an MS. These connections appear in the following figure.

CCS7 equipment tables (continued)

SSLPP shelf F-bus and MS interconnections



SSLPP shelf F-bus and MS interconnections

If more LIUs are needed, an LPP can connect to the SuperNode SE cabinet. Here, the controlling entity is a LIM. The LIM can support three LIU shelves. The MS cabinet can support two shelves.

The LIM in an ELPP can support three LIS shelves. Each LIS associates with a F-bus.

Table size

Table LIUINV can contain a maximum of 256 tuples.

Datafill sequence

Enter data in table LIUINV after tables LIMINV and SUSHELF.

CCS7 equipment tables (continued)

The datafill for table LIUINV appears in the following table. Only the fields that apply to CCS7 equipment tables appear in the table. For a description of the other fields, see the data schema section of this document.

Datafilling table LIUINV (Sheet 1 of 4)

Field	Subfield	Entry	Explanation and action
LIUNAME		see subfields	Link interface unit name. This key field contains subfields LIUTYPE and LIUNO.
	LIUTYPE	LIU7, HLIU, HSLR, SVR7, or EIU	Link interface unit type. Enter LIU7, HLIU, HSLR, SVR7, or EIU.
	LIUNO	numeric (0 to 511)	Link interface unit number. Enter the number assigned to the ASU.
LOCATION		see subfields	Location. This field specifies the location of the ASU in the LIM. This field contains subfields CTRL, SHELFNUM and LIUSLOT.
	CTRL	MS or LIM and see subfields	The controlling host entity. If the host is a message switch, enter MS. Complete subfields MSCARD and MSPOINT If the controlling host is a LIM, enter LIM and complete subfield LIMNUM.
	MSCARD	numeric (5 to 23)	Message switch card. Enter a number to specify the interface card: - For an SSLPP connected to a SuperNode SE cabinet, enter a number from 5 to 10. - For an SSLPP connected to a SuperNode cabinet, enter a number from 6 to 23. - For a TFI-supported LIS, enter 12.
	MSPOINT	numeric (0 to 3)	Message switch port. Enter a number to specify the message switch port.
	LIMNUM	numeric (0 to 16)	Link interface module number. Enter the number of the host LIM that the ASU resides on.
	SHELFNUM	0 to 3	Shelf number. Enter the shelf number. - For an LIU on an ENET shelf, enter 1. - For an LIU on the LIS, enter 2. - For an SSLPP, enter 1.

CCS7 equipment tables (continued)

Datafilling table LIUINV (Sheet 2 of 4)

Field	Subfield	Entry	Explanation and action
LOAD	LIUSLOT	numeric (8 to 31)	Link interface unit slot. Enter the slot number on the LIM shelf where the ASU resides.
		numeric (1 to 8)	Software load name. Enter the software load name that table PMLOADS contains.
PROCINFO		see subfields	Processor information. This field specifies the PEC of the processors used in the ASU. This field contains subfield PROCPEC.
	PROCPEC	NTEX22BA, NTEX22BB, or NTEX22CA	Processor PEC. Enter the PEC of the processor card used in the ASU.
CARDINFO		see subfields	Card information. This field specifies card data. This field contains subfields APPLPEC and PBINFO.
	APPLPEC	alphanumeric	Application PEC. Enter the PEC of the signaling terminal card. • If the PEC is NT9X76AA or NT9X76BA, complete subfield PBINFO and its subfield. • If the PEC is NT9X84AA, complete subfield PBPEC. • If the PEC is NTEX76AA, complete subfield PBINFO and its subfield. • Enter NILSTPEC for SVR7s and HSLRs. There are no associated subfields for these entries.
	PBINFO	see subfield	Paddle board information. This field contains subfield PBPEC.

CCS7 equipment tables (continued)

Datafilling table LIUINV (Sheet 3 of 4)

Field	Subfield	Entry	Explanation and action
	PBPEC	NT9X77AA NT9X77AB NT9X78AA NT9X78BA NT9X78CA NT9X78DA NT9X85AA NT9X85BA NTEX26AA or NTEX78AA and see subfields	Paddle board PEC. Enter the paddle board PEC. If the entry for subfield APPLPEC is NT9X76AA or NT9X76CA, enter NT9X77AA or NT9X77AB. Complete subfields CLKRATE and CLKCONFG. If the entry for subfield APPLPEC is NT9X76AA or NT9X76CA, enter NT9X78AA, NT9X78BA, NT9X78CA or NT9X78DA. Complete subfields CLKSRC, CLKRATE and DS0TYP. For channelized access, enter NTEX26AA and complete subfields OPTIONS, CLKRATE and PB_BIT_INV. If the entry for subfield APPLPEC is NT9X84AA, enter NT9X85AA or NT9X85BA. If the entry for subfield APPLPEC is NTEX76AA, enter NTEX78AA and complete subfields CLKSRC, CLKRATE, and PP_LLEQ.
	OPTIONS	\$	Options. Enter \$.
	CLKSRC	FBUS or EXTERNAL	Clock source. Enter the clock source for the paddle board. For the LIU7 paddle board, the clock source is FBUS or EXTERNAL. For the HLIU paddle board, the clock source is FBUS.
	CLKRATE	48 000, 56 000, 64 000, or 1 5 36	Clock rate. Enter the LIU7 paddle board clock rate (48 000, 56 000, or 64 000). The default is 56 000. For an HLIU paddle board enter 1 536.
	CLKCONFG	DCE or DTE	Enter DCE or DTE to specify the clock configuration for the paddle board.
	DS0TYP	NIL or DS0TRK and see subfield	DS-0 type. Enter NIL if you do not require a DS-0 type. If you do not require a DS-0 type, enter DS0TRK and complete subfield DS0TRK. The DS0TRK is correct if channelized access is used.
	DS0TRK	see subfields	DS-0 trunk. This field consists of subfield CLLI.

CCS7 equipment tables (continued)

Datafilling table LIUINV (Sheet 4 of 4)

Field	Subfield	Entry	Explanation and action
	CLLI	alphanumeric	CLLI. Enter the CLLI.
	PB_BIT_INV	NBI, EBI, OBI, or ABI	Paddle board bit inversion (BI) mode. The BI mode is a characteristic of the network through which the link facilities are connected. The mode selected must match the BI mode characteristic of the associated network. • For no bit inversion, enter NBI. The paddle board transmits and receives data without any bit manipulation. • For even bit inversion, enter EBI. The paddle board inverts the polarity of all even bits in the frame. The paddle board inverts the polarity on transmission. • For odd bit inversion, enter OBI. The paddle board inverts the polarity of all odd bits in the frame. The paddle board inverts the polarity on transmission. • For all bit inversion, enter ABI. The paddle board inverts the polarity of every bit in the frame. The paddle board inverts the polarity on transmission.

Datafill example for table LIUINV

Sample datafill for CCS7 equipment tables in table LIUINV appear in the following example. In the first example, the controlling entity of the LIU7 is an MS. In the second example, LIU7 100 is on LIM 1. The processor PEC is NT9X13CA. In the third example, the EIU is on LIM 1.

CCS7 equipment tables (continued)**MAP example for table LIUINV**

LIU NAME	LOCATION	LOAD	PROCINFO	CARDINFO
LIU7 200	MS 12 0 1 8	LPX36BB	NTEX22BA	
	NT9X76AA	NT9X78BA FBUS	56000	NIL
LIU7 100	LIM 1 1 8	ACC36CA	NTEX13CA	
	NT9X75AA	NT9X76AA NTEX26AA	\$ 56000	ABI
EIU 131	LIM 1 3 22	ERS36BB	NTEX22BB	
	NT9X84AA	NT9X85AA YES	000075F00131	

Sample datafill for CCS7 equipment tables in table LIUINV for an HLIU and an HLSR appears in the following example.

MAP example for table LIUINV

LIU NAME	LOCATION	LOAD	PROCINFO	CARDINFO
HLIU 100	LIM 1 1 8	HCA04BD	NTEX22CAA	NTEX76AA
FBUS 1536	96_125			
HSLR 100	LIM 1 1 10	HCA04BD	NTEX22CA	NILSTPEC

CCS7 equipment tables (end)

Error messages for table LIUINV

The following error messages apply to table LIUINV.

Error messages for table LIUINV

Error message	Explanation and action
Loadfile LRS06BO is for an 8-meg processor. The LIU7 100 was entered with a 32-meg processor.	A mismatch between processor size and software load occurs. The system displays the above error message until the technician selects N (NO).
The PROPEC NTEX22CA is not available for LIU7s. The LIU7s entered with PROPEC NTEX22CA will fail to load	An attempt to change the PROPEC code for an LIU7 from a NTEX22BB to a NTEX22CA occurs. The NTEX22BB is a 8-meg processor card. The MTEX22CA is 32-meg processor card.

Tools for verifying translations

This feature does not use tools to verify translations.

SERVORD

This feature does not use SERVORD.

CCS7 MTP/SCCP

Order codes

Functional group order code: BAS00003

Functionality order code: Not applicable

Release applicability

LSTB004 and later versions

The CCS7 MTP/SCCP for LPP-based platforms was introduced in BCS34.

Requirements

The BAS Generic feature does not have requirements.

Description

The CCS7 MTP/SCCP feature provides the base operating system software for CCS7 applications. This feature contains the basic CCS7 protocol abilities. These protocol abilities provide message transfer part (MTP) handling and signaling connection control part (SCCP) routing. The feature also contains the basic operational software that the DMS-core and DMS-bus require.

Note: References to signaling transfer point (STP) apply to the STP/service switching point (SSP) integrated nodes (INode).

Operation

The system stores translations data in a series of tables. These tables are in the data store area of the central processor.

Datafill information to support the MTP

Follow these procedures to provide the datafill information required to support the MTP.

- Set up timers that the MTP uses in table C7TIMER.
- Set up limits for congestion values on the signaling links in table C7CNGSTN.
- Identify in table C7NETWRK the signaling networks that the DMS node uses.
- Define the characteristics of the CCS7 linksets in table C7LKSET.
- For high-speed links only, set up the signaling ATM adaptation layer (SAAL) and ATM parameters that associate with the high-speed link in table C7LKPARM.

CCS7 MTP/SCCP (continued)

- Use table C7LINK to associate the physical and logical aspects of the links as members of the linkset.
- Set up the association of linksets with routes through the network in table C7RTESET.

Datafill information to support the SCCP

Perform the following procedures to provide datafill information to support the SCCP.

- Define the set of remote point codes (PC) and subsystems to which the SCCP routes messages in table C7NETSSN.
- Define in table C7RSSCRN the list of concerned nodes to associate with a remote subsystem PC group . A concerned node is a CCS7 node. The system must notify the concerned node when the state of subsystems in the DMS switch changes.
- Define the set of remote subsystem replicate pairs in table C7RPLSSN. Different PCs contain these subsystems. When one subsystem fails, the other subsystem in the replicate pair provides backup.
- Set up the mapping of the internally defined CCS7 global title translation (GTT) names, numbers, and identifiers to the numeric value that the network defines. Use table C7GTTYPE to perform this procedure.
- Set up the mapping of global titles (GT) to a CCS7 network address that the CCS7 protocol uses to route messages. Use table C7GTT to perform this procedure.

Translations table flow

The CCS7 MTP/SCCP uses separate translation tables for the SCCP and MTP.

SCCP tables

The following tables provide SCCP:

- Table C7GTT provides the mapping of GTs to a CCS7 network address. The CCS7 protocol uses this address to route the message to the destination.
- Table C7GTTYPE provides the mapping of CCS7 GTT names, numbers, and identifiers associated with subsystems. Table C7GTTYPE maps this information to the numeric value that the network defines.
- Table C7RPLSSN defines the set of remote subsystem replicate pairs. These pairs are subsystems located at different PCs. Each subsystem replicate pair provides backup for the other when failure occurs. This table also helps with message loadsharing.
- Table C7LOCSSN provides information for the local subsystem.

CCS7 MTP/SCCP (continued)

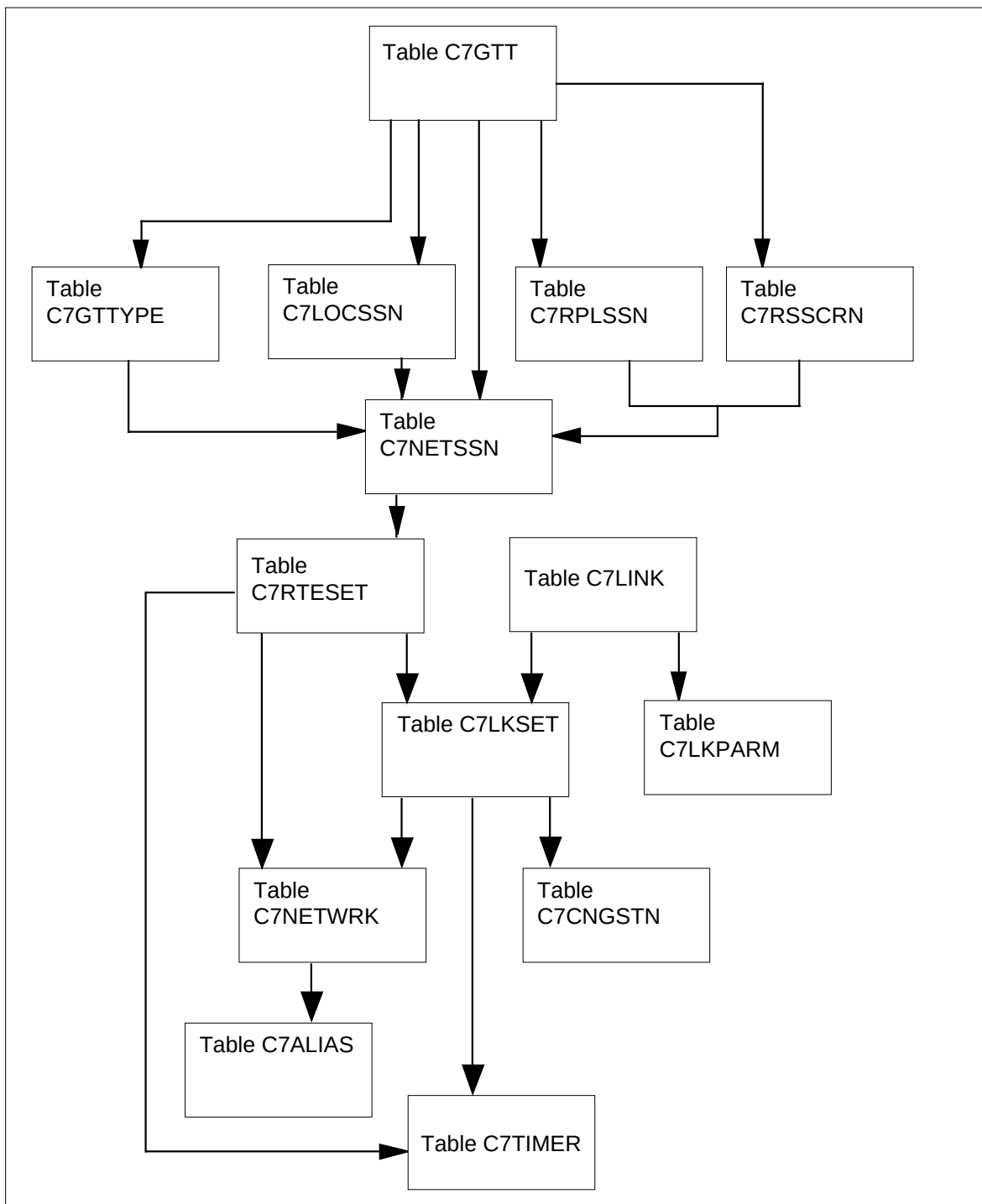
- Table C7RSSCRN defines the list of concerned nodes to associate with a remote subsystem PC group.
- Table C7NETSSN defines the set of remote PCs and subsystems to which the SCCP routes messages.

MTP tables

The following tables implement MTP:

- Table C7RTESET associates linksets with routes through the network. This table provides complete information about the destination point code (DPC).
- Table C7LINK associates the physical and logical aspects of the linkset.
- Table C7LKSET defines the characteristics of CCS7 linksets.
- Table C7NETWRK identifies the signaling networks that the DMS node uses.
- Table C7CNGSTN provides the thresholds for congestion values on the signaling links (SL).
- Table C7TIMER provides the timers that the MTP of the CCS7 protocol uses.
- Table C7LKPARAM sets up the SAAL and ATM parameters for the high-speed link.

The translation process appears in the following flowchart.

CCS7 MTP/SCCP (continued)**Table flow for CCS7 MTP/SCCP**

CCS7 MTP/SCCP (continued)

The following table lists sample datafill content used in the flowchart.

Sample datafill in use in CCS7 MTP/SCCP

Item	Example data
Network name	SBNDIN0301W
Network PC	250 146 0
Linkset	LB370259
DPC	250 0 0
GT name	E800
GT number	254

Datafill example for CCS7 MTP/SCCP

Datafill table	Example data
C7GTT	E800 219231 219231 PCSSN (SBNDIN03DS0 E800 10) \$ SSN
C7GTTYPE	E800 ANSI7 254 \$
C7RPLSSN	E800 (SBNDIN03DS0 SBNDIN03DS1 Y)\$
C7RSSCRN	ELGNILEL01W E800 (SBNDIN03DS0) (SBNDIN03DS1)
C7LOCSSN	E800 254 4 Y SBNDIN03DS1 Y SCPA STPB \$ \$
C7NETSSN	SBNDIN03DS0 N 0 0 (E800 254) \$
C7RTESET	250000000 SBNDIN0301W Y ANSI7 (250) (0) (0) \$ (LB370259 1) LB370257 2) (AT036004 3) \$
C7LINK	LB370259 0 LIUBASIC LIU7 59 0 0 \$
C7LKSET	LB370259 DLINK SBNDIN0301W ANSI7 250 0 0 ELGNILEL01W Y Y Y 0 0 1 Y N N
C7ALIAS	C7NETWRK1 ANSI7 1 0 255
C7NETWRK	SBNDIN0301W SSP ANSI7 250 146 0 NATL Y Y 3 N Y Y Y
C7CNGSTN	0 3 38 31 44 63 56 69 88 81 94
C7TIMER	Q703 0 ANSI703 130 118 10 6 23 12 30 100
C7LKPARM	SAAL 0 4 500 67 6250 1 100 244 9 3 1680 2

CCS7 MTP/SCCP (continued)

Limits

The CCS7 MTP/SCCP feature does not have limits.

Interactions

The CCS7 MTP/SCCP feature does not have functionality interactions.

Activation/deactivation by end user

Not applicable

Billing

The CCS7 MTP/SCCP feature does not affect billing.

Datafilling office parameters

The following table shows the office parameters used by CCS7 MTP/SCCP. For more information about office parameters, refer to *Office Parameters Reference Manual*.

Office parameters that CCS7 MTP/SCCP

Table name	Parameter name	Description and action
OFCENG	C7GTT_DELTA_FILE_ACTIVITY_STATE	Sets the delta file function for tables C7GTT and C7GTTYPE. The delta file stores table updates. This file reduces the amount of data that the system must load to an LIU7, HLIU, HSLR, or SVR7 during system recovery.

Datafill sequence

The tables that require datafill to implement CCS7 MTP/SCCP appear in the following table. The tables appear in the correct entry order.

Datafill requirements for CCS7 MTP/SCCP (Sheet 1 of 2)

Table	Function of table
C7TIMER	The CCS7 timer table provides timers that the MTP of the CCS7 protocol uses.
C7CNGSTN	The CCS7 congestion threshold table provides the thresholds for congestion values on the SLs.
C7NETWRK	The CCS7 network table describes the signaling networks that an installation uses.

CCS7 MTP/SCCP (continued)**Datafill requirements for CCS7 MTP/SCCP (Sheet 2 of 2)**

Table	Function of table
C7ALIAS	The CCS7 capability codes table defines additional point codes for each DMS-STP.
C7LKSET	The CCS7 linkset table defines and configures the collection of links between two near signaling points.
C7LINK	The CCS7 link table associates the physical and logical aspects of a linkset.
C7RTESET	The CCS7 routeset table defines and configures a routeset.
C7NETSSN	The CCS7 network subsystem routing table defines the set of remote point codes and subsystems to which the SCCP routes messages.
C7LOCSSN	The CCS7 local subsystem table provides information for the local subsystem.
C7RSSCRN	The CCS7 remote subsystem concerned node table defines the list of concerned nodes that associate with a remote subsystem/point code combination.
C7RPLSSN	The CCS7 replicate subsystem table defines the set of remote subsystem replicate pairs.
C7GTTTYPE	The CCS7 global title translation type table provides the mapping of the CCS7 GTT names, numbers, and identifiers associated with subsystems. This table maps this information to the actual network-defined numeric value.
C7GTT	The CCS7 global title translation table provides the mapping of global titles to a CCS7 network address for routing.
C7LKPARM	The CCS7 link parameter table contains CCS7 link parameter values. These values are used in a single data structure and apply to multiple links in a class that has the same characteristics. Table C7LKPARM only contains datafill for CCS7 links with a signaling ATM adaptation layer (SAAL).

Datafilling table C7TIMER

This table contains the timers for levels 2 and 3 of the MTP.

Table C7TIMER contains four groups of tuples. The tuple groups are Q703, Q704, Q707, and SAAL. Each group can be accessed by its index.

The table contains datafill for the following timers:

- the Q704 timers for each linkset
- the Q707 timers for each link

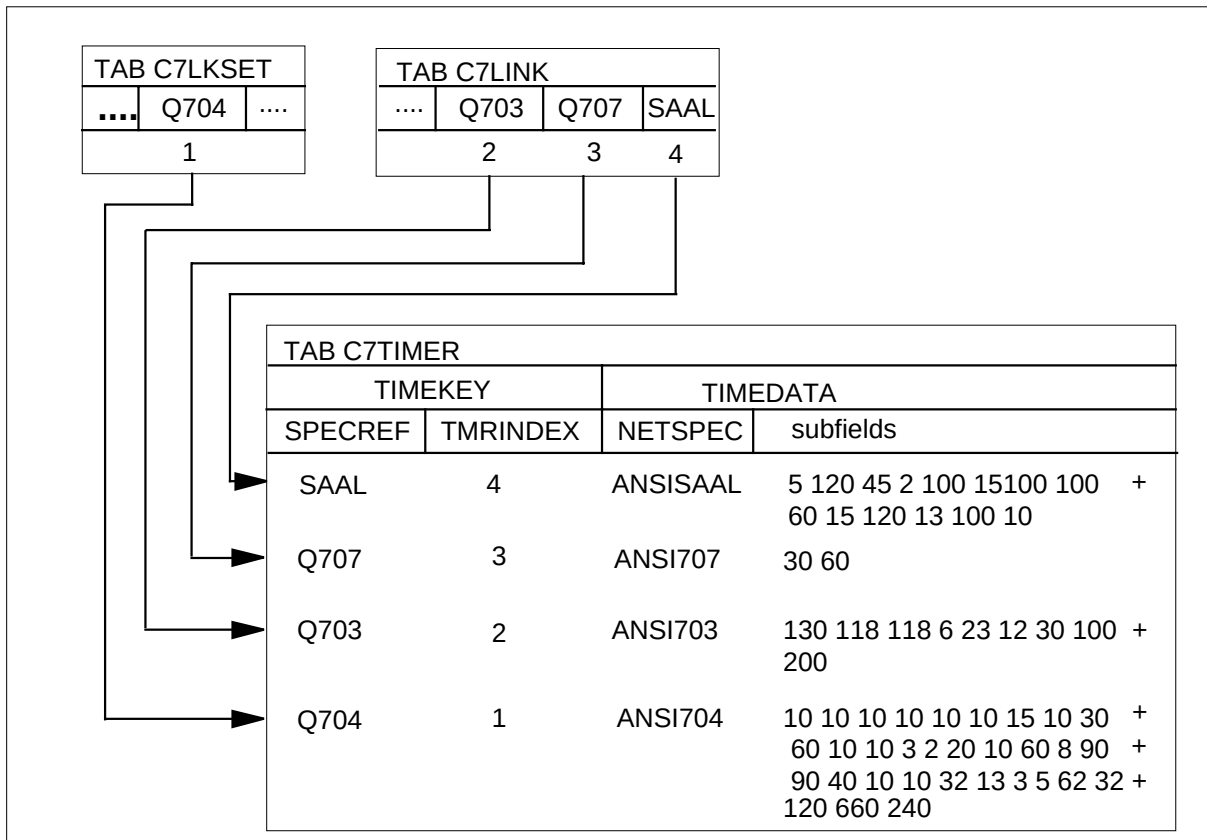
CCS7 MTP/SCCP (continued)

- the Q703 timers for each low-speed link
- the SAAL timers for each high-speed link

How to add, modify, and delete timers**WARNING****System failure can occur**

When you make an error during a change of timer value, the system can fail. Contact Northern Telecom (Nortel) Engineering when you think a timer requires a change.

A description of how tables C7LINK and C7LKSET refer to entries in table C7TIMER appears in the following figure. When tables C7LINK or C7LKSET do not refer to an entry in table C7TIMER, the entry is not in use. You can change or delete these entries.

Timer table control dependencies

CCS7 MTP/SCCP (continued)

You can modify a Q703 or Q707 timer table entry that is in use. To perform this action, offline the links in table C7LINK that refer to the entry. When you activate the links again, the links receive the new timer values.

You can modify Q704 timer table entry that is in use. To perform this action, offline the linksets in the C7LKSET table that refer to the entry. The system sends the new values to the peripherals that connect to links in the affected linkset. You can change the timers that associate with MTP restart when the linkset is active. Refer to table C7LKSET in the data schema section of this document for additional information on how to perform this procedure.

You can delete a Q703 or Q707 timer table entry that is in use. To perform this action, offline the links in the C7LINK table that refer to the entry. Update all the affected links to refer to a different tuple in table C7TIMER. Delete the entry.

You can delete a Q704 timer table entry that is in use. To perform this action, offline the linksets in the C7LKSET table that refer to the entry. Update the affected linksets to refer to a different tuple in table C7TIMER. Delete the entry.

Note: To modify a large number of timers, add a new timer tuple and change the links or linksets one at a time. With this method, only one link or linkset is out of service during the modification period.

Table size

Table C7TIMER can contain a maximum of 96 tuples.

- The maximum group size of a specification reference (SPECREF) is 32 tuples for each SPECREF.
- The minimum table size with networks that do not contain data is zero tuples.
- The minimum table size with at least one active link is three tuples.
- The minimum SPECREF group size with at least one active link is one tuple.

Datafill sequence

Enter table C7TIMER before tables C7LINK and C7LKSET.

CCS7 MTP/SCCP (continued)

Datafill for table C7TIMER appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table C7TIMER (Sheet 1 of 24)

Field	Subfield	Entry	Description
TIMEKEY		see subfields	Timer key. This field is the key to the table and contains subfields SPECREF and TMRINDEX.
	SPECREF	Q703, Q704, Q707, or SAAL	Specification reference. Enter Q703, Q704, or Q707 to specify the set of specification reference timers.
	TMRINDEX	numeric (0 to 31)	Timer index. Enter a number to indicate the index key to which tables C7LINK and C7LKSET refer.
TIMEDATA		see subfield	Timer data. This field contains subfield NETSPEC and its subfields.
	NETSPEC	CCITT703 CCITT704 CCITT707 ANSI703 ANSI704 ANSI707 ANSISAAL JPN703 JPN704 JPN707 AUSTR703 AUSTR704 AUSTR707 TTC703 TTC704 TTC707 NTC703 NTC704 NTC707	Network type and specification reference. This subfield contains the network type and the last two digits of the specification in subfield SPECREF. The following entries are correct: International network • Q703: CCITT703 • Q704: CCITT704 • Q707: CCITT707 North American network • Q703: ANSI703 • Q704: ANSI704 • Q707: ANSI707 • SAAL: ANSISAAL Japan Public network • Q703: JPN703 • Q704: JPN704 • Q707: JPN707

CCS7 MTP/SCCP (continued)

Datafilling table C7TIMER (Sheet 2 of 24)

Field	Subfield	Entry	Description
			Austria network • Q703: AUSTR703 • Q704: AUSTR704 • Q707: AUSTR707 TTC7 network • Q703: TTC703 • Q704: TTC704 • Q707: TTC707 China network • Q703: NTC703 • Q704: NTC704 • Q707: NTC707
			If the entry for subfield NETSPEC is ANSI703, enter data in subfields T1, T2, T3, T4E, T4N, T5, T6, and T7. Separate the value for each timer with a blank space. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt.
	T1	numeric (100 to 3200)	Aligned ready timer. Enter a number to specify the aligned ready timeout interval (100 ms). The default value is 130 (13 s).
	T2	numeric (50 to 3000)	Non-aligned timer. Enter a number to specify the non-aligned timeout interval (100 ms). This defines the timeout period that the system waits. The system waits for the alignment process to start at the other end of the SL for indications. These indications are status indicator out-of-alignment (SIO), status indicator normal (SIN), or status indicator emergency (SIE) status. In the alignment process, the T2 value must be different at both ends of the CCS7 link. The recommended values are 118 and 235. The default value is 118 (11.8 s).
	T3	numeric (10 to 3000)	Aligned timer. Enter a number to specify the aligned timeout interval (100 ms). The default value is 118 (11.8 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 3 of 24)**

Field	Subfield	Entry	Description
	T4E	numeric (4 to 150)	Emergency proving period timer. Enter a number to specify the emergency proving period timeout interval (100 ms). The default value is 6 (0.6 s).
	T4N	numeric (15 to 600)	Normal proving period timer. Enter a number to specify the normal proving period timeout interval (10 ms). The default value is 23 (0.23 s).
	T5	numeric (8 to 500)	Sending status indication busy timer. Enter a number to specify the sending status indication busy (SIB) timeout interval (10 ms). The default value is 12 (0.12 s).
	T6	numeric (20 to 750)	Remote congestion timer. Enter a number to specify the remote congestion timeout interval (100 ms). The default value is 30 (3 s).
	T7	numeric (50 to 2500)	Excessive delay of acknowledgement timer. Enter a number to specify the excessive delay of acknowledgement timeout interval (10 ms). The default value is 100 (1 s).
If the entry for subfield NETSPEC is CCITT703, enter data in subfields T1, T2, T3, T4E, T4N, T5, T6, and T7. Separate the value for each timer with a blank space. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt.			
	T1	numeric (100 to 3200)	Aligned ready timer. Enter a number to specify the aligned ready timeout interval (100 ms). The default value is 4000 (40 s).

CCS7 MTP/SCCP (continued)

Datafilling table C7TIMER (Sheet 4 of 24)

Field	Subfield	Entry	Description
	T2	numeric (50 to 3000)	Non-aligned timer. Enter a number to specify the non-aligned timeout interval (100 ms). This defines the timeout period that the system waits. The system waits for the alignment process to start at the other end of the SL for indications. These indications are status indicator out-of-alignment (SIO), status indicator normal (SIN), or status indicator emergency (SIE) status. In the alignment process, the T2 value must be different at both ends of the CCS7 link. The recommended values are 50 (5 s) and 99 (9.9 s). The default value is 50 (5 s).
	T3	numeric (10 to 3000)	Aligned timer. Enter a number to specify the aligned timeout interval (100 ms). The default value is 15 (1.5 s).
	T4E	numeric (4 to 150)	Emergency proving period timer. Enter a number to specify the emergency proving period timeout interval (100 ms). The default value is 5 (500 s).
	T4N	numeric (15 to 600)	Normal proving period timer. Enter a number to specify the normal proving period timeout interval (10 ms). The default value is 82 (8.2 s).
	T5	numeric (8 to 500)	Sending status indication busy timer. Enter a number to specify the sending status indication busy (SIB) timeout interval (10 ms). The default value is 12 (120 ms).
	T6	numeric (20 to 750)	Remote congestion timer. Enter a number to specify the remote congestion timeout interval (100 ms). The default value is 30 (3 s).
	T7	numeric (50 to 2500)	Excessive delay of acknowledgement timer. Enter a number to specify the excessive delay of acknowledgement timeout interval (10 ms). The default value is 100 (1 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 5 of 24)**

Field	Subfield	Entry	Description
If the entry for subfield NETSPEC is NTC703, complete subfields T1, T2, T3, T4E, T4N, T5, T6, and T7. Separate the value for each timer by a blank space. The default value for each subfield is stored in table DEFDATA and displays in a system prompt.			
	T1	numeric (400 to 500)	Aligned ready timer. Enter a number to specify the aligned ready timeout interval (100 ms). The default value is 450 (45 s).
	T2	numeric (50 to 1500)	Non-aligned timer. Enter a number to specify the non-aligned timeout interval (100 ms). This defines the timeout period for which the system waits. The system waits for the alignment process to start at the other end of the SL for indications. These indications can include SIO, SIN, or SIE status. In the alignment process, the T2 value must be different at both ends of the CCS7 link. The recommended values are 118 and 235. The default value is 1320 (132 s).
	T3	numeric (10 to 15)	Aligned timer. Enter a number to specify the aligned timeout interval (100 ms). The default value is 10 (1 s).
	T4E	numeric (4 to 6)	Emergency proving period timer. Enter a number to specify the emergency proving period timeout interval (100 ms). The default value is 5 (0.5 s).
	T4N	numeric (75 to 95)	Normal proving period timer. Enter a number to specify the normal proving period timeout interval (10 ms). The default value is 82 (0.82 s).
	T5	numeric (8 to 12)	Sending status indication busy timer. Enter a number to specify the sending status indication busy (SIB) timeout interval (10 ms). The default value is 10 (0.1 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 6 of 24)**

Field	Subfield	Entry	Description
	T6	numeric (30 to 60)	Remote congestion timer. Enter a number to specify the remote congestion timeout interval (100 ms). The default value is 50 (5 s).
	T7	numeric (50 to 200)	Excessive delay of acknowledgement timer. Enter a number to specify the excessive delay of acknowledgement timeout interval (10 ms). The default value is 200 (2 s).
If the entry for subfield NETSPEC is TTC703, complete subfields T1, T2, T3, T4E, T5, T6, and T7 in the following order. The default value for each subfield is stored in table DEFDATA and is displayed in a system prompt. Separate the value for each timer by a blank column.			
	T1	numeric (100 to 3200)	Aligned ready timer. Enter a number to specify the aligned ready timeout interval (100 ms). The default value is 130 (13 s).
	T2	numeric (50 to 4800)	Nonaligned timer. Enter a number to specify the non-aligned timeout interval (100 ms). This defines the timeout period that the system waits. The system waits for the alignment process to start at the other end of the SL for indications. These indications can include SIO, SIN, or SIE status. In the alignment process, the T2 value must be different at both ends of the link. The recommended values are 118 and 235. The default value is 4800 (480 s).
	T3	numeric (10 to 4800)	Aligned timer. Enter a number to specify the aligned timeout interval (100 ms). The default value is 4 800 (480 s).
	T4E	numeric (4 to 30)	Emergency proving period timer. Enter a number to specify the emergency proving period timeout interval (100 ms). The default value is 30 (3 s).
	T5	numeric (8 to 500)	Sending status indication busy timer. Enter a number to specify the sending SIB timeout interval (10 ms). The default value is 12 (0.12 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 7 of 24)**

Field	Subfield	Entry	Description
	T6	numeric (30 to 200)	Remote congestion timer. Enter a number to specify the remote congestion timeout interval (100 ms). The default value is 200 (20 s).
	T7	numeric (50 to 300)	Excessive delay of acknowledgement timer. Enter a number to specify the excessive delay of acknowledgement timeout interval (10 ms). The default value is 300 (3 s).
The entry for subfield NETSPEC can be JPN703. When this event occurs, enter data in subfields T1, T2, T3, T4E, T5, T6, T7, and TF in the following order. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt. Separate the value for each timer with a blank space.			
	T1	numeric (100 to 3200)	Aligned ready timer. Enter a number to specify the aligned ready timeout interval (100 ms). The default value is 30 (3 s).
	T2	numeric (50 to 4800)	Nonaligned timer. Enter a number to specify the nonaligned timeout interval (100 ms). This defines the timeout period that the system waits. The system waits for the alignment process to start at the other end of the SL, for indications. These indications can include SIO or SIE status. In the alignment process, the T2 value must be different at both ends of the link. The recommended values are 118 and 235. The default value is 4800 (480 s).
	T3	numeric (50 to 4800)	Aligned timer. Enter a number to specify the aligned timeout interval (100 ms). The default value is 4800 (480 s).
	T4E	numeric (4 to 30)	Emergency proving period timer. Enter a number to specify the emergency proving period timeout interval (100 ms). The default value is 30 (3 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 8 of 24)**

Field	Subfield	Entry	Description
	T5	numeric (26 to 151)	Sending status indication busy timer. Enter a number to specify the sending SIB timeout interval (10 ms). The default value is 20 (0.2 s).
	T6	numeric (30 to 200)	Remote congestion timer. Enter a number to specify the remote congestion timeout interval (100 ms). The default value is 200 (20 s).
	T7	numeric (50 to 300)	Excessive delay of acknowledgement timer. Enter a number to specify the excessive delay of acknowledgement timeout interval (10 ms). The default value is 200 (2 s).
	TF	numeric (125 to 32 000)	Flag count timer. Enter a number to specify the rate that the local signaling terminal (ST) (1 ms) transmits repeated link status signaling units or fill-in signaling units. The default value is 24 000 (0.024 s).
If the entry for subfield NETSPEC is ANSI704 enter data in the following subfields: T1, T2, T3, T4, T5, T6, T7, T8, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24. Separate the value for each timer with a blank space. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt.			
	T1	numeric (5 to 250)	Mis-sequence changeover timer. Enter a number to specify the mis-sequence changeover timeout interval (100 ms). The default value is 10 (1 s).
	T2	numeric (5 to 250)	Changeover acknowledgement time. Enter a number to specify the changeover acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T3	numeric (5 to 250)	Mis-sequence changeback timer. Enter a number to specify the mis-sequence changeback timeout interval (100 ms). The default value is 10 (1 s).

CCS7 MTP/SCCP (continued)

Datafilling table C7TIMER (Sheet 9 of 24)

Field	Subfield	Entry	Description
	T4	numeric (5 to 250)	Changeback acknowledgement timer (first attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T5	numeric (5 to 250)	Changeback acknowledgement timer (second attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T6	numeric (5 to 250)	Controlled rerouting timer. Enter a number to specify the controlled rerouting timeout interval (100 ms). The default value is 10 (1 s).
	T7	numeric (10 to 400)	Signaling data link connection acknowledgement timer. Enter a number to specify the signaling data link (SDL) connection acknowledgement timeout interval (100 ms). The default value is 15 (1.5 s).
	T8	numeric (5 to 250)	Transfer prohibited timer. Enter a number to specify the transfer prohibited timeout interval (100 ms). The default value is 10 (1 s).
	T10	numeric (20 to 750)	Signaling routeset test message timer. Enter a number to specify the signaling routeset test message timeout interval in seconds. The default value is 30 (30 s). Note: The default value for the signaling routeset test message timeout interval increases to 60 s. This condition occurs when more than 511 routesets are enabled with software optionality control (SOC).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 10 of 24)**

Field	Subfield	Entry	Description
	T11	numeric (30 to 1700)	Transfer restricted timer. Enter a number to specify the signaling routeset test message timeout interval in seconds. The default value is 69 (69 s).
	T12	numeric (5 to 250)	Uninhibit acknowledgement timer. Enter a number to specify the uninhibit acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T13	numeric (5 to 250)	Forced uninhibit timer. Enter a number to specify the forced uninhibit timeout interval (100 ms). The default value is 10 (1 s).
	T14	numeric (2 to 80)	Inhibit acknowledgement message timer. Enter a number to specify the inhibit acknowledgement message timeout interval in seconds. The default value is 3 (3 s).
	T15	numeric (1 to 60)	Repeat routeset congestion test timer. Enter a number to specify the repeat routeset congestion test timeout interval in seconds. The default value is 2 (2 s).
	T16	numeric (5 to 500)	Routeset congestion status update timer. Enter a number to specify the routeset congestion status update timeout interval (100 ms). The default value is 20 (2 s).
	T17	numeric (5 to 250)	Initial alignment failure and link restart timer. Enter a number to specify the initial alignment failure and link restart interval (100 ms). The default value is 10 (1 s).
	T18	numeric (30 to 1500)	Transfer cluster restricted timer. Enter a number to specify the transfer cluster restricted timeout interval in seconds. The default value is 60 (60 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 11 of 24)**

Field	Subfield	Entry	Description
	T19	numeric (7 to 200)	Failed link craft referral timer. Enter a number to specify the failed link craft referral timeout interval in minutes. The default value is 8 (8 min).
	T20	numeric (70 to 2200)	Local inhibit test timer. Enter a number to specify the local inhibit test timeout interval in seconds. The default value is 90 (90 s).
	T21	numeric (70 to 2200)	Remote inhibit test timer. Enter a number to specify the remote inhibit test timeout interval in seconds. The default value is 90 (90 s).
	T22	numeric (1 to 60)	Signaling link available timer. Enter the wait period for SLs available at the restart of node time-out value in 1-s units. Enter one timer for the node. The default value is 40 (40 s).
	T23	numeric (1 to 60)	Receiving TRA messages timer. Enter the receiving TRA (traffic restart allowed) messages time-out values in 1-s units. Enter one timer for the node. The default value is 10 (10 s).
	T24	numeric (1 to 60)	Broadcasting status messages timer. Enter the broadcasting status time-out value in 1-s units. Enter one timer for the node. The default value is 10 (10 s).
	T31	10 to 120	Limit the time a link remains in false congestion. Enter the maximum time a link will remain in false congestion before the system restarts it. Enter one timer per linkset. Enter the value in 1s units. The default value is 120 (120 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 12 of 24)**

Field	Subfield	Entry	Description
	T33	60 to 660	Link probation timer. Enter the probation time for the link brought into service. If the link becomes system busy (SysB) before the expiration of this timer, the system starts timer T34. The link remains in SysB state until timer T34 expires. Enter the value in 1-s units. The default value is 660 (660 s).
	T34	5 to 240	Link penalty timer. Enter the maximum time a link will remain in SysB state before the system tries to return the link to service. Enter the value in 1-s units. The default value is 240 (240 s).
If the entry in subfield NETSPEC is NTC704, enter the following subfields: T1, T2, T3, T4, T5, T6, T7, T8, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt. Separate the value for each timer with a blank space.			
	T1	numeric (5 to 12)	Mis-sequence changeover timer. Enter a number to specify the mis-sequence changeover timeout interval (100 ms). The default value is 10 (1 s).
	T2	numeric (7 to 20)	Changeover acknowledgement time. Enter a number to specify the changeover acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T3	numeric (5 to 12)	Mis-sequence changeback timer. Enter a number to specify the mis-sequence changeback timeout interval (100 ms). The default value is 10 (1 s).
	T4	numeric (5 to 12)	Changeback acknowledgement timer (first attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 13 of 24)**

Field	Subfield	Entry	Description
	T5	numeric (5 to 12)	Changeback acknowledgement timer (second attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T6	numeric (5 to 12)	Controlled rerouting timer. Enter a number to specify the controlled rerouting timeout interval (100 ms). The default value is 10 (1 s).
	T7	numeric (10 to 20)	Signaling data link connection acknowledgement timer. Enter a number to specify the signaling data link connection acknowledgement timeout interval (100 ms). The default value is 15 (1.5 s).
	T8	numeric (8 to 12)	Transfer prohibited timer. Enter a number to specify the transfer prohibited timeout interval (100 ms). The default value is 10 (1 s).
	T10	numeric (30 to 60)	Signaling routeset test message timer. Enter a number to specify the signaling routeset test message timeout interval in seconds. The default value is 30 (30 s). Note: The default value increases to 60 s when you enter more than 511 routesets on the DMS-STP switch.
	T11	numeric (30 to 90)	Transfer restricted timer. Enter a number to specify the signaling routeset test message timeout interval in seconds. The default value is 69 (69 s).
	T12	numeric (8 to 15)	Uninhibit acknowledgement timer. Enter a number to specify the uninhibit acknowledgement timeout interval (100 ms). The default value is 10 (1 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 14 of 24)**

Field	Subfield	Entry	Description
	T13	numeric (8 to 15)	Forced uninhibit timer. Enter a number to specify the forced uninhibit timeout interval (100 ms). The default value is 10 (1 s).
	T14	numeric (2 to 3)	Inhibit acknowledgement message timer. Enter a number to specify the inhibit acknowledgement message timeout interval in seconds. The default value is 3 (3 s).
	T15	numeric (2 to 3)	Repeat routeset congestion test timer. Enter a number to specify the repeat routeset congestion test timeout interval in seconds. The default value is 2 (2 s).
	T16	numeric (14 to 20)	Routeset congestion status update timer. Enter a number to specify the routeset congestion status update timeout interval (100 ms). The default value is 20 (2 s).
	T17	numeric (8 to 15)	Initial alignment failure and link restart timer. Enter a number to specify the initial alignment failure and link restart interval (100 ms). The default value is 10 (1 s).
	T18	numeric (5 to 60)	MTP restart STP TRA received timer. Enter the late TRA filter time-out value in 1-s values. The default value is 40 (40 s).
	T19	numeric (60 to 90)	MTP restart late TRA filter timer. Enter the late TRA filter time-out value in 1-s units. The default value is 67 (67 s).
	T20	numeric (5 to 120)	MTP restart overall timer. Enter the MTP restart time-out value in 1-s units. The default value is 59 (59 s).
	T21	numeric (5 to 120)	MTP restart adjacent node timer. Enter the TRA message from the adjacent node time-out value in 1-s units. The default value is 63 (63 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 15 of 24)**

Field	Subfield	Entry	Description
	T22	numeric (180 to 360)	Local inhibit test timer. Enter a number to specify the local inhibit test interval in seconds. The default value is 180 (180 s).
	T23	numeric (180 to 360)	Remote inhibit test timer. Enter a number to specify the remote inhibit test interval in seconds. The default value is 180 (180 s).
If the entry in subfield NETSPEC is CCITT704 enter the following subfields: T1, T2, T3, T4, T5, T6, T7, T8, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt. Separate the value for each timer with a blank space.			
	T1	numeric (5 to 12)	Mis-sequence changeover timer. Enter a number to specify the mis-sequence changeover timeout interval (100 ms). The default value is 10 (1 s).
	T2	numeric (7 to 20)	Changeover acknowledgement time. Enter a number to specify the changeover acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T3	numeric (5 to 12)	Mis-sequence changeback timer. Enter a number to specify the mis-sequence changeback timeout interval (100 ms). The default value is 10 (1 s).
	T4	numeric (5 to 12)	Changeback acknowledgement timer (first attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T5	numeric (5 to 12)	Changeback acknowledgement timer (second attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).

CCS7 MTP/SCCP (continued)

Datafilling table C7TIMER (Sheet 16 of 24)

Field	Subfield	Entry	Description
	T6	numeric (5 to 12)	Controlled rerouting timer. Enter a number to specify the controlled rerouting timeout interval (100 ms). The default value is 10 (1 s).
	T7	numeric (10 to 20)	Signaling data link connection acknowledgement timer. Enter a number to specify the signaling data link connection acknowledgement timeout interval (100 ms). The default value is 15 (1.5 s).
	T8	numeric (8 to 12)	Transfer prohibited timer. Enter a number to specify the transfer prohibited timeout interval (100 ms). The default value is 10 (1 s).
	T10	numeric (30 to 60)	Signaling routeset test message timer. Enter a number to specify the signaling routeset test message timeout interval in seconds. The default value is 30 (30 s). Note: The default value increases to 60 s when you enter more than 511 routesets on the DMS-STP switch.
	T11	numeric (30 to 90)	Transfer restricted timer. Enter a number to specify the signaling routeset test message timeout interval in seconds. The default value is 69 (69 s).
	T12	numeric (8 to 15)	Uninhibit acknowledgement timer. Enter a number to specify the uninhibit acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T13	numeric (8 to 15)	Forced uninhibit timer. Enter a number to specify the forced uninhibit timeout interval (100 ms). The default value is 10 (1 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 17 of 24)**

Field	Subfield	Entry	Description
	T14	numeric (2 to 3)	Inhibit acknowledgement message timer. Enter a number to specify the inhibit acknowledgement message timeout interval in seconds. The default value is 3 (3 s).
	T15	numeric (2 to 3)	Repeat routeset congestion test timer. Enter a number to specify the repeat routeset congestion test timeout interval in seconds. The default value is 2 (2 s).
	T16	numeric (14 to 20)	Routeset congestion status update timer. Enter a number to specify the routeset congestion status update timeout interval (100 ms). The default value is 20 (2 s).
	T17	numeric (8 to 15)	Initial alignment failure and link restart timer. Enter a number to specify the initial alignment failure and link restart interval (100 ms). The default value is 10 (1 s).
	T18	numeric (5 to 60)	MTP restart STP TRA received timer. Enter the late TRA filter time-out value in 1-s values. The default value is 40 (40 s).
	T19	numeric (60 to 90)	MTP restart late TRA filter timer. Enter the late TRA filter time-out value in 1-s units. The default value is 67 (67 s).
	T20	numeric (5 to 120)	MTP restart overall timer. Enter the MTP restart time-out value in 1-s units. The default value is 60 (60 s).
	T21	numeric (5 to 120)	MTP restart adjacent node timer. Enter the TRA message from the adjacent node time-out value in 1-s units. The default value is 63 (63 s).
	T22	numeric (180 to 360)	Local inhibit test timer. Enter a number to specify the local inhibit test interval in seconds. The default value is 180 (180 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 18 of 24)**

Field	Subfield	Entry	Description
	T23	numeric (180 to 360)	Remote inhibit test timer. Enter a number to specify the remote inhibit test interval in seconds. The default value is 180 (180 s).
	T24	numeric (7 to 200)	Failed link craft referral timer. Enter a number to specify the failed link craft referral timeout interval in minutes. The default value is 8 (8 min).
If the entry for subfield NETSPEC is TTC704 enter data in subfields T2, T4, T18, T19, T20 and T21. Separate the value for each timer with a blank space. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt.			
	T2	numeric (5 to 250)	Changeover acknowledgement timer. Enter a number to specify the changeover acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T4	numeric (5 to 250)	Changeback acknowledgement timer (first attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T18	numeric (5 to 60)	MTP restart STP TRA received timer. Enter the late TRA filter time-out value in 1-s values. The default value is 40 (40 s).
	T19	numeric (60 to 90)	MTP restart late TRA filter timer. Enter the late TRA filter time-out value in 1-s units. The default value is 67 (67 s)
	T20	numeric (5 to 120)	MTP restart overall timer. Enter the MTP restart time-out value in 1-s units. The default value is 59 (59 s).
	T21	numeric (5 to 120)	MTP restart adjacent node timer. Enter the TRA message from the adjacent node time-out value in 1-s units. The default value is 63 (63 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 19 of 24)**

Field	Subfield	Entry	Description
If the entry for subfield NETSPEC is JPN704, enter data in the following subfields: T1, T2, T3, T4, T6, T10, T16, T17, T18, T19, T20, T21. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt. Separate the value for each timer with a blank space.			
	T1	numeric (5 to 250)	Mis-sequence changeover timer. Enter a number to specify the mis-sequence changeover timeout interval (100 ms). The default value is 10 (1 s).
	T2	numeric (5 to 250)	Changeover acknowledgement time. Enter a number to specify the changeover acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T3	numeric (5 to 250)	Mis-sequence changeback timer. Enter a number to specify the mis-sequence changeback timeout interval (100 ms). The default value is 10 (1 s).
	T4	numeric (5 to 250)	Changeback acknowledgement timer (first attempt). Enter a number to specify the changeback acknowledgement timeout interval (100 ms). The default value is 10 (1 s).
	T6	numeric (5 to 250)	Controlled rerouting timer. Enter a number to specify the controlled rerouting timeout interval (100 ms). The default value is 10 (1 s).
	T10	numeric (20 to 750)	Signaling routeset test message timer. Enter a number to specify the signaling routeset test message timeout interval in seconds. The default value is 30 (30 s). Note: The default value increases to 60 when you enter more than 511 routesets on a DMS-STP switch.

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 20 of 24)**

Field	Subfield	Entry	Description
	T16	numeric (1 to 100)	Transfer controlled congestion timer. Enter a number to specify the interval that the system must maintain the congestion state after it receives a transfer controlled (TFC) message. Enter the timeout value in seconds. The default value is 90 (90 s).
	T17	numeric (5 to 250)	Initial alignment failure and link restart timer. Enter a number to specify the initial alignment failure and link restart interval (100 ms). The default value is 10 (1 s).
	T18	numeric (5 to 60)	The MTP restart STP TRA received timer. Enter the late TRA filter time-out value in 1-s values. The default value is 40 (40 s).
	T19	numeric (60 to 90)	The MTP restart late TRA filter timer. Enter the late TRA filter time-out value in 1-s units. The default value is 67 (67 s).
	T20	numeric (5 to 120)	The MTP restart overall timer. Enter the MTP restart time-out value in 1-s units. The default value is 59 (59 s).
	T21	numeric (5 to 120)	The MTP restart adjacent node timer. Enter a value in 1-s units the system waits to receive a TRA message from the next node. The default value is 63 (63 s).
If the entry for subfield NETSPEC is CCITT707, enter data in subfields T1 and T3. Separate the value for each timer with a blank space. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt.			
	T1	numeric (5 to 750)	Signaling link test acknowledgement timer. Enter a number to specify the SL test acknowledgement timeout interval (100 ms). The default value is 120 (12 s).
	T3	numeric (30 to 750)	Signaling link test interval. Enter a number to specify the SL test timeout interval in seconds. The default value is 90 (90 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 21 of 24)**

Field	Subfield	Entry	Description
If the entry for subfield NETSPEC is ANSI707 or AUSTR707, enter data in subfields T1 and T3. Separate the value for each timer with a blank space. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt.			
	T1	numeric (5 to 750)	Signaling link test acknowledgement timer. Enter a number to specify the SL test acknowledgement timeout interval (100 ms). The default value is 30 (3 s).
	T3	numeric (30 to 750)	Signaling link test interval. Enter a number to specify the SL test timeout interval in seconds. The default value is 60 (60 s).
If the entry for subfield NETSPEC is NTC707, complete subfields T1 and T2. Separate the value for each timer with a blank space. Table DEFDATA stores the default value for each subfield. The default value appears at a system prompt.			
	T1	numeric (40 to 120)	Signaling link test acknowledgement timer. Enter a number to specify the SL test acknowledgement timeout interval (100 ms). The default value is 40 (4 s).
	T2	numeric (30 to 90)	Signaling link test interval timer. Enter a number to specify the SL test timeout interval in seconds. The default value is 60 (60 s).
If the entry for subfield NETSPEC is TTC707, enter data in subfield T10. Table DEFDATA stores the default value for subfield T10. The default value appears at a system prompt.			
	T10	numeric (30 to 100)	Signaling routeset test message timer. Enter a number to specify the signaling routeset test timeout interval (100 ms). The default value is 100 (10 s). Note: The default value increases to 60 s when you enter more than 511 routesets on a DMS-STP switch.
If the entry for subfield NETSPEC is JPN707 enter data in subfield T10. Table DEFDATA stores the default value for T10. The default value appears in a system prompt.			

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 22 of 24)**

Field	Subfield	Entry	Description
	T10	numeric (30 to 100)	Signaling routeset test message timer. Enter a number to specify the signaling routeset test timeout interval (100 ms). The default value is 100 (10 s). If the entry in field NETSPEC is ANSISAAL, enter data in subfields SAALT1, SAALT2, SAALT3, SAALTCC, SAALKALV, SAALNORS, SAALPOLL, SAALIDLE, SAALSREC, SAALNOCRD, SAALSUP, SAALLOSS, SAALTAU, and SAALPROV. Table DEFDATA stores the default value for each subfield. The default value appears in a system prompt. Separate the value for each timer by a blank space.
	SAALT1	1 to 15 s	SAAL timer 1. Enter the service specific coordination function (SSCF) time between the link release and the next re-establish action during alignment. The default SAALT1 timer value is 5 (5 s).
	SAALT2	15 to 180 s	SAAL timer 2. Enter the total time the SSCF attempts to realign the link. The default SAALT2 timer value is 120 (120 s).
	SAALT3	72 to 2300	SAAL timer 3. Enter the SSCF time between proving packet data units (PDU) in units of 10 mcs. The default SAALT3 timer value is 90 (9 ms).
	SAALTCC	1 to 20	SAAL timer Connection Controller. Enter the Connection Control timer value in units of 100 ms. The default SAALTCC timer value is 2 (200 ms).
	SAALKALV	25 to 500 ms	SAAL keep alive. Enter the maximum time that service specific connection oriented protocol (SSCOP) can remain in the transient phase. The default SAALKALV timer value is 100 (100 ms).

CCS7 MTP/SCCP (continued)

Datafilling table C7TIMER (Sheet 23 of 24)

Field	Subfield	Entry	Description
	SAALNORS	5 to 20	SAAL no response. Enter the maximum time interval during which at least one STAT PDU must be received. Enter the value in units of 100 ms. The default SAALNORS timer value is 15 (1.5 s). Note: The value in timer SAALNORS must be much greater than the value in timer SAALPOLL. The default value of SAALNORS is 15 timer the default value of timer SALLPOLL.
	SAALPOLL	25 to 500 ms	SAAL poll. Enter the time between transmitting poll messages. The default SAALPOLL timer value is 100 (100 ms).
	SAALIDLE	25 to 1000 ms	SAAL idle. Enter the maximum time that SSCOP can remain in the idle phase. The default SAALIDLE timer value is 100 (100 ms).
	SAALSREC	1 to 180 min	SAAL recovery. Enter the layer management timer for repeat SSCOP recovery. The default SAALSREC timer value is 60 (60 min).
	SAALNOCRD	10 to 60	SAAL no credit. Enter the maximum time a 0 credit condition can exist before layer managment fails the link. Enter the value in units of 100 ms. The default SAALNOCRD timer value is 15 (1.5 s).
	SAALSUP	10 to 600 s	SAAL superblock. Enter the layer management superblock size timer value. The default SAALSUP timer value is 120 (120 s).
	SAALLOSS	5 to 100	SAAL loss. Enter the layer management status loss limit timer value in units of 100 ms. The default SAALLOSS timer value is 13 (1.3 s).

CCS7 MTP/SCCP (continued)**Datafilling table C7TIMER (Sheet 24 of 24)**

Field	Subfield	Entry	Description
	SAALTAU	25 to 500 ms	SSCF timer 3. Enter the layer management error monitoring interval value. The default SAALTAU timer value is 100 (100 ms).
	SAALPROV	1 to 20 min	SSCF proving. Enter the time that layer management is to monitor the status of the link after proving and being placed into service. The default SAALPROV timer value is 10 (10 min).

Datafill example for table C7TIMER

Sample datafill for table C7TIMER appears in the following example. In the example, the first tuple refers to the Q703 set of timers in an international market. The second tuple refers to the Q703 set of timers in a North American network.

MAP example for table C7TIMER

TIMEKEY		TIMEDATA									
Q703	0	CCITT703	130	118	118	6	23	20	30	100	
Q703	1	ANSI703	130	118	118	6	23	12	30	100	
Q704	0	CCITT704	10	10	10	10	10	10	15	10	69
			10	10	3	2	20	10	40	67	59
			63	90	90	8					
Q704	1	ANSI704	10	10	10	10	10	10	15	10	69
			10	10	3	2	20	10	60	8	90
			90	90	40	10	10	32	13		
			3	5	62	32	120	660	240		
Q707	0	CCITT707	100	60							
Q707	1	ANSI707	30	60							

CCS7 MTP/SCCP (continued)

Error messages for table C7TIMER

Error messages that apply to table C7TIMER appear in the following table.

Error messages for table C7TIMER

Error message	Description
Table set for this SPECREF is full.	The maximum number of data entries for the specified SPECREF is 32.
This entry is referenced by n entries in the C7LKSET table.	You cannot delete the entry from table C7TIMER if table C7LKSET contains a reference to the entry.
This entry is referenced by n entries in the C7LINK table.	You cannot delete the entry from table C7TIMER if table C7LINK contains a reference to the entry.

Datafilling table C7CNGSTN

Table C7CNGSTN provides sets of congestion values. The software load contains two sets of default values. One default set is for North American networks. The other default set is for international networks.

Default congestion values

International networks with a national, Australian national, or international network indicator use one threshold level. The default congestion values appear in the following table. These values appear as percentages of transmission and retransmission buffering space that a signaling terminal uses.

Default congestion values for international networks

Field name	Default value
ONSET	63%
ABATE	56%

North American networks use the following three threshold levels:

- congestion onset
- congestion abatement
- congestion discard

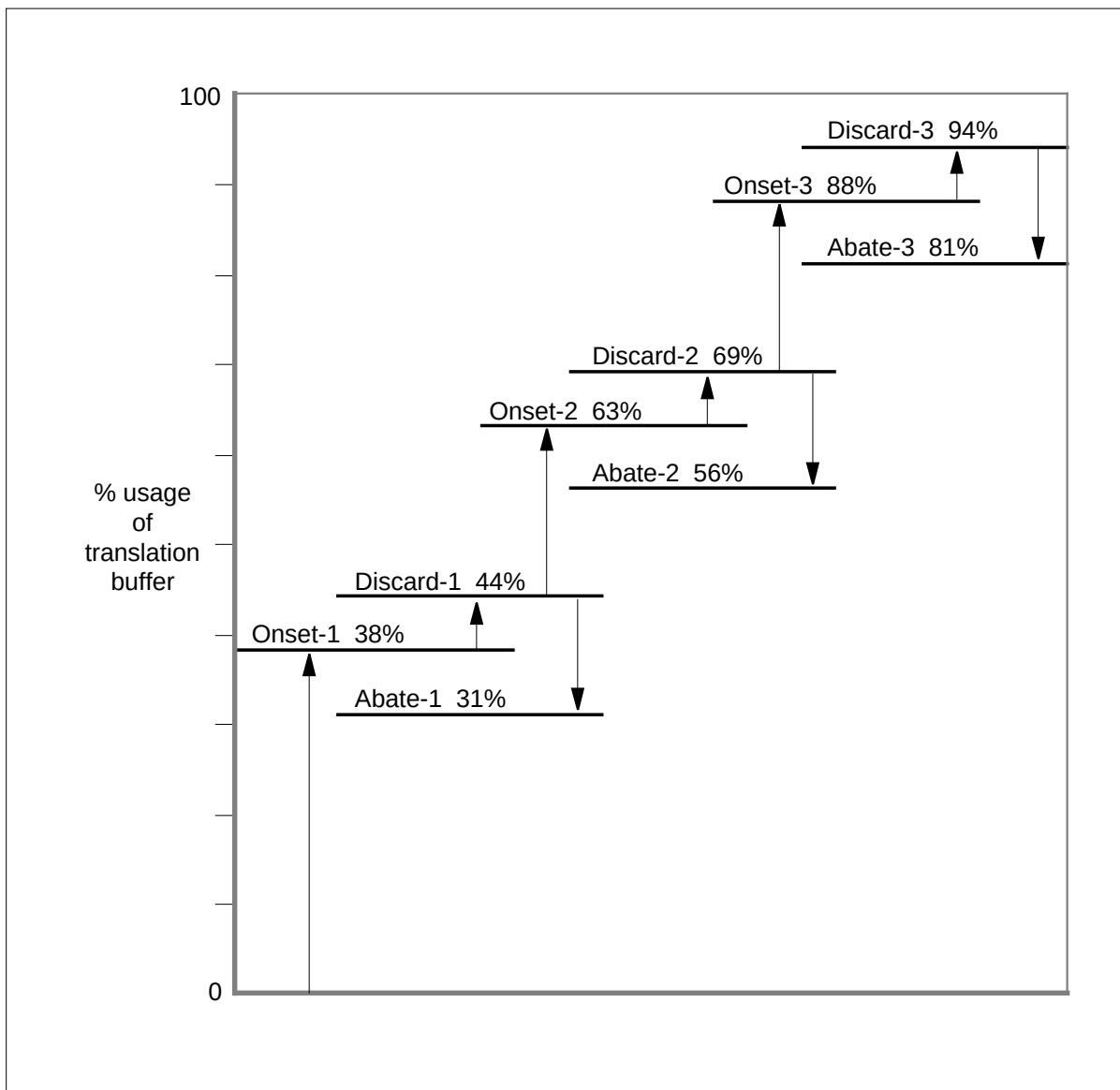
CCS7 MTP/SCCP (continued)

The default congestion values for the North American network appear in the following table. The values appear as percentages of transmission and retransmission buffering space that a signaling terminal uses.

Default congestion values for North American networks

Field name	Default value
ONSET1	38%
ABATE1	31%
DISCARD1	44%
ONSET2	63%
ABATE2	56%
DISCARD2	69%
ONSET3	88%
ABATE3	81%
DISCARD3	94%

The following figure shows the direction of threshold values *discard* and *abate*, in relation to value *onset* for North America.

CCS7 MTP/SCCP (continued)**ANSI T1X1 commissioning rules**

The values can exceed threshold levels and the congestion of the transmission buffer of a CCS7 link can occur. When these events occur, the system generates a log report. An example of the log report appears in the following figure. Routeset management performs action to correct congestion levels when the system exceeds thresholds. Refer to *Log Report Reference Manual* for more information on these log reports.

CCS7 MTP/SCCP (continued)**Example of a log report**

```
CCS173  Oct18 14:52:12  2658 INFO Link Congestion
Link = C7LKSET2 5      Congestion Level: Onset 1
Resource = LIU7 201
```

Adding threshold levels

Select a previously undefined index. When the multiple congestion status (MCS) equals 3, enter nine threshold values for the network. When the MCS equals 1, enter two threshold values.

Deactivate and activate again the synchronized links that select an added or modified congestion tuple. This action activates the new congestion values.

Modifying threshold values

You can change threshold values when the linksets are active.

Deleting threshold values

Before you delete a set of values, change the linksets that select this set of thresholds. Change the linksets to select another set.

Table size

Table C7CNGSTN can contain a maximum of 64 tuples.

Datafill for table C7CNGSTN appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7CNGSTN (Sheet 1 of 8)

Field	Subfield	Entry	Description
CONGIDX		0 to 63	Congestion table index. Enter a congestion table index number from 2 to 63. The default value for a three-level network at loadbuild time is 0 (zero). The default value for a one-level network is 1. The default value for high-speed links is 2.
CONGEST		see subfield	Congestion values. This field contains subfield MCS.

CCS7 MTP/SCCP (continued)

Datafilling table C7CNGSTN (Sheet 2 of 8)

Field	Subfield	Entry	Description
	MCS	numeric (1 or 3)	Multiple congestion status. Enter the number of congestion levels required. If the entry in field CONGIDX is 1, enter 1 and enter data in subfields ONSET and ABATE. If the entry in field CONGIDX is 0, enter 3 and enter data in the following subfields: • ONSET1 • ABATE1 • DISCARD1 • ONSET2 • ABATE2 • DISCARD2 • ONSET3 • ABATE3 • DISCARD3 The values entered in the subfields below indicate a percentage of the total buffer capacity. This buffer capacity is available for the transmission of CCS7 messages from the CCITT level 2 to CCITT level 3. The current buffer capacity in the DMS service switching point (DMS SSP) is 4096 bytes. This value indicates the amount of buffer space that messaging requires. The buffer space does not include the length of the message.

CCS7 MTP/SCCP (continued)

Datafilling table C7CNGSTN (Sheet 3 of 8)

Field	Subfield	Entry	Description
	ONSET	0 to 100	Congestion onset thresholds. If the entry in subfield MCS is 1, enter the congestion onset threshold expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: - the congestion level is equal to ONSET1, - the percentage of occupied buffer space increases to this value - before the increase, the value was less than the congestion abatement threshold value The value in subfield ONSET must be greater than the value in subfield ABATE. Note: Each value entered in subfields ONSET, ABATE, ONSETn, ABATEN and DISCARDn (n = 1, 2, or 3) is expressed as a percentage of the total buffer capacity available for the transmission of CCS7 messages from the CCITT level 2 (not congestion level 2) to CCITT level 3 (not congestion level 3). In the DMS SSP, the buffer capacity is 4096 bytes. The congestion level being datafilled then refers to the amount of this buffer space occupied for messaging, independent of the message length.
	ABATE	0 to 100	Congestion abatement threshold. If the entry in subfield MCS is 1, enter the congestion abatement threshold expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: - the congestion level equals NONE - the percentage of buffer space occupied decreases to this value - the percentage of buffer space occupied exceeded the congestion onset threshold value before it decreased to the current value The value in subfield ABATE must be less than the value in subfield ONSET. No further datafill is required.

CCS7 MTP/SCCP (continued)

Datafilling table C7CNGSTN (Sheet 4 of 8)

Field	Subfield	Entry	Description
	ONSET1	0 to 100	Congestion onset threshold level one. If the entry in subfield MCS is 3, enter the congestion onset threshold level one, expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: - the congestion level equals ONSET1 - the percentage of buffer space occupied increases to this value - the percentage of buffer space occupied did not exceed the congestion onset threshold value before it increased to the current value The value in subfield ONSET1 must be greater than the value in subfield ABATE1. The value in subfield DISCARD1 must be greater than the value in subfield ONSET1 and must be less than the value in subfield ONSET2.
	ABATE1	0 to 100	Congestion abatement threshold level one. If the entry in subfield MCS is 3, enter the congestion abatement threshold level one, expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: - the congestion level equals NONE - the percentage of buffer space occupied decreases to this value - the percentage of buffer space occupied exceeded the congestion onset threshold value before it decreased to the current value The value in subfield ABATE1 must be less than the value in subfield ONSET1.

CCS7 MTP/SCCP (continued)

Datafilling table C7CNGSTN (Sheet 5 of 8)

Field	Subfield	Entry	Description
	DISCARD1	0 to 100	Congestion discard threshold level one. If the entry in subfield MCS is 3, enter the congestion discard threshold level one, expressed as a percentage of buffer space. Log report CCS173 generates and all messages with priority 0 (zero) are discarded if the following conditions exist: - the congestion level equals DISCARD1 - the percentage of buffer space occupied increases to this value from congestion onset threshold level one The value in subfield DISCARD1 must be greater than the value in subfield ONSET1 and less than the value in subfield ONSET2.
	ONSET2	0 to 100	Congestion onset threshold level two. If the entry in subfield MCS is 3, enter the congestion onset threshold level two, expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: - the congestion level equals ONSET2 - the percentage of buffer space occupied increases to this value from congestion onset threshold level one The value in subfield ONSET2 must be greater than the value in subfield ABATE2. The value in subfield DISCARD1 must be greater than the value in subfield ONSET1 and less than the value in subfield ONSET2. The value in subfield DISCARD2 must be greater than the value in subfield ONSET2 and less than the value in subfield ONSET3.

CCS7 MTP/SCCP (continued)**Datafilling table C7CNGSTN (Sheet 6 of 8)**

Field	Subfield	Entry	Description
	ABATE2	0 to 100	Congestion abatement threshold level two. If the entry in subfield MCS is 3, enter the congestion abatement threshold level two, expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: - the congestion level equals DISCARD1 - the percentage of buffer space occupied decreases to this value from congestion onset threshold level two The value in subfield ABATE2 must be less than the value in subfield ONSET2.
	DISCARD2	0 to 100	Congestion discard threshold level two. If the entry in subfield MCS is 3, enter the congestion discard threshold level two, expressed as a percentage of buffer space. Log report CCS173 generates and all messages with priorities 0 (zero) and 1 are discarded if the following conditions exist: - the congestion level equals DISCARD2 - the percentage of buffer space occupied increases to this value from congestion onset threshold level two The value in subfield DISCARD2 must be greater than the value in subfield ONSET2 and must be less than the value in subfield ONSET3.

CCS7 MTP/SCCP (continued)

Datafilling table C7CNGSTN (Sheet 7 of 8)

Field	Subfield	Entry	Description
	ONSET3	0 to 100	Congestion onset threshold level three. If the entry in subfield MCS is 3, enter the congestion onset threshold level three, expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: • the congestion level equals ONSET3 • the percentage of buffer space occupied increases to this value from congestion onset threshold level two The value in subfield ONSET3 must be greater than the value in subfield ABATE3. The value in subfield DISCARD2 must be greater than the value in subfield ONSET2 and must be less than the value in subfield ONSET3. The value in subfield DISCARD3 must be greater than the value in subfield ONSET3.

CCS7 MTP/SCCP (continued)

Datafilling table C7CNGSTN (Sheet 8 of 8)

Field	Subfield	Entry	Description
	ABATE3	0 to 100	Congestion abatement threshold level three. If the entry in subfield MCS is 3, enter the congestion abatement threshold level three, expressed as a percentage of buffer space. Log report CCS173 generates if the following conditions exist: - the congestion level equals DISCARD2 - the percentage of buffer space occupied decreases to this value from congestion onset threshold level three The value in subfield ABATE3 must be less than the value in subfield ONSET3.
	DISCARD3	0 to 100	Congestion discard threshold level three. If the entry in subfield MCS is 3, enter the congestion discard threshold level three, expressed as a percentage of buffer space. Log report CCS173 generates and all messages with priorities 0 (zero), 1, and 2 are discarded if the following conditions exist: - the congestion level equals DISCARD3 - the percentage of buffer space occupied increases to this value from congestion onset threshold level three The value in subfield DISCARD3 must be greater than the value in subfield ONSET3.

Datafill example for table C7CNGSTN

Sample datafill for table C7CNGSTN appears in the following example. In the example, the congestion table index in the first tuple is 0. The threshold values apply to a North American network. The second tuple lists an ONSET threshold of 63% and an ABATE threshold of 56% for an international network.

CCS7 MTP/SCCP (continued)**MAP example for table C7CNGSTN**

CONGIDX	CONGEST									
0	3	38	31	44	63	56	69	88	81	94
1	1	63	56							
2	3	17	14	44	49	46	76	82	79	92

Datafilling table C7NETWRK

Table C7NETWRK describes the signaling networks in a switching office. The key to the table is a network name. For each network, specify a type, the originating PC of the office, a network indicator, and options.

Modifying a network in table C7NETWRK

You cannot modify fields in this table. Delete the network and enter it again with the new data.

Deleting a network from table C7NETWRK

To delete a network, delete the links, linksets, and routesets of the network.

Datafill sequence

Enter data in table C7NETWRK before tables C7LKSET and C7RTESET.

Table size

This table can contain a maximum of four tuples.

The datafill for table C7NETWRK appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7NETWRK (Sheet 1 of 6)

Field	Subfield	Entry	Description and action
NETNAME		alphanumeric (1 to 16 characters)	Network name. Enter a string to specify the network name.
NODE TYPE		SSP, STP, or SSP_STP	Node type. This field specifies the node functionality for the tuple entry.
PTCODE		see subfield	Office point code. This field contains subfield NETTYPE and its subfields.

CCS7 MTP/SCCP (continued)

Datafilling table C7NETWRK (Sheet 2 of 6)

Field	Subfield	Entry	Description and action
	NETTYPE	JPN7 ANSI7 NTC7CCITT7 TTC7 and subfields	Network type. Enter ANSI7, CCITT7, JPN7, NTC7, or TTC7. When the network type is Japan public network, enter JPN7. Complete subfields MAINAREA, SUBAREA, and AREAUNIT. When the network type is North American, enter ANSI7. Complete subfields NETWORK, CLUSTER, and MEMBER. When the network type is international, enter CCITT7. Complete subfield FORMAT. When the network type is TTC7, enter TTC7. Complete subfields MAINAREA, SUBAREA, and AREAUNIT. When the network type is NTC7, enter NTC7. Complete subfields NMAINAREA, NSUBAREA, and NSIGPOINT. The three subfields that require data entry make up the origination point code (OPC). The OPC must be unique in the network.
	MAINAREA	numeric (0 to 31)	Main area. If the entry in subfield NETTYPE is TTC7 or JPN7, enter a number from 0 to 31. Enter the number to specify the main area assigned to this office. This entry is the first part of the OPC.
	SUBAREA	numeric (0 to 15)	Subarea. If the entry in subfield NETTYPE is TTC7 or JPN7, enter a number from 0 to 15. Enter a number to specify the subarea in the main area assigned to this office. This entry is the second part of the OPC.
	AREAUNIT	numeric (0 to 127)	Area unit. If the entry in subfield NETTYPE is TTC7 or JPN7, enter a number from 0 to 127. Enter a number to specify the area unit in the subarea assigned to this office. This entry is the third part of the OPC.
	NETWORK	numeric (0 to 255)	Network identifier. Enter the network identifier assigned to this office.

CCS7 MTP/SCCP (continued)

Datafilling table C7NETWRK (Sheet 3 of 6)

Field	Subfield	Entry	Description and action
	CLUSTER	numeric (0 to 255)	Cluster. Enter the cluster number assigned to this office.
	MEMBER	numeric (0 to 255)	Member. Enter the member number in the cluster assigned to this office.
	NMAINAREA	numeric (0 to 255)	NTC7 main area. If the entry in subfield NETTYPE is NTC7, enter a number from 0 to 255. Enter the number to specify the main area assigned to this office. This entry is the first part of the OPC.
	NSUBAREA	numeric (0 to 255)	NTC7 sub area. If the entry in subfield NETTYPE is NTC7, enter a number from 0 to 255. Enter a number to specify the subarea in the main area assigned to this office. This entry is the second part of the OPC.
	NSIGPOINT	numeric (0 to 255)	NTC7 signal point. If the entry in subfield NETTYPE is NTC7, enter the number of the signal point assigned to the destination office.
	FORMAT	BASIC, INTL, AUSTRIA, CHINA, or GERMAN and see subfields	CCITT format. If the entry in subfield NETTYPE is CCITT7, enter BASIC, INTL, AUSTRIA, or CHINA according to the following guidelines: • If the PC in use is basic international, enter BASIC. Complete subfield PC. • If the PC in use is international, enter INTL. Complete subfields ZONE, AREANETW, and SIGPOINT. • If the PC in use is for Austria, enter AUSTRIA. Complete subfields ZONE, REGION, and SIGPOINT. • If the PC in use is for China, enter CHINA. Complete subfields ZONE, EXCHANGE, and SIGPOINT. • If the PC in use is for Germany, enter GERMAN. Complete subfields NUMAREA, HVST, KVST, and SIGPOINT.
	PC	numeric (0 to 16 383)	Basic point code identifier. If the entry in subfield FORMAT is BASIC, enter a number to specify the PC of this office.

CCS7 MTP/SCCP (continued)**Datafilling table C7NETWRK (Sheet 4 of 6)**

Field	Subfield	Entry		Description and action
	ZONE	numeric to 31)	(0	Zone identifier. This entry is the first part of the OPC for an international network. If the entry in subfield NETTYPE is CCITT7, enter the zone identifier assigned to this office according to the following guidelines: • If the entry in subfield FORMAT is INTL, enter a number from 0 to 7. • If the entry in subfield FORMAT is AUSTRIA, enter a number from 0 to 31. • If the entry in subfield FORMAT is CHINA, enter a number from 0 to 15.
	AREANETW	numeric to 255)	(0	Area or network identifier. If the entry in subfield FORMAT is INTL, enter a number to specify the area or network identifier. This entry is the second part of the OPC.
	REGION	numeric to 15)	(0	Region. If the entry in subfield FORMAT is AUSTRIA, enter the region number assigned to this office. This entry is the second part of the OPC.
	EXCHANGE	numeric to 127)	(0	Exchange. If the entry in subfield FORMAT is CHINA, enter a number to specify the exchange in the zone assigned to this office. This entry is the second part of the OPC.

CCS7 MTP/SCCP (continued)

Datafilling table C7NETWRK (Sheet 5 of 6)

Field	Subfield	Entry	Description and action
NI	SIGPOINT	numeric (0 to 31)	Signal point identifier. This entry is the third part of the OPC for an international network. If the entry in subfield NETTYPE is CCITT7, enter the number of the signal point assigned to the destination office. Use the following guidelines: - If the entry in subfield FORMAT is INTL, enter a number from 0 to 7. Enter a number to specify the signal point in the area or network. - If the entry in subfield FORMAT is AUSTRIA, enter a number from 0 to 31. Enter a number to specify the signal point in the region. - If the entry in subfield FORMAT is CHINA, enter a number from 0 to 7. Enter a number to specify the signal point in the exchange. - If the entry in subfield FORMAT is GERMAN, enter the number of the signal point in the exchange that has been assigned to the far-end switching unit for the specified network. The range is 0 to 7.
	NUMAREA	0 to 15	Numbering area. If the entry in subfield FORMAT is GERMAN, enter the area number assigned to the office.
	HVST	0 to 7	HVST area. If the entry in subfield FORMAT is GERMAN, enter the HVST number assigned to the office.
	KVST	0 to 15	KVST area. If the entry in subfield FORMAT is GERMAN, enter the KVST number assigned to the office.
		INTL, INTLSPARE, NATL, or NATLSPARE	Network indicator. Enter INTL, INTLSPARE, NATL, or NATLSPARE. Note: More than one network of the same type can exist, but each network must have a different indicator.

CCS7 MTP/SCCP (continued)**Datafilling table C7NETWRK (Sheet 6 of 6)**

Field	Subfield	Entry	Description and action
SLSROT		Y or N	Signaling link selector rotation. If the rotation of links in a linkset is required for loadsharing purposes, enter Y. For other conditions, enter N. For CCITT7 networks in use in Australia, JPN7, or NTC7, enter N.
TFR		Y or N	Transfer restricted. When transfer restricted is part of the messaging protocol in the network, enter Y. For other conditions, enter N. For CCITT7 networks in use in Australia, JPN7, or NTC7, enter N.
MCS		numeric (1 or 3)	Multiple congestion. Enter 1 or 3 to indicate the level of congestion required. For international or Australian CCITT networks or NTC7, enter 1. For the Japan Public Network, enter 3.
CLUSTERS		Y or N	Cluster messages. If the system can receive cluster messages, enter Y. For other conditions, enter N. For CCITT7 networks in use in Australia or NTC7, enter N. For the Japan Public Network, enter Y.
RCTEST		Y or N	Routeset congestion test. When a routeset congestion test removes remote routeset congestion, enter Y. For other conditions, enter N. For CCITT7 networks in use in Australia, JPN7, or NTC7, enter N.

Datafill example for table C7NETWRK

Sample datafill for table C7NETWRK appears in the following example. In the example, the network name is NATL_NET.

CCS7 MTP/SCCP (continued)**MAP example for table C7NETWRK**

NETNAME	NODETYPE			PTCODE			
	NI	SLSROT	TFR	MCS	CLUSTERS		
	RCTEST	MTPRES	CNGCONT				

NATL_NET		SSP		ANSI7	171	1	0
		NATL		Y	Y	3	Y
		Y	Y		Y		

Datafilling table C7ALIAS

Table C7ALIAS contains data for the DMS-STP switch and the STP/SSP INode. Table C7ALIAS is optional. When the table is empty, it does not affect the operation of the switch. This table defines an additional PC or ability code for two DMS-STP switches in a pair. The PC is the same for both STPs. This table does not contain data for OPCs. Table C7NETWRK contains the data for OPCs.

When table C7ALIAS is not in use, all nodes in a CCS7 network have different PCs for identification. A node in the network accepts or rejects messages by comparing the DPC in the messages to its own PC. To allow traffic protection through STP redundancy, the system can use additional PCs to address the STP. The PCs are capability codes. Table C7ALIAS defines the capability codes. When data exists in table C7ALIAS, STPs can accept messages sent to their exact PCs or to the defined capability codes.

A capability code contains the following elements:

- the network name entered in C7NETWRK
- the network type entered in C7NETWRK
- a three-integer PC

Do not use a PC that functioned as a capability code, a network identifier, or as a routing destination. Tables C7NETWRK and C7RTESET define the function of the PC.

Modifying a tuple in table C7ALIAS

You cannot modify fields in table C7ALIAS.

CCS7 MTP/SCCP (continued)

Using the LIST command to display table C7ALIAS entries

When you use the LIST command, tuples in table C7ALIAS do not appear in the order in which you entered them. The entries appear in the following order:

- The table groups together all capability codes associated with the same network.
- Groups appear in the order that networks appear in table C7NETWRK.
- The PCs in each group appear according the importance of the function. The PC with the least importance appears first.
- The ANSI7 codes appear according to member, cluster, and network field.

Datafill sequence

Enter data in table C7NETWRK before table C7ALIAS.

Table size

Table C7ALIAS can contain a maximum of 256 alias tuples for each network tuple in table C7NETWRK.

The datafill for table C7ALIAS appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafill example for table C7ALIAS

Sample datafill for table C7ALIAS appears in the following example. In the example, the network type is North American. The network type is ANSI7.

MAP example for table C7ALIAS

ALIAS				
C7NETWRK1	ANSI7	1	0	255

CCS7 MTP/SCCP (continued)**Error messages for table C7ALIAS**

The error messages that apply to table C7ALIAS appear in the following table.

Error messages for table C7ALIAS

Error message	Description
NETTYPE does not match the C7NETWRK table entry.	The name entered in subfield NETTYPE does not match the network name entered in table C7NETWRK.
Point code is already in the C7NETWRK table.	The capability code has the same PC as the network OPC. Check the data entered or stored in table C7NETWRK.
Point code is already in the C7RTESET table.	The capability code has the same PC as the routeset DPC. Check the data entered or stored in table C7RTESET.
NETWORK is not datafilled.	An entry in subfield NETNAME does not have a network defined in table C7NETWRK.
No fields of the C7ALIAS table are modifiable.	You tried to use the CHANGE command. Command CHANGE does not work in table C7ALIAS.

Datafilling table C7LKSET

Table C7LKSET defines the linkset characteristics and the attributes common to all links in the linkset. Table C7LINK defines the links.

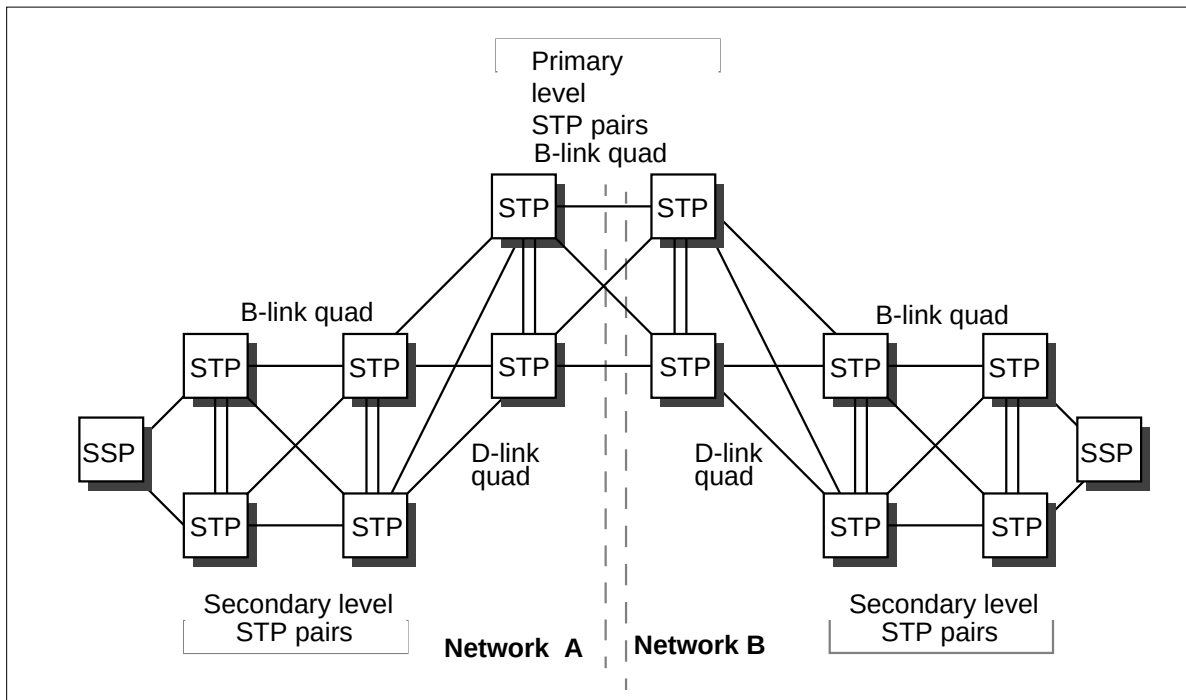
Links

An SL is a communication channel between two adjacent nodes in a signaling network. The different types of SLs are as follows:

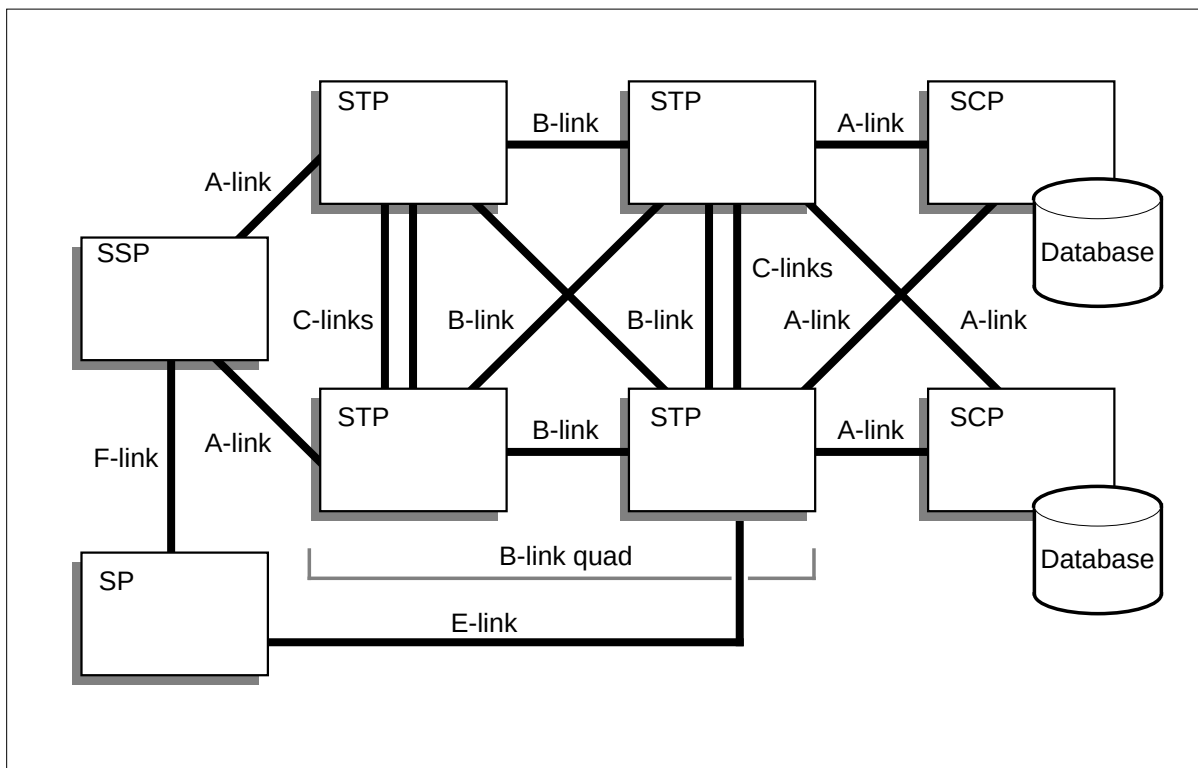
- The A-links connect SSPs and service control points (SCP) to STPs. The A-links assign in pairs, with one link to each STP in a mated pair.
- The B-links connect mated STP pairs in a SL quad. This quad structure provides complete STP redundancy.
- The C-links connect two STP nodes to create an STP pair.
- The D-links connect secondary STP pairs to primary STP pairs to create a D-link quad. This structure appears in the following figure.
- The E-links connect signaling points (SP), SSPs, and SCPs to remote STP pairs.
- The F-links connect SPs, SSPs, and SCPs to one another.

CCS7 MTP/SCCP (continued)

Two-layer STP network



The different SLs appear in the following figure.

CCS7 MTP/SCCP (continued)**CCS7 signaling links****Linksets**

A linkset is a group of SLs that carry signals between two nodes in a signaling network. Each link can carry CCS7 traffic between two adjacent PC. Linksets identify the switching office to which the linksets provide the signaling with the PC of the far-end node. Linksets can contain a maximum of 16 links to provide a number of levels of redundancy.

Routes

A route is a path between two SPs. Each route uses a linkset to carry the message.

Routesets

A routeset is a group of routes or linksets that provide signaling paths between the same two SPs. Each SP has the same destination point code (DPC). The office PC identifies the node in the network. Each office PC must have an assigned routeset. A routeset can have a maximum of six linksets. A routeset is the first level of redundancy.

CCS7 MTP/SCCP (continued)

Modifying a linkset in table C7LKSET

The following limits apply to the modification of a linkset:

- Take the linkset offline before you modify a field.
- Do not modify field NETNAME.
- You can modify field MTPRES when the linkset is in service (InSv).

Deleting a linkset from table C7LKSET

Use the following method to delete a linkset:

At the MAP terminal

- 1 Change the linkset state to offline.
- 2 In table C7RTESET, remove the linkset from all routesets of which it is a member.
- 3 Delete the links in the linkset from table C7LINK.
- 4 Delete the linkset from table C7LKSET.

Performing a dump and restore with field DRIDX

Use the following method to perform a dump and restore:

At the MAP terminal

- 1 Before you perform the restore on a BCS upgrade, set office parameter DUMP_RESTORE_IN_PROGRESS on the BCSn+ side to TRUE. A BCS upgrade is BCS22 and later versions.
- 2 Before you perform the dump, place the field DRIDX visible on the BCSn+ side.
- 3 After you complete the dump and restore, delete field DRIDX from table CUSTFLDS on the BCSn+ side.

The value in field DRIDX is 0 to 255, the link number that associates with the tuple. Do not modify this field.

Table size

A switch with the BRISC processor allows a maximum of 108 tuples.

A switch that does not have the BRISC processor allows a maximum of 72 tuples.

Table C7LKSET can contain a maximum of 255 tuples.

Datafill sequence

Enter data in tables C7CNGSTN, C7TIMER and C7NETWRK before table C7LKSET.

CCS7 MTP/SCCP (continued)

The datafill for table C7LKSET appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table C7LKSET (Sheet 1 of 8)

Field	Subfield	Entry	Description
LINKSET		see subfield	Linkset. This field contains subfield NAME.
	NAME	alphanumeric (1 to 16 characters)	Linkset name. Enter a string to specify the name of the linkset. The CCS7 linkset name can contain only numeric characters.
LSTYPE		ALINK BLINK CLINK DLINK ELINK FLINK	Linkset type. Enter the linkset type that the nodes on the two ends define as follows: • If the linkset connects an SP, an SSP, or an SCP to an STP, enter ALINK. • If the linkset connects one STP of a pair to an STP of another pair at the same level of service, enter BLINK. • If the linkset connects STP nodes to form a pair, enter CLINK. • If the linkset connects a primary STP to a secondary STP, enter DLINK. • If the linkset connects an SP, an SSP, or an SCP to a remote STP, enter ELINK. • If the linkset connects any combination of SPs, SSPs, or SCPs to one another, enter FLINK. • If the network type is TTC7, enter FLINK. • If the network type is JPN7, enter ALINK, ELINK, or FLINK.
NETNAME		alphanumeric (1 to 16 characters)	Network name. Enter the name of a network defined in table C7NETWRK.

CCS7 MTP/SCCP (continued)

Datafilling table C7LKSET (Sheet 2 of 8)

Field	Subfield	Entry	Description
FEPC		see subfields	Far-end point code. This field contains subfield NETTYPE and its subfields. Note: The FEPC of the linkset must be different from the PTCODE of the network. To locate the PTCODE, compare the entry in field NETNAME in table C7LKSET with the same entry in table C7NETWRK.
	NETTYPE	JPN7 ANSI7 CCITT7 NTC7, TTC7	Network type. Enter JPN7, NTC7, ANSI7, CCITT7, or TTC7. Use the following steps: - When the network type is North American, enter ANSI7. Complete subfields NETWORK, CLUSTER, and MEMBER. The OPC that must be different in the network contains these subfields. - When the network type is international, enter CCITT7. Complete subfield FORMAT. - When the network type is Japan public network, enter JPN7. Complete subfields MAINAREA, SUBAREA, and AREAUNIT. - When the network type is TTC7, enter TTC7. Complete subfields MAINAREA, SUBAREA, and AREAUNIT. - When the network type is NTC7, enter NTC7. Complete subfields NMAINAREA, NSUBAREA, and NSIGPOINT. The FEPC contains these subfields.
	MAINAREA	numeric (0 to 255)	Main area. If the entry in subfield NETTYPE is TTC7 or JPN7, enter a number to specify the main area assigned to this office. The range is from 0 to 31. This entry is the first part of the OPC.
	SUBAREA	numeric (0 to 15)	Subarea. If the entry in subfield NETTYPE is TTC7 or JPN7, enter a number to specify the subarea in the main area assigned to the office. The range is from 0 to 15. This entry is the second part of the OPC.

CCS7 MTP/SCCP (continued)**Datafilling table C7LKSET (Sheet 3 of 8)**

Field	Subfield	Entry	Description
	AREAUNIT	numeric (0 to 127)	Area unit. If the entry in subfield NETTYPE is TTC7 or JPN7, enter a number to specify the area unit in the subarea assigned to this office. This entry is the third part of the OPC.
	NETWORK	numeric (0 to 255)	Network identifier. If the entry in subfield NETTYPE is ANSI7, to specify the network identifier assigned to this office. This entry is the first part of the FEPC for the network.
	CLUSTER	numeric (0 to 255)	Cluster. If the entry in subfield NETTYPE is ANSI7, enter a number. Enter a number to specify the cluster assigned to this office. This entry is the second part of the FEPC.
	MEMBER	numeric (0 to 255)	Member. If the entry in subfield NETTYPE is ANSI7, enter a number to specify the member in the cluster assigned to this office. This entry is the third part of the FEPC.
	NMAINAREA	numeric (0 to 255)	NTC7 main area. If the entry in subfield NETTYPE is NTC7, enter a number to specify the main area assigned to this office. The range is from 0 to 255. This entry is the first part of the OPC.
	NSUBAREA	numeric (0 to 255)	NTC7 subarea. If the entry in subfield NETTYPE is NTC7, enter a number to specify the subarea in the main area assigned to this office. The range is from 0 to 255. This entry is the second part of the OPC.
	NSIGPOINT	numeric (0 to 255)	NTC7 signal point identifier. If the entry in subfield NETTYPE is NTC7, enter the number of the signal point assigned to the destination office. The range is from 0 to 255.

CCS7 MTP/SCCP (continued)

Datafilling table C7LKSET (Sheet 4 of 8)

Field	Subfield	Entry	Description
	FORMAT	BASIC, INTL, AUSTRIA, CHINA, or GERMAN and see subfields	CCITT format. If the entry in subfield NETTYPE is CCITT7, enter BASIC, INTL, AUSTRIA, or CHINA. Use the following steps: • If the PC in use is basic international, enter BASIC. Complete subfield PC. • If the PC in use is international, enter INTL. Complete subfields ZONE, AREANETW, and SIGPOINT. • If the PC in use is for Austria, enter AUSTRIA. Complete subfields ZONE, REGION, and SIGPOINT. • If the PC in use is for China, enter CHINA. Complete subfields ZONE, EXCHANGE, and SIGPOINT. • If the PC in use is for Germany, enter GERMAN. Complete subfields NUMAREA, HVST, KVST, and SIGPOINT.
	PC	numeric (0 to 16 383)	Basic point code identifier. If the entry in subfield FORMAT is BASIC, enter a number to specify the FEPC of this office.
	ZONE	numeric (0 to 31)	Zone identifier. This entry is the first part of the FEPC for an international network. If the entry in subfield NETTYPE is CCITT7, enter the zone identifier assigned to this office. Use the following steps: • If the entry in subfield FORMAT is INTL, enter a number from 0 to 7. • If the entry in subfield FORMAT is AUSTRIA, enter a number from 0 to 31. • If the entry in subfield FORMAT is CHINA, enter a number from 0 to 15.
	AREANETW	numeric (0 to 255)	Area/network identifier. If the entry in subfield FORMAT is INTL, enter a number to specify the area/network identifier. This entry is the second part of the FEPC.

CCS7 MTP/SCCP (continued)

Datafilling table C7LKSET (Sheet 5 of 8)

Field	Subfield	Entry	Description
	REGION	numeric (0 to 15)	Region. If the entry in subfield FORMAT is AUSTRIA, enter a number to specify the region number assigned to this office. This entry is the second part of the FEPC.
	EXCHANGE	numeric (0 to 127)	Exchange. If the entry in subfield FORMAT is CHINA, enter a number to specify the exchange in the zone assigned to this office. This entry is the second part of the FEPC.
	SIGPOINT	numeric (0 to 31)	Signal point identifier. This entry is the third part of the FEPC for an international network. If the entry in subfield NETTYPE is CCITT7, enter the number of the signal point assigned to the destination office. Use the following guidelines to determine the number: • If the entry in subfield FORMAT is INTL, enter a number to specify the signal point in the area/network. The range is from 0 to 7. • If the entry in subfield FORMAT is AUSTRIA, enter a number to specify the signal point in the region. The range is from 0 to 31. • If the entry in subfield FORMAT is CHINA, enter a number to specify the signal point in the exchange. The range is from 0 to 7. • If the entry in subfield FORMAT is GERMAN, enter the number of the signal point in the exchange that has been assigned to the far-end switching unit for the specified network. The range is 0 to 7.
	NUMAREA	0 to 15	Numbering area. If the entry in subfield FORMAT is GERMAN, enter the area number assigned to the office.
	HVST	0 to 7	HVST area. If the entry in subfield FORMAT is GERMAN, enter the HVST number assigned to the office.
	KVST	0 to 15	KVST area. If the entry in subfield FORMAT is GERMAN, enter the KVST number assigned to the office.

CCS7 MTP/SCCP (continued)**Datafilling table C7LKSET (Sheet 6 of 8)**

Field	Subfield	Entry	Description
FECLLI		alphanumeric (1 to 16 characters)	Far-end common language location identifier (CLLI). Enter a string to specify the CLLI of the node at the far end of the linkset.
SIGLKTST		Y or N	Signaling link test. To perform an SL test during link activation, enter Y. For other conditions, enter N. When the network type is TTC7 or JPN7, enter N.
RSTEST		Y or N	Routeset test. To specify that a routeset test is to occur when this linkset returns to service, enter Y. For other conditions, enter N. For TTC7 or JPN7 networks or for Australian CCITT7 networks, set this field to N.
INHTEST		Y or N	Management inhibit test. This test audits the inhibit indicators at the two ends of a linkset. The test corrects any problems. If the inhibit test must operate when any link is inhibited, enter Y. In all other conditions, enter N. The default value is N. For TTC7, NTC7, JPN7, or CCITT7 networks used in Australia, set this field to N.
Q704		numeric (0 to 31)	Q704 timer index. Enter the index number of the timer tuple in the Q704 set of timers that exist in table C7TIMER.
CNGSTN		numeric (0 to 63)	Congestion index. From table C7CNGSTN, enter a number to index the tuple that defines the congestion thresholds used by this linkset.

CCS7 MTP/SCCP (continued)

Datafilling table C7LKSET (Sheet 7 of 8)

Field	Subfield	Entry	Description
NUMFLAGS		numeric (1 to 255)	Number of flags sent between consecutive signaling units. Enter the number of flags sent between consecutive signaling units. The greater the number of flags specified, the slower the message signaling units transmit over any one link. The greater the number of flags specified, the lighter the load on the far-end signaling terminal. The default value is 1. The default value sends a single flag between consecutive signaling units. Current data uses the default value to maintain current operation. For CCITT7 networks used in Australia, the value for this field is normally set to 1. The value cannot be greater than 32.
MTPRES		Y or N	Enter Y to begin the MTP restart procedure. Enter N to disable the MTP Restart procedure. The value of this field must be N for the following network types: • TTC7 • JPN7 The default value is Y. Note 1: If an MTP restart procedure is in process, the node notifies CCS network personnel that the changed value for field MTPRES takes effect after the in-progress MTP restart procedure finishes. The following message appears. Note 2: For MTP restart to function, activate this feature with software optionality control (SOC). Refer to the <i>Software Optionality Control User Guide</i>, 297-8991-901 for additional information on the activation of this feature. Note 3: If an MTP Restart procedure is in progress, the modified control parameter shall be effective at the completion of that procedure.

CCS7 MTP/SCCP (continued)**Datafilling table C7LKSET (Sheet 8 of 8)**

Field	Subfield	Entry	Description
CHNGSLS		N	Change SLS. The default value is N. The system does not use this value at this time. Note: The STP SEAS ADD_LS command automatically sets CHNGSLS to N.
SCCPONLY		Y, N	SCCP traffic only traffic type present on the linkset. If SCCP traffic is the only traffic type present on the linkset, enter Y. If other types of traffic are present, enter N.

Datafill example for table C7LKSET

Sample datafill for table C7LKSET appears in the following example. In the example, the linkset type is ALINK. The network name is NATL_NET. The far-end CLLI is ANSI7 4 5 6.

MAP display example for table C7LKSET

LINKSET	FECLLI	LSTYPE	SIGLKTST	NETNAME	RSTEST	FEPC	INHTEST
	Q704		CNGSTN		NUMFLAGS		MTPRES
CHNGSLS	SCCPONLY						
COMA_CCS7_LKSET	ALINK			NATL_NET		ANSI7 4 5 6	
	CCS7_LKSET	Y		Y		Y	
	0	0		1		Y	Y
N	N						

Datafilling table C7LKPARM

Table C7LKPARM contains the CCS7 link parameter values used in a single data structure. The values apply to multiple links in a class that has the same characteristics. Table C7LKPARM only contains datafill for CCS7 links with a signaling ATM adaptation layer (SAAL).

Table size

Table C7LKPARM contains 32 tuples.

CCS7 MTP/SCCP (continued)**Datafill sequence**

There is no requirement to enter data in other tables prior to table CCS7 MTP/SCCP.

Datafilling table C7LKPARM (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
LKPRMKEY			Link parameter key. This field consists of subfields TYPE and ID.
	SPECREF	SAAL	Link protocol type. Enter the SAAL for the link protocol type.
	PARM_IDX	0 to 31	Unique parameter index. Enter the unique parameter index.
MAXCC		1 to 10	Maximum value for VT (CC). Enter the maximum value for the transmitter state variable (VT) connection control (CC) count in protocol data units (PDU). The default value is 4.
MAXPD		5 to 2 120	Maximum value for VT (PD). Enter the maximum value for VT poll data (PD) count in PDUs. The default value is 500.
MAXSTAT		3 to 1 021	Maximum list elements in STAT PDU. Enter the maximum list elements in STAT PDU. The default value is 67.
SSCFN1		50 to 6 250	PDUs sent during normal proving. Enter the number of PDUs sent during normal proving. Enter the limit in units of 10. The default value is 6250 (62500 PDUs).
MAXNRP		1 to 10	Failed proving attempt threshold. Enter the failed proving attempt threshold in terms of retransmitted messages. The default value is 1.

CCS7 MTP/SCCP (continued)**Datafilling table C7LKPARM (Sheet 2 of 2)**

Field	Subfield	Entry	Explanation and action
ISERMALP		0 to 1 000	Exponential smoothing factor. Enter the exponential smoothing factor. Enter the limit in units of .001. The default value is 100 (exponential smoothing factor .1).
ISERMTHR		0 to 1 000	Quality of service threshold. Enter the quality of service threshold. Enter the limit in units of .001. The default value is 244 (quality of service threshold .244)
ISERMN		1 to 25	Number of monitoring intervals. Enter the number of monitoring intervals. The default value is 9.
ISERMNBK		1 to 10	Monitoring intervals per block. Enter the number of monitoring intervals per block. The default value is 3.
RPDU		280 to 1 680	Rate in messages per second. Enter the rate in messages per second for flow controlling received messages. The default value is 840
FLOWBC		1 to 5	Poll frequency using fixed credit flow control. The default value is 2.

Datafill example

Sample datafill for table C7LKPARM appears in the following example.

Map display example for table C7LKPARM

```

LKPRMKEY MAXCC MAXPD MAXSTAT SSCFN1 MAXNRP ISERMALP
ISERMTHR ISERMN ISERMNBK RPDU FLOWBC
-----
SAAL 0 4 500 67 500 1 100 244 9 3 840 3

```

CCS7 MTP/SCCP (continued)

Datafilling table C7LINK

Table C7LINK associates the aspects and the logical view of a link as a member of a set of links or linkset.

When you enter data in this table, you must enter links in a sequence in each link peripheral processor (LPP). You must enter consecutive links on different LPPs.

Note: After you add or delete a link, you must post the linkset again at the MAP display.

Adding a link to table C7LINK

The linkset you are adding to a signaling link (SL) must be defined and must be a CCS7 linkset. The link must be offline when you change fields in the table.

Note: To add a CCS7 link interface unit (LIU7) with a LIUCHANNEL allocation design, the transmission link must exist in table TRKMEM. Other tuples in table C7LINK cannot refer to this LIU7.

Modifying a link in table C7LINK

To include a link in another linkset, detach the link from the current linkset before you attach it to the other linkset. The link is keyed on linkset name and link number.

The link must be offline to change the allocation design, LIU number, or transmission link.

Deleting a link from table C7LINK

A link must be offline before you delete it.

Performing a dump and restore using field DRIDX

Use the following method to perform a dump and restore:

1. Before you perform the restore on a BCS upgrade, set office parameter DUMP_RESTORE_IN_PROGRESS on the BCSn+ side to TRUE. A BCS upgrade is BCS22 and later versions.
2. Before you perform the dump, make field DRIDX visible on the BCSn+ side.

After you complete the dump and restore, delete field DRIDX from table CUSTFLDS on the BCSn+ side.

The value in field DRIDX is 0 to 255, the link number associated with the tuple. Do not modify this field.

CCS7 MTP/SCCP (continued)**Datafill sequence**

Enter data in table C7LINK after you enter data in tables LIUINV, C7LKSET, C7NETWRK, and TRKMEM.

Table size

A maximum of 108 tuples for switch with the BRISC processor.

A maximum of 72 tuples for switch without the BRISC processor.

Table C7LINK can contain a maximum of 255 tuples.

Datafill for table C7LINK appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table C7LINK (Sheet 1 of 5)

Field	Subfield	Entry	Explanation and action
LINKNAME		see subfields	CCS7 link name. This field is a multiple of LINKSET and LINKSLC.
	LINKSET	alphanumeric (1 to 16 characters)	Linkset name. Enter a string to specify the linkset to which the link belongs. You must enter this linkset in table C7LKSET.
	LINKSLC	numeric (0 to 15)	Signaling link number. Enter a number to specify the SL. The number identifies the link in the linkset. The number must be the same at both ends of the linkset. The LINKSET and the LINKSLC identify a link.
LINKDATA		see subfield	C7LINK data area. This field contains subfield ALLOC.

CCS7 MTP/SCCP (continued)

Datafilling table C7LINK (Sheet 2 of 5)

Field	Subfield	Entry	Explanation and action
	ALLOC	LIUBASIC, LIUCHANNEL, STBASIC, STPOOL	Allocation design. This subfield determines the type of link you enter. Enter LIUBASIC if an LIU7 or HSLR is in use to meet the requirements of a DMS-STP switch. Complete subfields LIUTYPE and LIUNO. Note: Any link that belongs to a linkset in table C7GTWLKS must have a LIUBASIC allocation design. The system supports only gateway screening procedures for LIU7- or HSLR-based links. Enter LIUCHANNEL if the LIU7 is a dedicated termination for the specified signaling trunk. Complete subfields LIUTYPE, LIUNO, and TL. Note: The DMS-INode switch does not support STBASIC and STPOOL entries. The STBASIC and STPOOL are visible options. Note: Any link that belongs to a linkset in table C7GTWLKS must have a LIUBASIC or LIUCHANNEL allocation design. The system only supports gateway screening procedures for LIU7 and HSLR links. If you specified the signaling terminal (ST) and the transmission link (TL), enter STBASIC. Enter data in subfields STNO and TL. If you specified the TL and you selected the ST from the pool of STs, enter STPOOL. Enter data in subfields STPOOL and TL.
	STPOOL	0 to 14 or N	Signaling terminal pool number. If the entry in field ALLOC is STPOOL, enter the ST pool number. Enter the ST pool number to specify the pool of STs from which you selected the reserved ST for the link. Table STPOOL defines the ST pool.

CCS7 MTP/SCCP (continued)**Datafilling table C7LINK (Sheet 3 of 5)**

Field	Subfield	Entry	Explanation and action
CLASDATA	TL	see subfields	Transmission link. This subfield contains subfields CLLI and EXTRKNM. If the entry in field ALLOC is STBASIC, STPOOL, or LIUCHANNEL enter data in this subfield to specify the name of the digital trunk that transmits link data. The specified trunk is the startup link.
	CLLI	alphanumeric (1 to 16 characters)	Common language location identifier. Enter the CLLI of the digital trunk that transmits data for the link.
	EXTRKNM	0 to 9 999	External trunk number. Enter the external trunk number for the digital trunk that field CLLI specifies.
	LIUTYPE	LIU7, HSLR	Link interface unit type. Enter LIU7 or HSLR to specify the peripheral module (PM) type for the PM that has the LIU.
	LIUNO	numeric (0 to 511)	Link interface unit number. Enter a number for the LIU. You must enter the LIU number in table LIUINV before you enter data in this field.
	TL	see subfields	Transmission link. This subfield contains subfields CLLI and EXTRKNM.
	CLLI	see CLLI	Digital trunk CLLI. Enter the CLLI of the digital trunk that transmits data for the link.
	EXTRKNM	numeric (0 to 9999)	External trunk number. Enter a number to specify the external trunk of the digital trunk.
		see subfield	Class data. This field contains subfield LINKCLAS.
	LINKCLAS	MTP2, SAAL	Link class. This field contains subfields MTP2 and SAAL.
	MTP2	see subfields	Message transfer part layer 2. This field contains subfield Q703_INDEX.
	Q703_IDX	0 to 31	Enter the index number of the Q703 tuple in table C7TIMER in use for this link.

CCS7 MTP/SCCP (continued)**Datafilling table C7LINK (Sheet 4 of 5)**

Field	Subfield	Entry	Explanation and action
	SAAL	see subfields	Signaling ATM adaptation layer. This field contains subfields SAAL_INDEX, LKPARM_INDEX, and CARRMTC_INDEX.
	SAAL_IDX	0 to 31	Enter the index number of the SAAL tuple in table C7TIMER used for this link.
	LKPARM_IDX	0 to 31	Enter the index number of the SAAL tuple in table C7LKPARM used for this link.
	CARRMTC_IDX	character string (up to 16 characters)	Enter the index number of the HLIU tuple in table CARRMTC used for this link.
Q707		0 to 31	Q707. Enter the index number of the Q707 tuple in table C7TIMER used for this link.
LINKOPT		vector of a maximum of four options	Link options. If less than two multiples are required, end the list with a \$.

CCS7 MTP/SCCP (continued)**Datafilling table C7LINK (Sheet 5 of 5)**

Field	Subfield	Entry	Explanation and action
	OPTIONS	PCR or SLMPR	Options. If you have applied preventative cyclic retransmission (PCR) error correction to the link, enter PCR and enter data in subfield TLTIME. You can enter PCR only if CCS7 Preventative Cyclic Retransmission is present. This ability applies only to CCS7 signaling links that use a LIU-type peripheral module. The LIU-type module must apply to the DMS-STP switch. The basic error correction method applies if use of PCR error correction does not occur. Enter SLMPR if the signaling link marginal performance report is to include the link. This entry value does not require additional data. If the following conditions exists, the report does not include the link unless the link exceeds one of the thresholds: - the Signaling Link Marginal Performance Report is present - you do not enter SLMPR as an option
	TLTIME	1 to 500	Transmission link time. This subfield only appears in table C7LINK if CCS7 PCR is present and the entry in field OPTIONS is PCR Subfield TLTIME contains the time required to send a CCS7 message signaling unit (MSU) from one signaling point (SP) to another SP. This transmission occurs over a satellite transmission link. Enter the amount of time an MSU requires to travel between LIUs through a satellite. This entry must be in 100 ms units. The system uses the value in field TLTIME to calculate the PCR threshold value. The PCR threshold value is the number of unacknowledged bytes the ST transmits before retransmission.

Datafill example for table C7LINK

Sample datafill for table C7LINK appears in the following example. In the example, the linkset is LS_TRAFF_1A. The Q703 and Q707 timer tuples in table C7TIMER use index 0. Options are not specified.

CCS7 MTP/SCCP (continued)**MAP example for table C7LINK**

LINKNAME	LINKDATA		Q703 Q707 LINKOPT	
LS_TRAFF_1A	1	LIUBASIC LIU7 108		
		0 0		\$

Sample datafill for table C7LINK for an HSLR appears in the following example.

MAP example for table C7LINK

LINKNAME	LINKDATA	CLASDATA	Q707	LINKOPT
SSP2_LK 0	LIUBASIC HSLR 1	SAAL 0 0	DEFAULT	0 \$

Error messages for table C7LINK

The following error messages apply to table C7LINK.

Error messages for table C7LINK (Sheet 1 of 2)

Error message	Explanation and action
LINKSET would exceed the maximum of 4 links for the LSTYPE selected.	If the added link exceeds the maximum number of links for this LSTYPE, the system rejects the tuple.
LINKSET would exceed the maximum of 8 links for the LSTYPE selected.	If the added link exceeds the maximum number of links for this LSTYPE, the system rejects the tuple.
LINKSET would exceed the maximum of 4 links for the LSTYPE selected.	A linkset can have a maximum of four high-speed links. If the added link exceeds the maximum number of links for this LSTYPE, the system rejects the tuple.

CCS7 MTP/SCCP (continued)

Error messages for table C7LINK (Sheet 2 of 2)

Error message	Explanation and action
The specified LIU resource is not datafilled in the LIUINV table.	Enter the LIU7 or DLIU in table LIUINV before specifying it in table C7LINK.
The referenced C7TIMER entry does not exist.	You must enter the entries in fields Q703 and Q707 in table C7TIMER before you enter them in table C7LINK.

Datafilling table C7RTESET

Table C7RTESET logically associates linksets that can be routes for each SP or SSP in the network. An office PC can identify an SP or SSP in any network. Each office PC must have a routeset.

The information in this table records routes and linksets that can carry the signaling information to the destination SP or SSP. The system also uses this table for alternative routing decisions.

Modifying a routeset

The following limits apply when you modify a routeset:

- The routeset must be offline.
- You cannot modify the DPC field. Delete the old field and replace it with the new field.
- You cannot change the name of the network to which the routeset belongs. Delete the routeset and enter data in a new routeset with a new network name.
- You can change the list of linksets in a routeset if you enter the complete changed list again.

Deleting a routeset from table C7RTESET

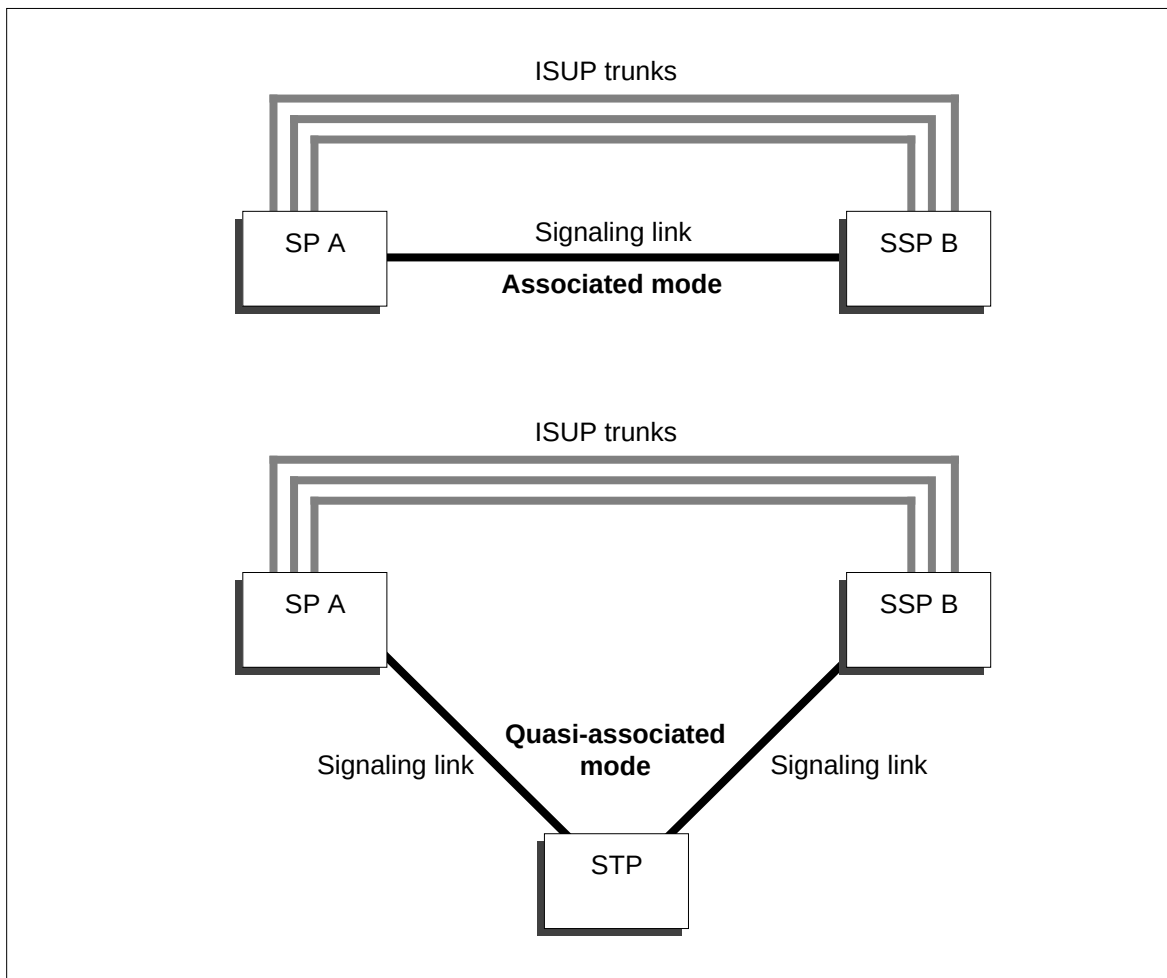
The following restrictions apply when you delete a routeset:

- The routeset must be offline.
- If another table uses the routeset, delete the routeset from the other table before you delete the routeset from C7RTESET.
- You can delete a routeset and not delete all the member linksets. The linksets can belong to several routesets.

CCS7 MTP/SCCP (continued)**Interaction of tables C7RTESET and C7LKSET**

The CCS7 normally has two modes of operation. The modes of operation are associated signaling and quasi-associated signaling.

The two modes of operation appear in the following figure. The route that operates in associated mode uses a linkset that connects the two nodes directly. The route that operates in quasi-associated mode uses a linkset that connects to an STP. Signaling messages transmit over two or more links at the same time and pass through a minimum of one STP. The STP maps the incoming messages from one linkset to a linkset that routes messages to the far-end point code (FEPC).

Associated and quasi-associated signaling

The FEPC can change when you change a tuple in table C7LKSET. When this condition occurs, the system checks all routesets defined in table C7LKSET to

CCS7 MTP/SCCP (continued)

verify that this linkset forms an associated route. If the DPC in table C7RTESET matches the FEPC of the linkset, this route becomes the associated route.

Routeset changes in a routeset tuple can cause the mode of a route (linkset) to change. When this condition occurs, the linkset must be offline before the routeset tuple can change.

When the addition of a routeset tuple occurs, all routes are quasi-associated. The routes assume the associated mode under the following conditions:

- A linkset in table C7LKSET uses the PC of the added routeset as the FEPC.
- The linkset appears as a route in the routeset.
- The route has a different cost.

Performing a dump and restore using field DRIDX

Use the following method to perform a dump and restore:

1. Before you perform the restore on a BCS upgrade, set office parameter DUMP_RESTORE_IN_PROGRESS on the BCSn+ side to TRUE. A BCS upgrade is BCS22 and newer versions.
2. Before you perform the dump, make field DRIDX visible on the BCSn+ side.

At the start of the restore cycle on the BCS+ side, the addition of a tuple occurs to table CUSTFLDS for C7RTESET. This tuple makes field DRIDX visible. The tuple must change to increase the field number.

After you complete the dump and restore, delete the field DRIDX from table CUSTFLDS on the BCSn+ side.

The value in field DRIDX is the routeset number associated with the tuple. The range for the tuple is 0 to 2047. Do not modify this field.

Datafill sequence

Enter data in tables C7LKSET and C7NETWRK before you enter data in table C7RTESET.

Table size

A maximum of 255 tuples.

Expanded routesets in an SSP or STP office can have 0 to 2047 tuples.

Memory allocation is constant for the maximum table size.

CCS7 MTP/SCCP (continued)

Datafill for table C7RTESET appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7RTESET (Sheet 1 of 6)

Field	Subfield	Entry	Explanation and action
ROUTESET		see subfield	Routeset name. This field contains subfield DESTNAME.
	DESTNAME	alphanumeric (1 to 16 characters)	Destination name. Enter a string to specify the name of the routeset for the switching office.
NETNAME		alphanumeric (1 to 16 characters)	Network name. Enter the name of the network for the switching office. This name must exist in table C7NETWRK. The CCS7 network name uses numeric characters only.
TFPBCAST		Y or N	Transfer prohibited broadcast. If the switch is an STP and routeset management messages broadcast to all nearby SPs when the routeset is not available, enter Y: If messages are not broadcast or if the switch is not an STP, enter N.
DPC		see subfields	Destination point code. This field contains subfield NETTYPE.

CCS7 MTP/SCCP (continued)**Datafilling table C7RTESET (Sheet 2 of 6)**

Field	Subfield	Entry	Explanation and action
	NETTYPE	JPN7 ANSI7 CCITT7 NTC7 or TTC7 and see subfields	Network type. This subfield contains the network type. If the network type is North American, enter ANSI7. Complete a vector of a maximum of three multiples of subfield PC. If the network type is international, enter CCITT7 and complete subfield FORMAT. If the network type is Japan public network, enter JPN7. Complete a vector of a maximum of three multiples of subfield PC. If the network type is TTC7, enter TTC7. Complete subfields MAINAREA, SUBAREA, and AREAUNIT. If the network type is NTC7, enter NTC7. Complete subfields NMAINAREA, NSUBAREA, and NSIGPOINT. The three subfields that make up the DPC must be different from any other in that network.
	FORMAT	BASIC, INTL, AUSTRIA, CHINA, or GERMAN and see subfields	CCITT format. If the entry in subfield NETTYPE is CCITT7, enter BASIC, INTL, AUSTRIA, or CHINA. Use the following guidelines: • If the PC is basic international, enter BASIC. Complete subfield PC. • If the PC is international, enter INTL. Complete subfields ZONE, AREANETW, and SIGPOINT. • If the PC is for Austria, enter AUSTRIA. Complete subfields ZONE, REGION, and SIGPOINT. • If the PC is for China, enter CHINA. Complete subfields ZONE, EXCHANGE, and SIGPOINT. • If the PC is for Germany, enter GERMAN. Complete subfields NUMAREA, HVST, KVST, and SIGPOINT.

CCS7 MTP/SCCP (continued)

Datafilling table C7RTESET (Sheet 3 of 6)

Field	Subfield	Entry	Explanation and action
	PC	numeric (0 to 16 383)	Basic point code identifier. If the entry in subfield FORMAT is BASIC, enter a number from 0 to 16 383. The number specifies the PC of this office. If the entry in subfield NETTYPE is ANSI7, enter a vector of a maximum of three values for the DPC. Enter the vector with the following guidelines: - The first value is a number from 0 to 255 that specifies the network identifier assigned to this office. This entry is the first part of the DPC. - The second value is a number from 0 to 255 that specifies the cluster assigned to this office. This entry is the second part of the DPC. - The third value is a number from 0 to 255 that specifies the member within the cluster assigned to this office. This entry is the third part of the DPC.
	MAINAREA	numeric (0 to 31)	Main area. If the entry in subfield NETTYPE is TTC7, enter a number from 0 to 31. The number specifies the main area assigned to this office. This entry is the first part of the DPC.
	NMAINAREA	numeric (0 to 255)	NTC7 main area. If the entry in subfield NETTYPE is NTC7, enter a number from 0 to 255. The number specifies the main area assigned to this office. This entry is the first part of the DPC.
	SUBAREA	numeric (0 to 15)	Subarea. If the entry in subfield NETTYPE is TTC7, enter a number from 0 to 15. The number specifies the subarea in the main area assigned to this office. This entry is the second part of the DPC.
	NSUBAREA	numeric (0 to 255)	NTC7 subarea. If the entry in subfield NETTYPE is NTC7, enter a number from 0 to 255. The number specifies the subarea in the main area assigned to this office. This entry is the second part of the DPC.

CCS7 MTP/SCCP (continued)**Datafilling table C7RTESET (Sheet 4 of 6)**

Field	Subfield	Entry	Explanation and action
	AREAUNIT	numeric (0 to 127)	Area unit. If the entry in subfield NETTYPE is TTC7, enter a number from 0 to 127. The number specifies the area unit in the subarea assigned to this office. This entry is the third part of the DPC.
	ZONE	numeric (0 to 31)	Zone identifier. This entry is the first part of the DPC for an international network. If the entry in subfield NETTYPE is CCITT7, enter the zone identifier assigned to this office. Use the following guidelines: • If the entry in subfield FORMAT is INTL, enter a number from 0 to 7. • If the entry in subfield FORMAT is AUSTRIA, enter a number from 0 to 31. • If the entry in subfield FORMAT is CHINA, enter a number from 0 to 15.
	AREANETW	numeric (0 to 255)	Area-network identifier. If the entry in subfield FORMAT is INTL, enter a number to specify the area-network identifier. This entry is the second part of the DPC.
	REGION	numeric (0 to 15)	Region. If the entry in subfield FORMAT is AUSTRIA, enter the region number assigned to this office. This entry is the second part of the DPC.
	EXCHANGE	numeric (0 to 127)	Exchange. If the entry in subfield FORMAT is CHINA, enter a number to specify exchange in the zone assigned to this office. This entry is the second part of the DPC.

CCS7 MTP/SCCP (continued)

Datafilling table C7RTESET (Sheet 5 of 6)

Field	Subfield	Entry	Explanation and action
ROUTES	SIGPOINT	numeric (0 to 31)	Signal point identifier. This entry is the third part of the DPC for an international network. If the entry in subfield NETTYPE is CCITT7, enter the number of the SP assigned to the destination office. Use the following guidelines: - If the entry in subfield FORMAT is INTL, enter a number from 0 to 7. The number specifies the signal point in the area-network. - If the entry in subfield FORMAT is AUSTRIA, enter a number from 0 to 31. The number specifies the signal point in the region. - If the entry in subfield FORMAT is CHINA, enter a number from 0 to 7. The number specifies the signal point in the exchange. If the entry in field FORMAT is GERMANY, enter a numeric value between 0 and 7 specifying the signal point code of the exchange.
	NSIGPOINT	numeric (0 to 255)	NTC7 signal point identifier. If the entry in subfield NETTYPE is NTC7, enter the number of the SP assigned to the destination office. The number to enter is 0 to 255.
	NUMAREA	0 to 15	Numbering Area. If the entry in field FORMAT is GERMAN, enter the area number assigned to the office.
	HVST	0 to 7	HVST. If the entry in field FORMAT is GERMAN, enter the HVST area assigned to the office.
	KVST	0 to 15	KVST. If the entry in field FORMAT is GERMAN, enter the KVST area assigned to the office.
			Signaling routes. This field is a multiple of LINKSET and COST. The field is an alphanumeric vector of a maximum of six elements. Enter \$ to indicate the end of the vector.

CCS7 MTP/SCCP (continued)**Datafilling table C7RTESET (Sheet 6 of 6)**

Field	Subfield	Entry	Explanation and action
	LINKSET	alphanumeric (1 to 16 characters)	Linkset name. Enter the linkset name defined earlier in table C7LKSET. The linkset is part of the routeset.
	COST	numeric (0 to 99)	Cost. Enter a number to define the cost of the use of this route. The cost of each route must be equal or greater than the cost of the preceding route. This number defines the priority of the routes in the routeset. For JPN7, enter 0.

Datafill example for table C7RTESET

Sample datafill for table C7RTESET appears in the following example. In the example, the routeset is C7RTESET10. The network name the routeset uses is C7NETWRK10. The route for C7RTESET10 associates with linkset C7LKSET10.

MAP example for table C7RTESET

ROUTES	NETNAME	TFBCAST	DPC
ROUTES			
C7RTESET10	C7NETWRK10	N	ANSI7 (4)(5)(6) \$ (C7LKSET10 0)\$

Datafilling table C7NETSSN

Table C7NETSSN provides the set of remote PCs and subsystems.

The SCCP routes messages that contain a DPC and a subsystem number (SSN). A subsystem is an application that uses the CCS7 network, like Enhanced 800 (E800) or Automatic Calling Card Service (ACCS).

The key to this table is the routeset name in table C7RTESET.

Adding a point code

Route information for the PC must be in table C7RTESET.

You can add a PC with or without subsystems. If PCs have subsystems, enter the subsystem names and numbers in a separate list for each PC.

CCS7 MTP/SCCP (continued)

Modifying a point code or subsystem

To change a list of subsystems, enter a list that contains new, altered, and unaltered entries. You cannot delete a subsystem from a list if the subsystem is offline. You cannot delete a subsystem from a list if the subsystem is part of a replicate pair in the C7RPLSSN table. To delete a subsystem that is part of a replicate pair, remove or modify the tuple that identifies the pair. The tuple is in table C7RPLSSN.

Subsystem numbers cannot be changed for TUP, ISUP, and OAM.

Deleting a point code or subsystem

The PC and all subsystems must be offline.

Global title translations (GTT) in table C7GTT cannot have this PC or any of its subsystems as a resulting point. If any GTTs have these results, change the GTTs before you attempt the deletion.

You cannot delete a subsystem that is a member of a replicate pair. If a subsystem is a member of a replicate pair, remove or modify the tuple that identifies the pair. The tuple is in table C7RPLSSN.

Before you delete a tuple in table C7NETSSN, determine if table MSGRTE refers to the PCNAME. If table MSGRTE refers to a PCNAME, remove the reference from table MSGRTE. After you remove the reference, delete the tuple in table C7NETSSN.

If table C7LOCSSN or C7RSSCRN refers to the point code name, you must remove the reference you delete the tuple.

Datafill sequence

Enter data in table C7NETSSN after you enter data in table C7RTESET. Enter data in table C7NETSSN before you enter data in tables C7RSSCRN, C7LOCSSN, C7RPLSSN, C7GTTYPE, and C7GTT.

Table size

Table C7NETSSN can contain a maximum of 256 tuples. The number of entries in table C7RTESET determines the number of PCs allowed. The maximum number of entries is 256 tuples.

CCS7 MTP/SCCP (continued)

Datafill for table C7NETSSN appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7NETSSN (Sheet 1 of 3)

Field	Subfield	Entry	Explanation and action
PCNAME		see subfield	Point code name. This field contains subfield PC_NAME.
	PC_NAME	alphanumeric (1 to 16 characters)	Point code name. Enter the CLLI of the remote PC in the CCS7 network. Routing information for the PC must exist in table C7RTESET.
XUDTIND		Y or N	Extended unit data indicator. Enter Y (yes) to indicate that the remote node can support XUDT/XUDTS message types. Enter N (no) to indicate that the remote node cannot support XUDT/XUDTS message types. The default value is Y.
CGT1		0 to 31	<i>Congestion timer CGT1</i> Enter an integer that starts the timer when the congestion is rising. Each integer represents 1 s. Timer CGT1 and an internal timer of 5 s specify the time during which the system discards all messages with the priority level lower than the internal congestion level. When the congestion level is higher than 1, and no transfer control (TFC) or message transfer part (MTP) messages arrive during the CGT1 plus 5 s period, the level of congestion decreases and timer CGT2 starts. The default value is 0, which deactivates this field. The recommended value is 2. Note 1: The entries in fields CGT1 and CGT2 must both be either 0 or other than 0. Note 2: This field applies to ITU networks only. For all other networks, the only valid entry is 0, which deactivates the ITU SCCP Congestion Control feature.

CCS7 MTP/SCCP (continued)

Datafilling table C7NETSSN (Sheet 2 of 3)

Field	Subfield	Entry	Explanation and action
CGT2		0 to 31	<i>Congestion timer CGT2</i> Enter an integer that starts the congestion timer when congestion is decreasing. Each integer represents 1 s. When this timer expires, the internal timer of 5 s starts and the congestion level increases or decreases, depending on the reception or lack of reception of TFC or MTP messages. When the congestion level changes to 0, normal operation of a node starts. The default value is 0, which deactivates this field. The recommended value is 1. Note 1: The entries in fields CGT1 and CGT2 must both be either 0 or other than 0. Note 2: This field applies to ITU networks only. For all other networks, the only valid entry is 0, which deactivates the ITU SCCP Congestion Control feature.
SSNAMES		see subfields	Subsystem names and numbers. This field is a vector of a maximum of 27 multiples consisting of subfields SSNAME and SSNUMBER. Separate each entry in the vector with a blank space. Enter \$ to indicate the end of the vector.

CCS7 MTP/SCCP (continued)

Datafilling table C7NETSSN (Sheet 3 of 3)

Field	Subfield	Entry	Explanation and action
	SSNAME	ACCS ACCTSS AUTHSS BNS CMS E800 ISUP N00 OAM SCPACCS SCPBNS SCPE800 TCN TUP 800P NSSTCN REPLDIGS or alphanumeric (1 to 8 characters)	Subsystem name. Enter the subsystem name. Use one of the following acronyms or operating companies can define their own: • ACCS (Automatic Calling Card Service) • ACCTSS (Account Code Validation) • AUTHSS (Author Code Verification) • BNS (Billed Number Screening) • CMS (Call Management Service) • E800 (Enhanced 800 Service) • ISUP (ISDN user part) • N00 (N00 calling service) • OAM (operation, administration, and maintenance) • SCPACCS (SCP ACCS database) • SCPBNS (SCP BNS database) • SCPE800 (SCP E800 database) • TCN (Travel Card Number) • TUP (telephone user part) • 800P (Canadian 800 Plus, if functional group NTS00006 is present) • NSSTCN (Network Service Software Travel Card Number) • REPLDIGS (replace original dialed digits)
	SSNUMBER	numeric (2 to 255)	Subsystem number. Enter the subsystem number at this PC. If you specify TUP, the subsystem number is 2. If you specify ISUP, the subsystem number is 3. If you specify OAM, the subsystem number is 4.

Datafill example for table C7NETSSN

Sample datafill for table C7NETSSN appears in the following example.

CCS7 MTP/SCCP (continued)

MAP display example for table C7NETSSN

PCNAME	XUDTIND	CGT1	CGT2	SSNAMES
CONG_RS3	Y	2	1	(SUB1 56) \$

Datafilling table C7RSSCRN

Table C7RSSCRN provides a list of concerned nodes for a remote subsystem PC group.

Table C7RSSCRN has a key with two parts. The first part is the PC. The second part is the subsystem name. You must enter both parts in table C7NETSSN.

Note: If the remote PC or the subsystem number (SSN) changes status, an SCCP management (SCMG) message appears. The message appears on the last PC in which you entered data.

Adding a tuple

You need the following information to add a tuple:

- a remote PC and subsystem group
- a list of PC names

Modifying a tuple

To modify a list of concerned nodes, enter the whole list again and include the new names.

Datafill sequence

Enter data in table C7RSSCRN after you enter data in table C7NETSSN.

Table size

Table C7RSSCRN has a maximum size of 256 tuples. The number of PC and subsystem groups in table C7NETSSN limits the actual size of the table.

CCS7 MTP/SCCP (continued)

Datafill for table C7RSSCRN appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7RSSCRN (Sheet 1 of 3)

Field	Subfield	Entry	Explanation and action
PCSSN		see subfields	Point code-subsystem combination. This field contains subfields PCNAME and SSNAME.
	PCNAME	see CLLI	Point code name. Enter the CLLI of the remote PC to which the list of concerned nodes applies.

CCS7 MTP/SCCP (continued)

Datafilling table C7RSSCRN (Sheet 2 of 3)

Field	Subfield	Entry	Explanation and action
	SSNAME	ACCS ACCTSS AUTHSS BNS CMS E800 INTERWRK ISUP NMS N00 OAM PRA PVN SCPACCS SCPBNS SCPE800 TCN TUP 800P NSSTCN REPLDIGS or alphanumeric (1 to 8 characters)	Subsystem name. The subsystem name is taken from datafill in field PCSSN of table C7NETSSN. Possible entries are as follows: • ACCS (Automatic Calling Card Service) • ACCTSS (Account Code Validation) • AUTHSS (Author Code Verification) • BNS (Billed Number Screening) • CMS (Call Management Service) • E800 (Enhanced 800 Service) • INTERWRK (used for features interworked between primary rate access (PRA) and CCS7) • ISUP (ISDN user part) • NMS (Network Message Service) • N00 (N00 calling service) • OAM (operation, administration, and maintenance) • PRA (primary rate access) • PVN (private virtual network) • SCPACCS (SCP ACCS database) • SCPBNS (SCP BNS database) • SCPE800 (SCP E800 database) • TCN (Travel Card Number) • TUP (telephone user part) • 800P (Canadian 800 Plus, if functional group NTS00006 is present) • NSSTCN (Network Service Software Travel Card Number) • REPLDIGS (replace original dialed digits)

CCS7 MTP/SCCP (continued)**Datafilling table C7RSSCRN (Sheet 3 of 3)**

Field	Subfield	Entry	Explanation and action
PCNAMES		vector	Remote concerned nodes list. This field is a vector of a maximum of eight PC names of nodes. You must inform these nodes of changes at the remote subsystem. Enter the PCs in table C7NETSSN. Enter \$ to signify the end of the vector.

Datafill example for table C7RSSCRN

Sample datafill for table C7RSSCRN appears in the following example.

MAP display example for table C7RSSCRN

PCSSN		PCNAMES
RS_SSP1	ACCS	(RS_SCP1) (RS_SCP2)\$

Datafilling table C7LOCSSN

Table C7LOCSSN provides information for the local subsystem. The table includes traffic mix information requirements, replication information, and a list of adjacent intermediate node translators (ADJTRANSNODES). The table also includes a list of concerned nodes (PCNAMES).

Adding a tuple to table C7LOCSSN

Replicated PC information can be in the ADJTRANSNODES or the PCNAMES list. The information must exist in table C7NETSSN and must not exist in table C7RPLSSN for this subsystem.

If the value in field TFMI is Y, supply a unique list of ADJTRANSNODES.

The PCNAMES list must not contain any PCs from the ADJTRANSNODES list.

Modifying a tuple in table C7LOCSSN

The subsystem must be offline for you to change the subsystem number. You cannot change the subsystem numbers for TUP, ISUP, and OAM.

You can add new names to the PCNAMES and ADJTRANSNODES lists. To delete names from these lists, enter the whole list again, omitting the names that are not required.

CCS7 MTP/SCCP (continued)**Deleting a tuple from table C7LOCSSN**

To delete a tuple, ensure the following conditions are met:

- The subsystem must be offline.
- The GTTs cannot result in this system in table C7GTT.

Datafill sequence

Enter data in table C7LOCSSN after you enter data in table C7NETSSN.

Table size

Table C7LOCSSN can contain a maximum of 253 tuples.

Datafill for table C7LOCSSN appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7LOCSSN (Sheet 1 of 3)

Field	Subfield	Entry	Explanation and action
SSNAME		ACCS	Subsystem name. The subsystem name is from datafill in field PCSSN of table C7NETSSN. The following are possible entries:
		ACCTSS	
		AIN01	
		AUTHSS	
		BNS	
		CNAMD	
		CMS	
		E800	
		INTERWRK	
		ISUP	
		NMS	
		NSSTCN	
		N00	
		OAM	
		PRA	
		PVN	
		REPLDIGS	
		SCPACCS	
		SCPBNS	
		SCPE800	
		TCN TUP 800P	
			ISUP (ISDN user part)

CCS7 MTP/SCCP (continued)

Datafilling table C7LOCSSN (Sheet 2 of 3)

Field	Subfield	Entry	Explanation and action
			NMS (Network Message Service) NSSTCN (Network Service Software Travel Card Number) N00 (N00 calling service) OAM (operations, administration, and maintenance) PRA (primary rate access) PVN (private virtual network) REPLDIGS (replace dialed digits) SCPACCS (SCP ACCS database) SCPBNS (SCP BNS database) SCPE800 (SCP E800 database) TCN (Travel Card Number) TUP (telephone user part) 800P (Canadian 800 Plus, if functional group NTS00006 is present)
SSNUMBER		numeric (2 to 254)	Subsystem number. Enter the subsystem number at this PC. The number must be different in table C7LOCSSN.
MININST		numeric (1 to 32)	Minimum number of instances. Enter the minimum number of instances of a local subsystem that must be available (in service) to provide normal service. This value determines the aggregate status of the subsystem.
REPLINFO		see subfields	Replicate information. This field contains subfields REPL_FLAG and PCNAME.
	REPL_FLAG	Y or N	Replication flag. Enter Y if a replicated subsystem is present. Complete subfield PCNAME. Enter N if a replicated subsystem is not present.

CCS7 MTP/SCCP (continued)**Datafilling table C7LOCSSN (Sheet 3 of 3)**

Field	Subfield	Entry	Explanation and action
TFMI	PCNAME	alphanumeric (1 to 16 characters)	Point code name. Enter the CLLI of the replicated subsystem in the CCS7 network. You must enter the CLLI in table C7NETSSN. The CLLI is a PC. The subsystem name must be present at this PC in C7NETSSN.
		see subfields	Traffic mix information. This field contains subfields TFMI and ADJTRANSNODES.
	TFMI	Y or N	Traffic mix information flag. Enter Y if the local subsystem requires the traffic mix information. Complete subfield AINODES. Enter N if the local subsystem does not require traffic mix information.
PCNAMES	AINODES	alphanumeric (1 to 16 characters)	Adjacent intermediate node translator list. This subfield is a vector of a maximum of eight PC names of adjacent nodes. A node is adjacent if it is the last node that does a full translation to a local subsystem. You must enter the PCs in table C7NETSSN. Enter \$ to indicate the end of the vector.
		alphanumeric (1 to 16 characters)	Concerned node list. This field is a vector of a maximum of 64 PC names of concerned nodes. You must inform a concerned node of status changes at the local subsystem. Any concerned node not in the AINODES list must be in this list. You must enter the PCs in table C7NETSSN. Enter \$ to signify the end of the vector.

Datafill example for table C7LOCSSN

Two samples of datafill for table C7LOCSSN appear in the following example. In the first example, the traffic mix information flag is Y. The PCs of the adjacent nodes are SCPA and STPB. In the second example, the subsystem is Calling Name Delivery (CNAMD).

CCS7 MTP/SCCP (continued)

MAP display example for table C7LOCSSN

SSNAME TFMI	SSNUMBER PCNAMES	MININST	REPLINFO
E800 Y (SCPA)	254 (STPB)	4 \$	Y
CNAMD N	240 \$	1	N

Datafilling table C7RPLSSN

Table C7RPLSSN provides a set of remote system replicate pairs. If only one member of a replicated pair from table C7RPLSSN is in table C7GTT, only that member carries signaling messages.

Both members of a replicated pair can be in table C7RPLSSN. One member of the pair can have a higher cost. When this condition occurs, the system uses the higher cost member when the GTT result in table C7GTT is not available. The GTT result is not available because of a failure or a manual busy state. If both members have the same cost, the traffic can be load-shared between the two subsystems.

Adding a subsystem

The addition of a subsystem requires the subsystem name and a list of the PCs at which the replicate subsystems reside. You must enter the subsystem that corresponds at the supplied PCs in table C7NETSSN. You must specify traffic mix information for each replicate pair.

Modifying a subsystem

To modify a subsystem, enter the whole list again and add the new subsystem names. You can change the following subfields:

- REPL_NODE1
- REPL_NODE2
- TFMI_USERS

Fields REPL_NODE1 and REPL_NODE2 are the first and second PCs of the replicate pair. You can delete or modify the PCs if no GTTs result in the replicate pair.

CCS7 MTP/SCCP (continued)

The TFMI_USERS is the flag that indicates if the SCMG generates subsystem backup routing (SBR) and subsystem normal routing (SNR) messages. The messages are for traffic mix information for this pair.

Deleting a subsystem

You can delete a set of replicate pairs if no GTTs result in any of the pairs for this subsystem. Deletion of a subsystem does not require the affected subsystem to be offline.

Datafill sequence

Enter data in table C7RPLSSN after you enter data in table C7NETSSN. Table C7NETSSN must define the network subsystem that is a member of a replicate pair.

Table size

The maximum size of the table is 256 tuples. The table size is the number of subsystems defined in table C7NETSSN.

CCS7 MTP/SCCP (continued)

Datafill for table C7RPLSSN appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7RPLSSN (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
SSNAME		ACCS, ACCTSS, AUTHSS, BNS, CMS, CNAMD, E800, INTERWRK, ISUP, NMS, NSSTCN, N00, OAM, PVN, REPLDIGS, SCPACCS, SCPBNS, SCPE800, TCN, TUP, 800P, or alphanumeric (one to eight characters)	Subsystem name. The subsystem name is from datafill in field PCSSN of table C7NETSSN. The following are possible entries: ACCS (Automatic Calling Card Service) ACCTSS (Account Code Validation) AUTHSS (Author Code Verification) BNS (Billed Number Screening) CMS (Call Management Service) CNAMD (Calling Name Delivery) E800 (Enhanced 800 Service) INTERWRK (used for features interworked between PRA and CCS7) ISUP (ISDN user part) NMS (Network Message Service) NSSTCN (Network Service Software Travel Card Number) N00 (N00 calling service) OAM (operation, administration, and maintenance) PVN (private virtual network) REPLDIGS (replace original dialed digits) SCPACCS (SCP ACCS database) SCPBNS (SCP BNS database) SCPE800 (SCP E800 database) TCN (Travel Card Number) TUP (telephone user part) 800P (Canadian 800 Plus, if functional group NTS00006 is present)

CCS7 MTP/SCCP (continued)**Datafilling table C7RPLSSN (Sheet 2 of 2)**

Field	Subfield	Entry	Explanation and action
REPLIST		vector	Replicate list. This field is a vector of a maximum of 12 members that represent the following information: - a pair of PC names - a flag that indicates if SCMG generates messages for traffic mix information Enter the first part of the pair in subfield REPL_NODE1. Enter the second part in subfield REPL_NODE2. Enter the traffic mix information in subfield TFMI_USERS. Enter routing information for the subsystem in table C7NETSSN. Enter \$ to signify the end of the vector.
	REPL_NODE1	alphanumeric	Replicate node 1. Enter the first of the pair of PC name CLLIs where the replicate subsystems reside. You must enter the PC in field PCNAME of table C7NETSSN.
	REPL_NODE2	alphanumeric	Replicate node 2. Enter the second of the pair of PC name CLLIs where the replicate subsystems reside. You must enter the PC in field PCNAME of table C7NETSSN.
	TFMI_USERS	Y or N	Traffic mix information users. In an ANSI network, if SCMG generates SBR and SNR messages for this pair, enter Y. For any other condition, enter N.

Datafill example for table C7RPLSSN

Sample datafill for table C7RPLSSN appears in the following example. In the example, set the traffic mix information flag to Y.

MAP display example for table C7RPLSSN

SSNAME	REPLIST

E800	(	SCP3	SCP4	Y)	\$

CCS7 MTP/SCCP (continued)

Datafilling table C7GTTYPE

Table C7GTTYPE provides the mapping of:

- a user-defined GTT name (GTTNAME)
- a network-defined GT type number (GTNUM)
- a predefined GTT identifier (GTTID)

Table C7GTTYPE has a one-part key: the user-defined GTT name. Each entry in field GTTNAME that associates with a DMS software supported subsystem has a unique GTTID. Data entry of the GTTID field occurs when an entered GTT name corresponds to a GTT type that DMS software supports.

An application defines a translation with the following information:

- a numbering plan (implicit, telephony, or ISDN)
- an encoding design (BCD)
- a function to map the GTT to a CCS7 network address that uses the numbering plan and encoding design

Each GTT type is given a network-defined value. As a result, the values are represented as values in a symbolic range. This table provides the mapping of the symbolic identifier to the network-defined number value.

If the GTT name is an AIN value, the entry in field GTTID must be \$.

Adding a GTT type

To add a GTT type, you require the following information:

- the GTT name
- the network-defined numerical value for the translation type. This value must be unique. This value is a three-part number: it is a combination of the GTT type, numbering plan, and encoding design.
- the pre-defined GTT identifier — if the switching unit is an SSP, enter the GTT type. For any other condition, enter \$.

Modifying a GTT type

You can modify the entry in subfield GTNUM as long as the three-part number remains unique.

Deleting a GTT type

Delete a GTT type only if definitions of translations for this type are not present in table C7GTT.

CCS7 MTP/SCCP (continued)**Datafill sequence**

Enter data in table C7GTTYPE after you enter data in table C7NETSSN and before table C7GTT.

Table size

Table C7GTTYPE can contain a maximum of 32 translation types.

Datafill for table C7GTTYPE appears in the following table. Only the fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7GTTYPE (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
GTTNAME		see subfield	Global title translations name. This field contains subfield GTTYPER_NAME.
	GTTYPER_NAME	alphanumeric (1 to 16 characters)	Global title translations type name. Enter the GTT name. The user can define the GTT name or the name can be one of the pre-defined GTT names.
GTTYPER		see subfield	Global title translations type. This field contains subfield NETWK.
	NETWK	CCITT7, NTC7, or ANSI7 and see subfields	Network. Enter CCITT7, NTC7, or ANSI7 to specify the network. The system does not support JPN7 and TTC7. If you enter CCITT7 or NTC7, complete subfields GTNUM, NA, and NP. If you enter ANSI7, complete subfield GTNUM.
	GTNUM	numeric (0 to 255)	Global title number. Enter a number to specify the new translation type.
	NA	NA_UNKNOWN NA_SPARE_1 NA_SPARE_2 NATL, INTL NA_SPARE_5 NA_SPARE_6 NA_SPARE_7	Nature of address. Enter NA_UNKNOWN, NA_SPARE_1, NA_SPARE_2, NATL, INTL, NA_SPARE_5, NA_SPARE_6, or NA_SPARE_7.

CCS7 MTP/SCCP (continued)

Datafilling table C7GTTYPE (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
GTTID	NP	NP_UNKNOWN E164	Numbering plan. Enter the appropriate numbering plan.
		NP_SPARE_2	
		NP_SPARE_3	
		NP_SPARE_4	
		NP_SPARE_5	
		E212 E214	
		NP_SPARE_8	
		NP_SPARE_9	
		NP_SPARE_A	
		NP_SPARE_B	
		NP_SPARE_C	
		NP_SPARE_D	
		NP_SPARE_E	
		NP_SPARE_F	
		AUTHGT	
		ACCSGT	
		ACCTGTBNSGT	
		CNAMDGT	
		E800BELL- CORE,	
		E800ISDN	
		E800TELE- PHONY N00GT	
		PSTNGTPVNGT	
		PRAGT TCNGT	
		NSSTCNGT	
		REPLDIG- SGT	
GTTID		AUTHGT	Global title translations identifier. Enter one of the predefined GTT identifiers. For any other condition, enter \$.
		ACCSGT	
		ACCTGTBNSGT	
		CNAMDGT	
		E800BELL- CORE,	
		E800ISDN	
		E800TELE- PHONY N00GT	
		PSTNGTPVNGT	
		PRAGT TCNGT	
		NSSTCNGT	
		REPLDIG- SGT	
		AUTHGT	
		ACCSGT	
		ACCTGTBNSGT	
		CNAMDGT	
		E800BELL- CORE,	
		E800ISDN	
		E800TELE- PHONY N00GT	
		PSTNGTPVNGT	
		PRAGT TCNGT	
		NSSTCNGT	
		REPLDIG- SGT	

Datafill example for table C7GTTYPE

Sample datafill for table C7GTTYPE appears in the following example. In the example, the GTT name is E800TRANS.

MAP display example for table C7GTTYPE

GTTNAME	GTTTYPE	GTTID
E800TRANS	ANSI7 1	(E800BELLCORE) \$

CCS7 MTP/SCCP (continued)**Error messages for table C7GTTYPE**

The following error messages apply to table C7GTTYPE.

Error messages for table C7GTTYPE (Sheet 1 of 2)

Error message	Explanation and action
There are GT translations of this type in the C7GTT table.	The tuple that you tried to delete contains a translation type that exists in table C7GTT. The system rejects the request to delete the tuple.
The nil GTTYPE name cannot be entered as the GTTID.	The C7_translation_name NIL_GT_TRANS_NAME exists in field GTTID. You cannot use it.
The GTTYPE is invalid.	This message can appear when you try to change the entry in field GTTYPE. It indicates a software error. Contact your next level of support.
The GTTID is being used by another translation type.	Choose a different GTTID that is not in use.
Need to first delete GTT name from table BNSPARMS or CCVPARMS.	You must delete the GTTNAME from a TOPS-related table before you can delete it from this table.
The Global Title Translation Type 255 is reserved for future expansion.	Do not use value 255. Enter a different value.
The GTTYPE given is currently in use by another GTTNAME.	The entry in field GTTNAME is present in another tuple.
Error occurred while writing the GTTYPE tuple.	A software error occurred. Try to enter the tuple again. If the system rejects the entry, contact your next level of support.
Indexing data for the C7GTTYPE table has been corrupted.	A software error occurred. Contact your next level of support.

CCS7 MTP/SCCP (continued)**Error messages for table C7GTTYPE (Sheet 2 of 2)**

Error message	Explanation and action
There is no software to support the given GTTID.	The entry in field GTTID is wrong. The entry must be a predefined identifier.
Unable to Allocate C7GTTYPE Resources. Use GTTUSAGE "TUPLERATIO" command to check state of resource.	There are two possible reasons for this response. One, the digilator blocks associated with this translation type are fully allocated. Two, the digilator structure associated with this translation type has corrupt data. Run the command as suggested and contact your next level of support.

Datafilling table C7GTT

Table C7GTT provides the mapping of a GT of a translation type to a CCS7 network address. The MTP and the SCCP use the address to route a message to the destination.

A GT is an application address. For example, dialed digits in an E800 number are a GT.

The following list contains possible CCS7 network addresses, the result of a GTT, and limits that apply to the three list elements:

- ERROR
 - Additional translations are not possible.
- PCONLY
 - One or two PCs can be given. If the costs are the same, the switch can loadshare messages between the two PCs. If the costs are different, the switch always transmits messages to the lower cost PC unless a problem exists. If a problem exists, primary routing, backup routing, or both are used to transmit the message to the higher cost PC.
 - You must enter PCs in table C7NETSSN. If the switch is a DMS SSP, the entry in subfield ROUTING cannot be SSN.
- SSNONLY
 - Only one result can be given.
 - The local PC is assumed.
 - Table C7LOCSSN must define the subsystem.

CCS7 MTP/SCCP (continued)

- PCSSN
 - One or two remote subsystems (RSS) can be given. You must enter the RSS in table C7NETSSN. If two RSSs are given, replicate and enter the RSSs in table C7RPLSSN.
- PCNEWGT
 - One or two PCs can be given. If the costs are the same, the switch can loadshare messages between the two PCs. If the costs are different, the switch always transmits messages to the lower cost PC unless a problem exists. If a problem exists, primary routing, backup routing, or both are used to transmit the message to the higher cost PC.
 - Table C7NETSSN must define PCs.
- NEWGT
 - This entry is not correct for an ANSI network.
 - The two results NEWGT_PCONLY or NEWGT_PCSSN can be given. If the entry is NEWGT_PCONLY, the following conditions apply:
 - One or two PCs can be given. If two are given, the PCs must be different and GT costs must be the same.
 - You must enter PCs in table C7NETSSN. If the switch is a DMS SSP, the entry in subfield ROUTING cannot be SSN.
 - If the entry is NEWGT_PCSSN, the following conditions apply:
 - One or two RSSs can be given. You must enter the RSS in table C7NETSSN. If two RSSs are given, replicate the RSSs and enter in table C7RPLSSN.

The table has the following three-part key:

1. the user-defined translation-type name, entered earlier in table C7GTTYPE
2. field FROMDIG (from digits)
3. field TODIG (to digits)

For each translation, there can be one or two results. If there are two results, SCCP routing control selects the result with the lower cost. If the costs are equal, messaging is loadshared. If the best route is not available, use of an alternate route occurs.

When only one result is given and that result is a member of a replicate pair, only that member carries signaling messages. The other member will never

CCS7 MTP/SCCP (continued)

carry traffic unless it is given as a result in table C7GTT. The member of the replicate pair exists in table C7RPLSSN.

Adding a tuple to table C7GTT

The addition of a GTT requires the following information:

- internal translation name
- lower bound of the GT range for which the set of results apply
- upper bound of the GT range for which the set of results apply
- list of results

Modifying a tuple in table C7GTT

To modify the list of results, repeat those that have not changed and enter any new ones.

The operating company can modify the entries in subfield COST. The cost of two results can differ only if the results are a point code and subsystem number.

To split a range, position on a subrange and change the results.

Deleting a tuple from table C7GTT

The operating company can delete a range of GT values. But because GT ranges are unique, the deletion leaves a gap in the translation table.

Datafill sequence

Datafill table C7GTT after you enter global title translations in table C7GTTTYPE.

You must enter data in table C7GTT after you enter data in tables C7NETSSN and C7GTTTYPE. If there are translations results to the SSNONLY field, you must enter table C7LOCSSN with the local subsystem.

If a GTT results in two PCSSNs, you must replicate the PCSSNs in table C7RPLSSN.

Performing a dump and restore using field DRIDX

Use the following method to perform a dump and restore:

1. In table OFCSTD, set the office parameter DUMP_RESTORE_IN_PROGRESS to Y.
2. Before you perform the dump, make the field DRIDX visible on the BCSn+ side. To perform this action, add the field to table CUSTFLDS.

CCS7 MTP/SCCP (continued)

After the dump and restore is complete, delete the tuple C7GTT 3 from table CUSTFLDS. Set office parameter DUMP_RESTORE_IN_PROGRESS to N.

To dump from BCS24 and BCS25 to BCS27 or greater, the operating company must format the data again. For each tuple, use 32 767 as the DRIDX value for insertion on the BCSn+ side.

Table size

The system automatically allocates space for the table. The number of GTs to translate and the number of digits in each translation determines the table size.

Datafill for table C7GTT appears in the following table. Only fields that apply to CCS7 MTP/SCCP appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table C7GTT (Sheet 1 of 6)

Field	Subfield	Entry	Explanation and action
GTTKEY		see subfields	Global title translations key. This field contains subfields GTTNAME, FROMDIG, and TODIG.
	GTTNAME	alphanumeric (1 to 16 characters)	Global title translations name. Enter the GTT name. The user can define the GTT, or the GTT can be one of the predefined GTT names. You must enter the GTT in table C7GTTTYPE.
	FROMDIG	numeric (1 to 18 digits)	From digits. Enter a number to identify the lower bound of the GT range for which the translation results apply.
	TODIG	numeric (1 to 18 digits)	To digits. Enter a number to identify the upper bound of the GT range for which the translation results apply. This subfield has the same form as the FROMDIG subfield. For example, if the entry in subfield FROMDIG is 326 and the entry in subfield TODIG is 388 the translation results apply to all GTTs that start within the range of 326 to 388. The entry in subfield TODIG must be greater than or equal to the entry in subfield FROMDIG.
GTTRSLT		see subfield	Global title translations result. This field contains subfields RESULT and subfields.

CCS7 MTP/SCCP (continued)**Datafilling table C7GTT (Sheet 2 of 6)**

Field	Subfield	Entry	Explanation and action
	RESULT	ERROR NEWGT PCNEWGT SSNONLY PCONLY PCSSN	Global title translations result type. Enter the format of the results. If the entry is ERROR, do not complete additional fields. If the entry is NEWGT, complete subfields GTI, ACTDIG, RESTYPE, and ROUTING. If the entry is SSNONLY, complete subfield SSN_RESULTS. The subsystem name must exist in table C7LOCSSN. If the entry is PCNEWGT, complete subfield PC_NEW_GT_RESULTS. If the entry is PCONLY, complete subfields PC_RESULTS, and ROUTING. If the entry is PCSSN, complete subfields PC_SSN_RESULTS, and ROUTING.
	GTI	\$, GTI_1,GTI_2, GTI_3, or GTI_4 and see subfields	Global title indicator. This refinement sets the format of the outgoing called party GT. To convert the format of the GT to a global title indicator (GTI) of 0001 and update the NA value, enter GTI_1 and datafill refinement NA. To convert the format of the GT to a GTI of 0010 and update the GTNUM value, enter GTI_2 and datafill refinement GTNUM. To convert the format of the GT to a GTI of 0011 and update the GTNUM and NP values, enter GTI_3 and datafill refinements GTNUM and NP. To convert the format of the GT to a GTI of 0100 and update the GTNUM, NP, and NA values, enter GTI_4 and datafill refinements GTNUM, NP, and NA. To leave the current GTI value unchanged, enter \$.
	GTNUM	numeric (0 to 255)	New translation type. Enter a number to specify the new translation type.

CCS7 MTP/SCCP (continued)

Datafilling table C7GTT (Sheet 3 of 6)

Field	Subfield	Entry	Explanation and action
	NA	NA_UNKNOWN, NA_SPARE_1 NA_SPARE_2 NATL INTL NA_SPARE_5 NA_SPARE_6 NA_SPARE_7	Nature of address. Enter the address type
	NP	NP_UNKNOWN E164 NP_SPARE_2 NP_SPARE_3 NP_SPARE_4 NP_SPARE_5 E212, E214 NP_SPARE_8 NP_SPARE_9 NP_SPARE_A NP_SPARE_B NP_SPARE_C NP_SPARE_D NP_SPARE_E NP_SPARE_F	Numbering plan. Enter the appropriate numbering plan.
	ACTDIG	DELETE_DIGS, ADD_DIGS, REPLACE_DIGS, or \$	Action on digits. This subfield defines the digit manipulation to perform. Use the following guidelines: • If the entry is DELETE_DIGS, complete subfield NUM. • If the entry is REPLACE_DIGS, complete subfields FROMDIG, TODIG, and DIGITS. • If the entry is ADD_DIGS, complete subfield DIGITS. To skip to the next field and leave the digits unchanged, enter \$.
	FROMDIG	numeric to 18 digits)	(0 From digit. Enter a number to specify the first digit.
	TODIG	numeric to 18 digits)	(0 To digit. Enter a number to specify the last digit.

CCS7 MTP/SCCP (continued)**Datafilling table C7GTT (Sheet 4 of 6)**

Field	Subfield	Entry	Explanation and action
	DIGITS	numeric (1 to 18 digits)	Digit register. Enter a string of a maximum of 18 digits.
	NUM	numeric (0 to 18)	Number of digits. Specify the number of digits to delete.
	RESTYPE	NEWGT_PCONLY or NEWGT_PCSSN and see subfields	Result type. This subfield defines the type of NEWGT result. Use the following guidelines: - If the entry is NEWGT_PCONLY, complete subfield PC_RESULTS. - If the entry is NEWGT_PCSSN, complete subfield PC_SSN_RESULTS.
	PC_RESULTS	see subfields	Point code results. This subfield is a vector of a maximum of two multiples of subfields PCNAME and COST. Assign a cost to each PCNAME. The cost must be identical for both PCNAMEs because the PCNAMEs operate in loadsharing mode. Table C7NETSSN must define the PCNAMEs.
	PC_SSN_RESULTS	see subfields	Point code subsystem number results. This subfield is a vector of a maximum of two multiples of subfields PCNAME, SSNAME, and COST. Table C7NETSSN must define both network subsystems. If the system gives two results, Table C7RPLSSN must define the results as replicates. Associate a cost with each PCSSN. If the costs are different, the result with the lower cost is the primary system. The other result is the backup. Messages route on the backup system only if the primary system fails. If the system gives only one result, backup routing does not occur.
	PCNAME	alphanumeric (1 to 16 characters)	Point code name. Enter a string to specify one or two PC names. The PCs must exist in table C7NETSSN. If there are two PCs, the PCs are loadsharing replicates for the translation.

CCS7 MTP/SCCP (continued)**Datafilling table C7GTT (Sheet 5 of 6)**

Field	Subfield	Entry	Explanation and action
	SSNAME	character string	Subsystem name. If the entry in subfield RESULT is SSNONLY, enter one subsystem name. If the entry in subfield RESULT is PCSSN, enter one or two subsystem names. Both subsystem names must exist in table C7NETSSN. If there are two subsystem names, the names must be in table C7RPLSSN.
	COST	numeric (0 to 99)	Cost. Enter a number to specify a routing preference. If a GTT has two results, the result with the lowest cost is the preferred route. If the two results have the same cost, the routes share the traffic load. If the entry in subfield RESULT is PCONLY or PCNEWGT and two items exist in the vector, the items must have the same cost. If the entry in subfield RESULT is PCSSN and two items exist in the vector, the entries can have different costs. Enter SSN if the following conditions apply: - The entry in subfield RESULT is PCONLY and the SSN is in the called party address. This entry indicates that with the addition of the new DPC, the system can route the message to the destination. - The entry in subfield RESULT is PCSSN and both the final destination SSN and the DPC are determined. This entry indicates that additional translation is not required and the system can route the message to the destination.
	SSN_RESULTS	see subfield	Subsystem number results. This subfield contains subfield SSNAME.
	SSNAME	character string	Subsystem name. Enter the subsystem name.

CCS7 MTP/SCCP (continued)

Datafilling table C7GTT (Sheet 6 of 6)

Field	Subfield	Entry	Explanation and action
	PC_NEW_ GT_RESULTS	see subfields	Point code results. This subfield is a vector of a maximum of two multiples of subfields PCNAME, GTTNUM, and COST. A cost must associate with each PCNAME. The cost must be identical for both PCNAMEs because the PCNAMEs operate in loadsharing mode. Table C7NETSSN must define the PCNAMEs. The GTNAME in the result is the same type as the translated GT.
	GTTNUM	numeric (0 to 255)	Global title translations number. Enter the GTT number.
	ROUTING	GT or SSN and see subfields	Routing. This subfield determines the routing of the message. If the entry in subfield RESULT is NEWGT or PCSSN and the final destination SSN has been determined but the destination point code has not been determined, enter GT. This indicates that the final destination SSN must be placed in the called party address and further translation is required at the new node to determine the DPC. If the entry in RESULT is NEWGT or PCSSN and both the final destination SSN and the DPC have been determined, enter SSN. This indicates that no further translation is required and the message can be routed to its destination. If the entry in subfield RESULT is PCONLY and the SSN is not in the called party address, enter GT. This indicates that the destination point code (DPC) must be altered and the message routed to that node for further translation. If the entry in subfield RESULT is PCONLY and the SSN is already in the called party address, enter SSN. This indicates that, with the addition of the new DPC, the final destination of the message is known and the message can be routed to its destination.

CCS7 MTP/SCCP (continued)**Datafill example for table C7GTT**

Sample datafill for table C7GTT appears in the following example. In the example, the GTT name is E800BELLCORE. The translation result applies to digits 80026.

MAP display example for table C7GTT

GTTKEY		GTTRSLT	
E800BELLCORE		80026	80026
		PCSSN (IPTRSET2 800P 0) \$ SSN	

Error messages for table C7GTT

The following error messages apply to table C7GTT. The system uses the symbols &\$ to represent a PC.

Error messages for table C7GTT (Sheet 1 of 4)

Error message	Explanation and action
Must be at least one point code result given.	When you add a tuple to this table and you specify a RESULT of PCONLY, you must include a PCNAME.
Must be at least one local subsystem result given.	When you add a tuple to this table and you specify a RESULT of SSNONLY, you must include a value for SSNAME.
Must be at least one network subsystem result given.	When you add a tuple to this table and you specify a RESULT of PCSSN, you must include values for PCNAME and SSNAME.
Must be at least one point code and new GT result given.	When you add a tuple to this table and you specify a RESULT of PCNEWGT, include values for PCNAME and GTTNUM.
PC &\$ is not defined in the C7NETSSN table.	The PCNAME you specified in a tuple in this table must exist in table C7NETSSN.
The point code &\$ is not defined in the C7NETSSN table.	The PCNAME you specified in a tuple in this table must exist in tables C7NETSSN and C7RTESET.

CCS7 MTP/SCCP (continued)**Error messages for table C7GTT (Sheet 2 of 4)**

Error message	Explanation and action
The network subsystem at &\$ is not defined in the C7NETSSN table.	The SSN does not appear as an available subsystem at the given PC.
Local subsystem is not defined.	When you add a tuple to this table and you specify a RESULT of SSONLY, the SSNAME must exist in table C7LOCSSN.
The two network subsystems must be replicates, defined in the C7RPLSSN.	The replicated subsystems must exist in table C7RPLSSN.
Unable to read from the GT translator.	An attempt to change a tuple failed because the data could not be found in the internal data structure. Try to change the tuple again. If the operation fails, delete the tuple. Enter the tuple again with the changes.
Data corruption in the C7GTT table.	The system generated a SWERR log. Contact your next level of support.
The TODIGs must be greater than the FROMDIGs.	The FROMDIG values must be less than or equal to TODIG values.
Update operation fails, range overlap.	An internal data structure error occurred. Contact your next level of support.
Invalid data entered.	A software error occurred. Contact your next level of support.
GT Result Table full.	A software error occurred. Contact your next level of support.
Global title translator table full.	A software error occurred. Contact your next level of support.
If two results are provided, the PCs must be unique.	If two results exist, the results must be different. If the results are the same the system rejects the tuple. Enter the tuple again with different PCs.

CCS7 MTP/SCCP (continued)**Error messages for table C7GTT (Sheet 3 of 4)**

Error message	Explanation and action
The subsystem &\$ cannot be datafilled.	To enter a subsystem in this table, the subsystem must exist in table C7NETSSN or in table C7LOCSSN. The subsystem must be in table C7NETSSN if the subsystem is on another node. The subsystem must be in table C7LOCSSN if the subsystem is on the same node. If the subsystem does not exist in one of the two tables, the system rejects the tuple.
The cost of the two results must be identical.	When you specify a RESULT of PCONLY or PCNEWGT, the entry in field COST must be identical for both results.
The GTNAME given is not defined in the GTTYPE table.	The entry in subfield GTTNAME must exist in table C7GTTTYPE.
Invalid internal index for this GTT result. Check that the DUMP_RESTORE_IN_PROGRESS office parm in table OFCSTD, is set correctly.	The DUMP_RESTORE_IN_PROGRESS office parameter is Y and the system found an internal index that is not correct. If a dump and restore is not in progress, the office parameter must be N.
FROMDIG must start from digit one.	If the added tuple indicates a result of NEWGT and REPLACE_DIGS, the entry in this subfield cannot be zero.
TODIG must start from digit one.	If the added tuple indicates a result of NEWGT and REPLACE_DIGS, the entry in this subfield cannot be zero.
TODIG must be greater than or equal to FROMDIG.	If the added tuple indicates a result of REPLACE_DIGS, the entry in TODIG cannot be smaller than FROMDIG.
NEWGT not compatible with ANSI network in C7GTTTYPE.	NEWGT is not a correct entry in field GTTRSLT if the entry in subfield NETWK in table C7GTTTYPE is ANSI.
The GTTNAME &\$ is not datafilled in the C7GTTTYPE table.	The GTTNAME must exist in table C7GTTTYPE.

CCS7 MTP/SCCP (end)

Error messages for table C7GTT (Sheet 4 of 4)

Error message	Explanation and action
GT Translator not allocated for translations of this type.	A software error occurred. Contact your next level of support.
Invalid routing, only GT is allowed in this office.	If the office is an SSP, the entry in subfield ROUTING cannot be SSN. The entry must be GT.
Maximum table size exceeded.	You cannot add another tuple to the table.

Tools for verifying translations

Not applicable

SERVORD

Not applicable

CUSD

Functionality code

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

BCS30 and later versions

Requirements

The CUSD feature does not have requirements.

Description

The operating company can deny the CFUSP feature to separate POTS lines that do not require access to CFUSP. This action occurs when CFUSP is enabled for each office.

Vertical features allow subscribers to activate and use the call forwarding services. The subscribers do not subscribe to or pay a fee each month for the service. The subscribers can activate and use the vertical services features at any time. The operating company charges the calls of the subscribers according to the number of activations of the feature.

The CFUSP vertical services feature allows single-party POTS lines in an AMA office to use the Call Forwarding (CFW) option once. To use the CFW option, the single-party POTS line in an AMA office must dial the access code 72#.

The NTX045AA feature package provides CFUSP for each office. The NTX045AA feature also allows the operating company to deny access of CFUSP to any specified POTS line.

With control in the whole office, this feature turns table OFCENG parameter USP_ENABLED on or off. When the office parameter is set to Y for on, a subscriber can dial the 72# access code to activate CFW for one use. The subscriber must use a single-party POTS line to use CFW. The subscriber must not have the flat-rate CFW option added to the line. When the operating company adds flat-rate CFW to a line, the operating company charges the subscriber a set rate. The operating company charges the subscriber a set rate for a specified period of time for complete use of CFW.

The operating company can add the Call Forwarding Usage Sensitive Denial (CUSD) option to the line. The USP_ENABLED parameter must be set to Y.

CUSD (continued)

The subscriber must not request CFUSP. The line option denies activation of the CFW option for separate subscribers.

When the USP_ENABLED office parameter is off, calls with the CFW flat-rate option added to the line can use CFW. The parameter is off when the parameter is set to N. Use the table editor to enter data in table CFW or SERVORD to add the CFW option. This action adds the flat-rate option adds to a line. The operating company charges the subscriber a flat rate for the flat-rate CFW option. The rate occurs for a specified period of time like a month.

User perspective

The following conditions must be present to allow the activation of CFW on a line:

- The office must have feature package NTX045AA.
- The office must set table OFCENG parameter USP_ENABLED to Y.
- The subscriber must dial 72#.

This action allows the subscriber to use CFW once. The operating company charges the subscriber according to the number of times CFW activates. If the subscriber does not require CFW and requires the CFUSP ability disabled, the subscriber must contact the operating company. This action allows the operating company to deny CFUSP for that line.

The following conditions must be present to allow the activation of CFW on a line:

- The operating company must have the NTX045AA feature package.
- The operating company must set table OFCENG parameter USP_ENABLED to N.
- The subscriber must request the CFW option.

With the CFW option, the subscriber pays a flat rate for a specified amount of time.

You cannot enter the CUSD option through SERVORD when parameter USP_ENABLED is set to N. You cannot enter data directly in table CFW when parameter USP_ENABLED is set to N. The following message appears when the CUSD option adds to a line:

CALL FORWARDING-USP IS UNAVAILABLE.

CUSD (continued)**Operation**

This package provides two methods to control CFUSP. The two methods are office-wide control and individual-line control.

Office-wide control

This package provides the office parameter in table OFCENG, USP_ENABLED. The following two sections describe the datafill for the parameter and the correct CFUSP treatment.

USP_ENABLED set to Y

A single-party POTS line in a Bellcore format office can dial the access code 72# to activate CFW for one use. This action occurs when OFCENG parameter USP_ENABLED is set to Y.

The following section describes the activation sequence, the datafill in table CFW, and the generation of CFW100 and CFW102 logs. The CFUSP is enabled in the traffic office when table OFCENG parameter CFU_ENABLED set to Y. When this condition occurs, the subscriber can activate CFUSP in one of two methods. These two procedures are as follows:

- The subscriber activates CFUSP when the forward-to party answers.
 - The subscriber dials 72# and listens for a confirmation tone. The following datafill indicates that the feature is added to the line. The feature is not active at this stage because the WSTATE field is set to I.

```
0 LCL 613 6211234 NSCR Y U 1 I          $ N N
```

- The subscriber dials the forwarded-to number. The system enters data in table CFW for call forwarding. The system enters a U for CFUSP in the WCNTL field (Call Forwarding type). If the journal file is not active, the system generates a CFW102 log. This log describes the current datafill in table CFW.

```
0 LCL 613 6211234 NSCR Y U 1 W 6211091 N N
```

- When the forwarded-to phone rings, the forwarded-to party answers.
- The CFUSP feature is active. Datafill in table CFW is as follows:

The A in the WSTATE field indicates that the feature is active. If the journal file is not active, the system generates a CFW100 log. This log corresponds to the current datafill in table CFW. The system generates a call code 031 AMA record with structure code 00614 to indicate that

CUSD (continued)

call forwarding is active. The SERV FEAT field is set to zeros to indicate that the system added the CFUSP feature to the line.

```
0 LCL 613 6211234 NSCR Y U 1 A 6211091 N N
```

- The subscriber activates CFUSP when the forwarded-to party does not answer.
 - The subscriber dials 72# and listens for a confirmation tone. The following datafill indicates that the system adds the feature to the line. The feature is not active at this stage because the WSTATE field is set to I.

```
0 LCL 613 6211234 NSCR Y U 1 I $ N N
```

- The subscriber dials the forwarded-to number. Table CFW enters data for call forwarding. The system enters a U for CFUSP in the WCNTL field (Call Forwarding type). If the journal file is not active, the system generates a CFW102 log. This log describes the current datafill in table CFW.
- When the forwarded-to phone rings and the forwarded-to party does not answer, the subscriber goes on-hook. The system adds the CFUSP feature to the line. The feature is in the waiting state. The WSTATE field in table CFW is set to W. This field indicates that CFUSP is ready for activation. The datafill in table CFW is as follows:

```
0 LCL 613 6211234 NSCR Y U 1 W 6211091 N N
```

- To activate the feature, the subscriber must repeat steps a and b of this section. The subscriber must listen for the confirmation tone, and go on-hook.
- The CFUSP feature is active. The datafill in table CFW is as follows:

```
0 LCL 613 6211234 NSCR Y U 1 A 6211091 N N
```

The A in the WSTATE field indicates that the feature is active. If the journal file is not active, the system generates a CFW100 log. The log corresponds to the current datafill in table CFW. The system generates a call code 031 AMA record with structure code 00614 to indicate that CFW is active. The SERV FEAT field is set to zeros to indicate that the system added the CFUSP feature to the line.

To deactivate the CFUSP feature, the subscriber dials 73#. When this action occurs, the system deletes the entry in table CFW for that line. If a journal file is not active, the system generates a CFW100 log and a CFW102 log. These logs indicate that the system deactivated the feature and deleted the tuple in table CFW. The system generates a call code 031

CUSD (continued)

AMA record with structure code 00096 to indicate that call forwarding deactivated.

Note: The SERV FEAT field is set to zeros to indicate that the system used the CFUSP feature.

If a subscriber has flat-rate CFW and dials the access code 72# to acquire CFUSP, the system activates the CFW option. The system handles the option as a flat-rate option.

The DMS generates the required AMA records to bill the subscriber. Refer to *Bellcore Format Automatic Message Accounting Reference Guide*, for additional information on billing.

USP_ENABLED set to N

A subscriber with a single-party POTS line in a Bellcore format office who dials the access code 72# cannot use the CFUSP feature. This limit is present when table OFCENG parameter USP_ENABLED is set to N.

The first default value for this parameter is N. The operating company must change the datafill to Y to enable CFUSP for the whole office.

When this parameter is set to N, the datafill of the CUSD option through SERVORD does not occur. When this option adds to a line and the office parameter is set to N, the following message appears:

CALL FORWARDING-USP IS UNAVAILABLE.

If a subscriber attempts to use CFUSP when the feature is disabled, the system sends the line to treatment. The operating company can enter data for treatment for denied lines in table TONES. The system can provide an announcement to indicate that the subscriber cannot use the service.

Individual line control

The operating company can assign the CUSD for each line. This option is available for subscribers that do not require the CFUSP feature when the office has CFUSP active. Operating company personnel can use the SERVORD facility to assign this option. Subscribers that do not require access to the CFUSP feature can request the addition of the CUSD option to the line.

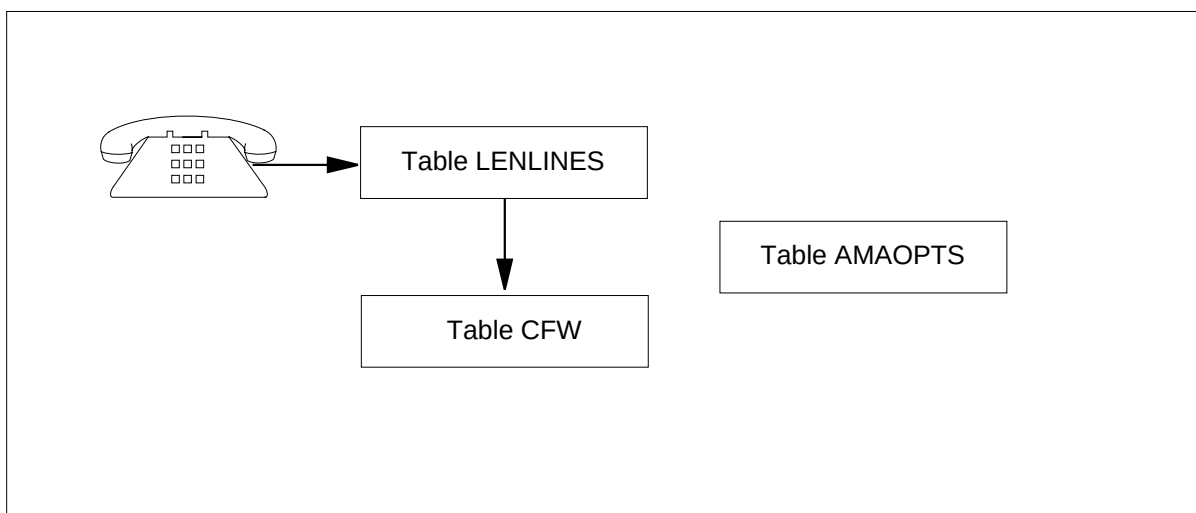
CUSD (continued)**Translations table flow**

The CUSD translations tables appear in the following list:

- Table LENLINES contains information about line equipment numbers (LENs), the associated directory numbers (DN), and options that apply to the lines.
- Table CFW allows the system to forward incoming calls to a station for a subscriber automatically to a specified telephone number.
- Table AMAOPTS controls the activation and schedule of the recording options for local, toll, and high-revenue calls. Each option has one tuple. Each option has a schedule. The schedule defines if an option is active, active at specified times, or not active.

The CUSD translation process appears in the following flowchart.

Table flow for CUSD



The system forwards the base number (613) 621-1421 to 621-1091 with a call code of 031. This base number is example data for the following table. Datafill content used in the flowchart appears in this table.

Datafill example for CUSD

Datafill table	Example data
LENLINES	HOST LM 0 0 19 02 S 0 6211421 DT 0 (CUSD) \$
CFW	0 LCL 613 6211421 NSCR Y U 1 A 6211091 N N
AMAOPTS	CALL_FWD ON

CUSD (continued)

Limits

The CUSD feature does not have limits.

Interactions

The following paragraphs describe the interactions between CUSD and other functionalities.

The following features can function with CUSD.

BR0801

Call Forward Busy Line

BR0802

Call Forward Don't Answer

AL0362

POTS Multiple Simultaneous Call Forwarding

The CUSD feature affects billing for the Integrated Business Network (IBN) customer-activated CFW options. The activation records generated with the IBN customer-activated CFW options use structure code 00614 and not structure code 00096. This action prepares IBN and POTS activation records for billing.

If a subscriber attempts to use CFUSP when the feature is disabled for the whole office, the system sends that line to treatment.

A subscriber with flat-rate CFW can dial the access code 72# to use the CFUSP feature. In this condition, the CFW option functions as a flat-rate option. The CFUSP feature does not override the current flat-rate CFW option.

Activation/deactivation by the end user

To enable the CFUSP feature in the office, operating company personnel must set table OFCENG parameter USP_ENABLED to Y. This setting allows the subscriber to activate CFUSP in one of two methods. These two procedures are as follows:

Activation/deactivation of CUSD by the end user

To deactivate the CFUSP feature, dial 73#.

CUSD (continued)

At your telephone

- 1 To activate CFOSP when the forward to party answers, the subscriber dials 72#.
Response:
 1. The subscriber listens for a confirmation tone, and dials the forwarded-to number.
 2. When the forwarded-to phone rings, the forwarded-to party answers.
 3. The system activates the CFUSP feature.
- 2 To activate CFUSP when the forwarded to party does not answer, the subscriber dials 72#.
Response:
 1. The subscriber listens for a confirmation tone, and dials the forwarded-to number.
 2. When the forwarded-to phone rings and the forwarded-to party does not answer, the subscriber goes on-hook.
 3. The system adds the CFUSP feature to the line. The feature is not active.
 4. The subscriber listens for a confirmation tone, and dials the forwarded-to number. The subscriber dials 72#.
 5. The system activates the CFUSP feature.

Billing

The CFUSP feature and flat-rate CFW for POTS lines can generate three types of Bellcore AMA billing records. These records are activation, deactivation, and continuation. The system generates these records when the CALL_FWD field in table AMAOPTS is set to ON.

Activation records use call code 031 with structure code 00614. Deactivation and continuation records use the same call code with structure code 00096. With CFUSP, the system generates activation records for the flat-rate POTS CFW subscriber. In previous BCSs, the system only generated continuation and deactivation records for POTS CFW.

The system generates two structure codes for call code 031 (Call Forwarding). These two structure codes are as follows:

00614

Call Forwarding activation

00096

Call Forwarding continuation and deactivation records

CUSD (continued)

Information for structure code 00614 appears in the following table.

Structure code 00614

Information	Number of characters
Hexadecimal identifier	2
Structure code	6
Call type	4
Sensor type	4
Sensor identification	8
Recording office type	4
Recording office identification	8
Activation or deactivation date	6
Timing indicator	6
Study indicator	8
Service feature	4
To activate NPA	4
To activate a number	8
Forward to overseas indicator	2
Forward to NPA	6
Forward to number	8
Activation or deactivation time	8

The AMA record generated for structure code 00096 contains the same fields as in structure code 00614. This record contains the elapsed time, current or

CUSD (continued)

deactivation date, and current or deactivation time fields. Structure code 00096 contains the following fields:

Structure code 0096

Information	Number of characters
Hexadecimal identifier	2
Structure code	6
Call type	4
Sensor type	4
Sensor identification	8
Recording office type	4
Recording office identification	8
Activation or deactivation date	6
Timing indicator	6
Study indicator	8
Service feature	4
To activate NPA	4
To activate a number	8
Forward to overseas indicator	2
Forward to NPA	6
Forward to number	8
Activation or deactivation time	8
Elapsed time	10
Present or deactivation date	6
Present or deactivation time	8

The SERV FEAT field in the billing records distinguishes between a flat-rate CFW subscriber and a CFUSP subscriber. A flat-rate CFW subscriber pays a set rate for a specified amount of time for the option. A CFUSP subscriber pays a fixed rate for a specified amount of time for the option. For the flat-rate

CUSD (continued)

CFW subscriber, the SERV FEAT field is set to 12 for activation, deactivation, and continuation records. A deactivation record for a flat-rate subscriber appears in the following example.

Call code 031 (CFUSP deactivation AMA record)

```
HEX ID:AA STRUCT CODE:00096C CALL TYPE: 031C SENSOR
TYPE:036C SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID:
0000000C DATE:60228C TIMING IND: 00000C STUDY IND:0220000C
SERV FEAT:012C ACT NPA:613C ACT NO:6211235C
FWD OVERSEAS IND:1C FWD NPA:00613C FWD NO:6211092C
ACT TIME:1718187C ELAPSED TIME:000012390C
PRESENT DATE:60228C PRESENT TIME:1718397C
```

For the CFUSP subscriber, the SERV FEAT field is set to zeros for activation, deactivation, and continuation records. A deactivation record that a CFUSP subscriber generates appears in the following example. The SERV FEAT field is set to zeros.

Call code 031 (CFUSP deactivation AMA record)

```
HEX ID:AA STRUCT CODE:00096C CALL TYPE:031C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFC TYPE:036C REC OFC ID: 0000000C
DATE:60228C TIMING IND: 00000C STUDY IND:0000000C
SERV FEAT:000C ACT NPA:613C ACT NO:6211235C
FWD OVERSEAS IND:1C FWD NPA:00613C FWD NO:6211092C
ACT TIME:1718187C ELAPSED TIME:000012390C
PRESENT DATE:60228C PRESENT TIME:1718397C
```

The system generates AMA records for the forwarded leg of a call when the system can bill a call. For the leg of the call that the system can bill, the AMA record contains a 12 in the SERV FEAT field. This condition indicates a forwarded call. The value 12 indicates call forwarding for flat-rate and CFUSP.

The third character of the TIMING IND field in the billing records indicates the amount of time a CFW option is active. This field can have the following values:

- 0—This value occurs in deactivation records when CFW activation did not continue for two midnights. This value is in all activation records.
- 5—This value occurs in deactivation records when the CFW option was active over two midnights. The system deactivated the option before the third midnight.

CUSD (continued)

- 1—This value occurs in continuation records that the system generates on the third midnight after activation. This value indicates the time between activation and the second midnight.
- 2—This value occurs in continuation records that the system generates for each midnight reached after the third midnight. This value indicates the interval between the previous two midnights.
- 3—This value indicates that the subscriber deactivated the CFW option after a minimum of three midnights occurred. Records with this value indicate the time between the last two midnights and the time of deactivation.

Station Message Detail Recording

The CUSD feature does not affect Station Message Detail Recording.

Datafilling office parameters

The office parameters that the CUSD feature uses appear in the following table. Refer to the *Office Parameters Reference Manual* for additional information about office parameters.

Office parameters used by CUSD

Table name	Parameter name	Description and action
OFCENG	USP_ENABLED	This parameter allows the operating company to activate call forwarding for the whole office.

Datafill sequence

The tables that require datafill to implement the CUSD feature appear in the following table. The tables appear in the correct entry order.

Datafill requirements for CUSD (Sheet 1 of 2)

Table	Function of table
OFCENG	Office Engineering. This table contains data on engineering parameters for the office. Refer to Datafilling office parameters for how Usage Sensitive Pricing affects office parameters.
CFW (Note)	Call Forwarding. This table allows a subscriber to have incoming calls to a station forward automatically to a specified directory number.
Note: Enter data in this table through SERVORD. A datafill procedure or example is not available. Refer to SERVORD for how to use SERVORD to enter data in this table.	

CUSD (continued)**Datafill requirements for CUSD (Sheet 2 of 2)**

Table	Function of table
AMAOPTS	Automatic Message Counting Option. This table controls the activation and scheduling of the recording options for local, toll, and high-revenue calls. Each option has one tuple. A schedule associates with each option. The schedule defines if an option is active, active only at specified times, or inactive.
LENLINES (Note)	Line Equipment Number. This table contains information about LEN, the associated DN, and options that apply to the lines.
Note: Enter data in this table through SERVORD. A datafill procedure or example is not available. Refer to SERVORD for how to use SERVORD to enter data in this table.	

Datafilling table AMAOPTS

The datafill for CUSD for table AMAOPTS appears in the following table. The fields that apply to CUSD appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table AMAOPTS

Field	Subfield or refinement	Entry	Description and action
OPTION		CALL_FWD	Option. Enter CALL_FWD.
SCHEDULE		refer to subfields	Schedule. This field contains the following subfields: • AMASEL • ONDATE • ONTIME • OFFDATE • OFFTIME • SCHED • TV • TU A description of subfield AMASEL follows.
	AMASEL	ON	AMA selector. Enter ON to activate CALL_FWD immediately.

Datafill example for table AMAOPTS

Sample datafill for table AMAOPTS appears in the following example.

CUSD (continued)

MAP example for table AMAOPTS

OPTION	SCHEDULE
CALL_FWD	ON

Tools for verifying translations**TRAVER**

The TRAVER tool does not apply as a tool for verifying translations for this package.

Feature verification

A description of how to verify that the CFUSP feature functions correctly appears in the following section.

Verification sequence to verify CFUSP

The following procedure verifies that the CFUSP feature operates.

At your location

- 1** Make sure that the load contains feature packages NTX045AA and NTX020.
- 2** Set table OFCENG parameter USP_ENABLED to Y. Make sure CFUSP can be used.
- 3** Make sure an active device is available to perform AMA dumps.
- 4** In table AMAOPTS, set the CALL_FWD parameter to ON.
- 5** From a single-party POTS line, dial 72#.
- 6** Listen for the confirmation tone. Dial the forwarded-to number.
- 7** Enter table CFW and make sure that the tuple adds to the CFUSP feature. The WCNTL field must contain an U. The WSTATE field must contain an I.
- 8** Answer the forwarded-to number. Activate the feature at this point.
- 9** Enter table CFW and make sure that the tuple for this line is present. The WCNTL field must contain an U. The WSTATE field must contain an A.
- 10** Perform an AMADUMP. Make sure the system generates a call code 031 activation record with structure code 00614. Set the SERV FEAT field to 0 to indicate CFUSP.
- 11** Dial 73# to deactivate the CFUSP feature.
- 12** Enter table CFW and make sure that the tuple for the line is not present.
- 13** Perform an AMADUMP and make sure that the system generates a call code 031 deactivation record with structure code 00096. Set the SERV FEAT field to 0 to indicate CFUSP.
- 14** Use SERVORD to add the CUSD option to a line. Dial 72# to make sure that CFUSP cannot be used on the line.

CUSD (continued)

- 15 Set table OFCENG parameter USP_ENABLED to N. Make sure the operating company does not want the line to use CFUSP.
- 16 When this parameter is off, the addition of the CUSD option to a line with SERVORD causes the system to generate the following message:
CALL FORWARDING-USP IS UNAVAILABLE

SERVORD

To add the CFUSP feature to a line, dial 72#. If operating company personnel must use the SERVORD command ADO (add option) or NEW to add the feature to the line, the CFWTYPE prompt accepts U as a correct option. The U is Usage Sensitive Pricing.

SERVORD limits

The following SERVORD limits apply to CUSD:

- The NTX045AA package creates a new line option, Call Forwarding Usage Sensitive Denial (CUSD). When CUSD is present on a line, the subscriber cannot use the CFUSP feature.
- The option CUSD is only available when the CFUSP feature is present.
- When USP_ENABLED is set to Y, the operating company can add the CUSD option for each line. This action does not allow a subscriber access to CFUSP.
- The CUSD option can be added to a line with the following line class code (LCC):
 - 1FR
 - 1MR
 - PBX
 - ZMD
 - ZMZPA
- The CUSD and CFW features are not compatible. The following options are not compatible with CUSD:
 - AUL
 - BNN
 - CFW
 - FNT
 - HOT
 - MAN
 - ONI

CUSD (continued)

- PLP
- TRMBOPT
- The following options are not compatible with CFW:
 - AUL
 - BNN
 - CUSD
 - FNT
 - HOT
 - MAN
 - ONI
 - PLP
 - TRMBOPT

SERVORD prompts

The SERVORD prompts that assign CUSD to a line appear in the following table.

SERVORD prompts for CUSD

Prompt	Valid input	Decsription
DN_OR_LEN	Valid DN or LEN	Enter the seven-digit DN or the LEN.
OPTION	CFW	Enter CFW to assign call forwarding to the line.
CFWTYPE	U	Enter U to assign Usage Sensitive Pricing to the line.
SCRNCL	Alphanumeric or NSCR	Enter NSCR to prevent screening.

CUSD (continued)

The SERVORD prompts that assign the CUSD feature to a line appear in the following table.

SERVORD prompts for CUSD

Prompt	Valid input	Description
DN_OR_LEN	Valid DN or LEN	Enter the seven-digit DN or the LEN.
OPTION	CUSD	Enter CUSD to assign Call Forwarding Usage Sensitive Denial to the line.

SERVORD example for adding Usage Sensitive Pricing—CUSD

A description of how CUSD adds to a line with the ADO command appears in the following SERVORD example.

SERVORD example for CUSD in prompt mode

```

>SERVORD
S0:
> ADO
SONUMBER: NOW 87 03 9 AM
>
DN_OR_LEN
> 6211092
OPTION:
> CFW
CFWTYPE:
> U
SCRNCL:
> NSCR
OPTION:
> $
COMMAND AS ENTERED:
ADO NOW 87 03 9 AM 6211092 (CFW U NSCR) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
> Y

```

SERVORD example for CUSD in no-prompt mode

```
> ADO $ 6211092 CFW U NSCR $
```

CUSD (end)

SERVORD example to refuse Usage Sensitive Pricing—CUSD

To deny a line CFW, the operating company uses the SERVORD ADO command. A description of how the CUSD feature adds to a line with the ADO command appears in the following SERVORD example.

SERVORD example for Usage Sensitive Pricing—CUSD in prompt mode

```
> SERVORD
SO :
> ADO
SONUMBER: NOW 87 03 9 AM
>
DN_OR_LEN
> 6211092
OPTION:
> CUSD
OPTION:
> $
COMMAND AS ENTERED:
ADO NOW 87 03 9 AM 6211092 (CUSD) $
ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT
> Y
```

SERVORD example for Usage Sensitive Pricing—CUSD in no-prompt mode

```
> ADO $ 6211092 CUSD $
```

DN Attributes Service Order Enhancements

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

NA011 and later versions

Requirements

The DN Attributes Service Order Enhancements does not have requirements.

Description

The DN Attributes Service Order Enhancements allows the operating company to enter directory number (DN) features with service orders. This feature modifies the translation verification (TRAVER) software utility to display DN network attributes information. This feature allows the operating company to use the Service Order System (SERVORD) to perform the following:

- assign network attributes for a single DN
- assign network attributes for a group of DNs
- query network attributes for a DN

Operation

DN attributes

The following are the DN network attributes for a station:

- The ADDRESS identifies the station in a network.
- The NONUNIQUE identifies the DN as nonunique. A DN is nonunique when a single DN associates with several line equipment numbers (LEN). A DN is nonunique when several DNs associate with a single LEN.
- The NAME indicates the name for display terminals.
- The SUPPRESS suppresses name or number display.
- The MEMDISP indicates the name for Multiple Appearance Directory Number (MADN) members.

SERVORD enhancements

The DN Attributes Service Order Enhancements allows the operating company to add data to table DNATTRS (Directory Number Attributes) through SERVORD. The DN Attributes Service Order Enhancements also allows the operating company to add data to table DNGRPS (Directory

DN Attributes Service Order Enhancements (continued)

Number Groups) through SERVORD. This feature allows the operating company to assign, change, query, or delete network attributes for a DN. Through SERVORD, the operating company can update these attributes for a separate line or a customer group.

Improvement of the following SERVORD commands allows DN attribute data changes for table DNATTRS:

- The NEW (establish line service) establishes a line.
- The OUT (remove line service) removes service for a line.
- The ADO (add option) adds options to a line that is in service.
- The DEO (delete option) deletes options from a line.
- The CHF (change feature information) changes feature data.

The SERVORD command SDNA (set up DN attributes) updates or changes data in table DNGRPS. For each command performed, the following SDNA commands change one group attribute for the entire range or subset of the range specified by the tuple:

- The ADD (add line to hunt group) adds DN attributes to a group of DNs or a single DN within the range specified in the tuple.
- The DEL (delete line from hunt group) deletes DN attributes from a group of DNs or a single DN within the range specified in the tuple.
- The CHG (change translation/routing information) changes DN attributes for a group of DNs or a single DN within the range specified in the tuple.

TRAVER enhancement

The DN Attributes Service Order Enhancements changes TRAVER to display DN network attribute information. This information includes group attributes from table DNGRPS. This information includes individual attributes from table DNATTRS. The query commands QDN (query DN) and QLEN (query LEN) display the attribute information.

Translations table flow

The DN Attributes Service Order Enhancements translations tables appear in the following list:

- Table NETNAMES (Internal Logical Network Names) allows the operating company to describe logical network names. Table NETNAMES (Internal Logical Network Names) allows the operating company to associate each name with a numeric network identifier. The

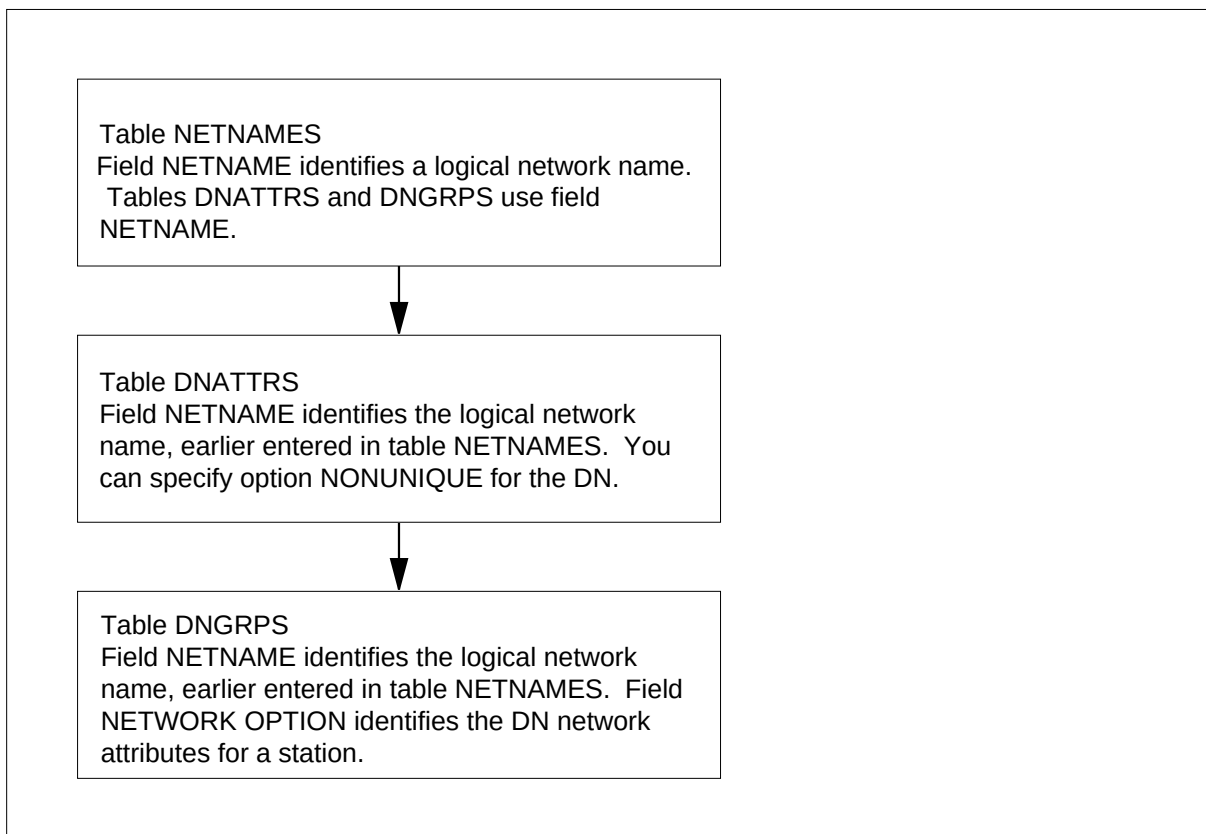
DN Attributes Service Order Enhancements (continued)

table expands to allow a list of network options to connect with a logical network.

- Table DNATTRS (Directory Number Attributes) contains DN attributes for specified DNs. The system can assign a line option or line class code that makes the DN nonunique. When this condition occurs, the SERVORD automatically adds the option NONUNIQUE to this table.
- Table DNGRPS (Directory Number Groups) contains DN attributes for blocks of DNs assigned to a customer group.

The DN Attributes Service Order Enhancements translation process appears in the following flowchart.

Table flow for DN Attributes Service Order Enhancements



DN Attributes Service Order Enhancements (continued)

The datafill content for the flowchart appears in the following table.

Datafill example for DN Attributes Service Order Enhancements

Datafill table	Example data
the NETNAMES	PUBLIC 0 0 \$
the DNATTRS	the 001 367 4741 (CRA (NAME JONES) \$) \$
the DNGRPS	the 001 367 4000 5000 (PUBLIC (ADDRESS 61372NNNNN) (NAME CRA) \$) \$

Limits

The following limits apply to DN Attributes Service Order Enhancements:

- Current limits in SERVORD apply to options for hunt groups. The system does not allow option SUPPRESS in EST (establish hunt or call pickup group) and ADD commands. A message display indicates that you must use the ADO command to add this option.
- The DEO command deletes option NAME, MEMDISP, or SUPPRESS for all the network names.
- The QDNWRK and QLENWRK commands display only individual attributes.
- You can only add one group attribute for one network with the SDNA command.
- The operating company must assign a large range of DNs for each Customer Data Change (CDC) user in table CDCDNS (Customer Data Change DN). The SERVORD command SDNA only checks from digits (FROMDIGS) and to digits (TODIGS) of DNs.

Interactions

The following features interact with DN Attributes Service Order Enhancements:

- Calling and Call Number Display—The improvement of the current option NAME allows the option to display the network name.
- Call Forwarding—If the system forwards a call, the difference of the originator does not change. Call Forwarding is a termination feature.
- Remote Call Forwarding—If the system forwards a call to a remote station, the difference of the originator does not change. Remote Call Forwarding is a termination feature.

DN Attributes Service Order Enhancements (continued)

Activation/deactivation by the end user

The DN Attributes Service Order Enhancements expands the query commands QDN, QLEN, QDNWRK (query working DN), and QLENWRK (query working LEN). This expansion allows DN network attribute information to appear. To obtain information about a line when you know the DN, use the QDN command. If you do not know the DN, and you know the LEN, use the QLEN command to access a similar display.

An example MAP (maintenance and administration position) display of the QDN command appears in the following figure. Field DNGRPS OPTIONS appears before group attributes appear. Field OPTIONS appears before individual attributes appear.

MAP example for QDN command

```

CI:
>QDN 3674741

DN: 3674741
TYPE: SINGLE PARTY LINE
SNPA: 919 SIG: DT LNATTIDX: 0
LINE EQUIPMENT NUMBER: HOST 00 0 03 24
LINE CLASS CODE: PSET (WITH DISPLAY)
CUSTGRP: COMKODAK SUBGRP: 0 NCOS: 0 RING: Y
CARDCODE: 6X21AC GND: N PADGRP: PPHON BNV: NL MNO: Y
PM NODE NUMBER: 16
PM TERMINAL NUMBER: 121
DNGRPS OPTIONS:
NETNAME: BNR
NAME: CARLING
NETNAME: PUBLIC
NAME: BNR
ADDRESS: 61372NNNNN
OPTIONS:
3WC NAME BNR JOHN DOE SUPPRESS PUBLIC Y Y

```

An example MAP display of the QLEN command appears in the following figure. Field DNGRPS OPTIONS appears before group attributes appears. Field OPTIONS appears before individual attributes appears.

DN Attributes Service Order Enhancements (continued)

MAP example for QLEN command

```

CI:
>QLEN  0 0 3 24

```

```

LEN:      HOST 00 0 03 24
TYPE: SINGLE PARTY LINE
SNPA: 919
DIRECTORY NUMBER: 3674741
LINE CLASS CODE: PSET (WITH DISPLAY)
CUSTGRP: COMKODAK SUBGRP: 0 NCOS: 0 RING: Y
ADDONS: NONE EXTENSION: N
CARDCODE: 6X21AC GND: N PADGRP: PPHON BNV: NL MNO: Y
PM  NODE NUMBER: 16
PM  TERMINAL NUMBER: 121
DNGRPS OPTIONS:
NETNAME: BNR
NAME: CARLING
NETNAME: PUBLIC
NAME: BNR
ADDRESS: 61372NNNNN
OPTIONS:
3WC  NAME  BNR  JOHN DOE SUPPRESS PUBLIC Y Y

KEY      DN
---      --
  1      DN

KEY      FEATURE
---      -
  5      3WC

```

Billing

The DN Attributes Service Order Enhancements does not affect billing.

Station Message Detail Recording

The DN Attributes Service Order Enhancements does not affect Station Message Detail Recording.

Datafilling office parameters

The DN Attributes Service Order Enhancements does not affect office parameters.

DN Attributes Service Order Enhancements (continued)

Datafill sequence

The tables that require datafill to install DN Attributes Service Order Enhancements appear in the following table. The tables appear in the correct entry order.

Datafill requirements for DN Attributes Service Order Enhancements

Table	Purpose of table
NETNAMES	Internal Logical Network Names Table. Table NETNAMES, DNGRPS, AND DNATTRS, with tables NCOS and IBNXLA, allow an operating company to enter station information. The operating company enters station information against a directory number (DN) on a logical network base.
DNATTRS (Note)	Directory Number Attributes Table. This table contains DN features for specified DNs.
DNGRPS (Note)	Directory Number Groups Table. This table contains Directory Number features for blocks of DNs normally assigned to a specified customer group.
Note: Enter this table through SERVORD. A datafill procedure or example is not available. See SERVORD for an example of the use of SERVORD to enter this table.	

Datafilling table NETNAMES

The datafill for DN Attributes Service Order Enhancements for table NETNAMES appears in the following table. The fields that apply to DN Attributes Service Order Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table NETNAMES (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
NETNAME		1 to 32 characters	Logical Network Name. This field specifies the network name used to access tables DNATTRS and DNGRPS. Enter a different 1- to 32-character name for the logical network.
EXTNETID		0 to 32 600	External Network Identifier. This field specifies a different number to use from the outside, to identify logical networks. Enter a value from 0 to 32 600.

DN Attributes Service Order Enhancements (continued)

Datafilling table NETNAMES (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
NETDIGS		0 to 10	Network Digits. This field specifies the number of digits in the logical network. Use the value in this field to extract the correct number of digits from the stored DN. Enter a value from 0 to 10.
NETOPTS		NAME, MEMDISP, or SUPPRESS	Network Options. This field specifies the options supported on a logical network. Enter NAME, MEMDISP, or SUPPRESS.

Datafill example for table NETNAMES

Sample datafill for table NATNAMES appears in the following example.

MAP example for table NETNAMES

TABLE: NETNAMES				
NETNAME	EXTNETID	NETDIGS		NETOPTS
PUBLIC	0	0		\$

Tools for verifying translations

The output from TRAVER when TRAVER verifies DN Attributes Service Order Enhancements appears in the following example.

DN Attributes Service Order Enhancements (continued)

TRAVER output example for DN Attributes Service Order Enhancements

```

TRAVER  L  3674741  '4736'  B
TABLE KSETLINE
HOST 00 0 03 24 1 DN Y 3674741 COMKODAK  0  0  001  (3WC)  (RAC) $
TABLE DNATTRS
001 367 4741 (CRA (NAME JONES)$)$
TABLE DNGRPS
001 367 4000 5000 (PUBLIC (ADDRESS 61372NNNNN) (NAME CRA)$)$
TABLE NCOS
COMKODAK 0 0 0 KDK0 (OHQ 0 TON_OHQ) (CBQ 0 3 N 2) (DFLTNET CRA) S
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 2 RPT
NCOS PRELIM XLA name is NIL.  Go to next XLA name.
TABLE IBNXLA:  XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA:  XLANAME CXDK
CXDK 27 EXTN N Y 001 367 4 $
TABLE THOUGRP
001 367 7 Y C
TABLE DN
001 367 4736 ILC HOST 00 0 05 08
TABLE DNATTRS
001 367 4736 (CRA (NAME SMITH)$)S
TABLE DNGRPS
001 367 4000 5000 (PUBLIC (ADDRESS 61372NNNNN) (NAME CRA)$)$

+++ TRAVER:  SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATIONS ROUTES

1 LINE  0013674736

TREATMENT ROUTES.  TREATMENT IS:  GNCT
1  *OFLO
2  LKOUT

+++ TRAVER:  SUCCESSFUL CALL TRACE +++

```

SERVORD

Information that introduces tables DNATTRS and DNGRPS is not available.

DN Attributes Service Order Enhancements (continued)

SERVORD limits

The DN Attributes Service Order Enhancements performs the following improvements to SERVORD:

- Assigns network attributes for a single DN. These attributes include options NAME, MEMDISP, and SUPPRESS.
- Assigns network attributes for a group of DNs. Use the SDNA command to assign these attributes.
- Allows query network features for a DN. Use the QDN, QLEN, QDNWRK, and QLENWRK commands to query features.

Use the SERVORD command SDNA to add, delete, and change DN network attributes for a tuple in table DNGRPS. For each command performed, the following SDNA commands change one group attribute for the entire range or subset of the range specified by the tuple:

- The ADD (add line to hunt group) adds DN attributes to a group of DNs or a single DN within the range specified in the tuple.
- The DEL (delete line from hunt group) deletes DN attributes from a group of DNs or a single DN within the range specified in the tuple.
- The CHG (change translation/routing information) changes DN attributes for a group of DNs or a single DN within the range specified in the tuple.

The DN Attributes Service Order Enhancements adds three options that the user can add or delete through SERVORD. Option NAME specifies a name for the display terminal. Option SUPPRESS does not allow a name or number to appear. Option MEMDISP in table DNATTRS describes the use of the MADN member name for specified networks.

SERVORD prompts

The SERVORD prompts to assign DN Attributes Service Order Enhancements to NAME, SUPPRESS, and MEMDISP appear in the following table.

SERVORD prompts for DN Attributes Service Order Enhancements

Prompt	Valid input	Explanation
OPTION	NAME, SUPPRESS, MEMDISP	Indicates the name of the option. Enter NAME, SUPPRESS, or MEMDISP.

SERVORD example to add DN Attributes Service Order Enhancements

The DN Attributes Service Order Enhancements uses the SERVORD command ADO to install DN network features for a single DN. The DN has

DN Attributes Service Order Enhancements (continued)

the options NAME and SUPPRESS. This process appears in the following service order example.

SERVORD example for DN Attributes Service Order Enhancements in prompt mode, that adds options NAME and SUPPLIES with command ADO

```

>ADO
SONUMBER:      NOW  87  12  15  AM
>
DN_or_LEN:
>7211111
OPTKEY:
>1
OPTION:
>NAME
NETNAME:
>PUBLIC
DISPLAYNAME:
>TOM JONES
NETNAME:
>$
OPTKEY:
>1
OPTION:
>SUPPRESS
NETNAME:
>BNR
NETNAME:
>$
SUPPRESS_DN:
>Y
SUPPRESS_NAME:
>Y
OPTKEY:
>$

```

SERVORD example for DN Attributes Service Order Enhancements in no-prompt mode, that adds options NAME and SUPPLIES with command ADO

```
>ADO $ 7211111 1 NAME PUBLIC TOM JONES $ 1 SUPPRESS BNR $ Y Y $
```

The DN Attributes Service Order Enhancements installs DN network attributes for a group of DNs with the SERVORD command SDNA. The DN Attributes Service Order Enhancements installs the option NAME. This process appears in the following service order example.

DN Attributes Service Order Enhancements (end)

SERVORD example for DN Attributes Service Order Enhancements in prompt mode, that adds option NAME with command SDNA

```
>SDNA
SONUMBER:      NOW  87  12  15  AM
>
AREACODE:
>613
OFCCODE:
>721
FROMDIGS:
>1111
TODIGS:
>4444
NETNAME:
>PUBLIC
FUNCTION:
>ADD
OPTION:
>NAME
NAME:
>TOM_JONES_INC
OPTION:
>$
```

SERVORD example for DN Attributes Service Order Enhancements in no-prompt mode, that adds option NAME with command SDNA

```
> SDNA $ 613 721 1111 4444 PUBLIC ADD NAME TOM_JONES_INC $
```

DN Network Attributes

Order codes

Functional group order code: BAS00003

Functionality order code: does not apply

Release applicability

BCS25 and later versions

Requirements

The DN Network Attributes does not have requirements.

Description

The DN Network Attributes allows the operating company to enter station information against a directory number (DN) on a network base. This feature provides the data tables that store network-specific information about DNs and groups of DNs. Other features use this information to provide services that can operate across a network of many switches.

The DN Network Attributes allows the operating company to enter the following information:

- logical network names and the associated external identifiers
- the attributes of a DN for each logical network to which the DN belongs
- the attributes of a group of DNs for each logical network to which the group belongs
- the default network associated with a customer group and network class of service (NCOS)
- the selected network during MDC translations

The DN Network Attributes provides the data tables that line identification and display features in a networked environment can use. This feature does not provide the call processing code required to use these tables. Line identification and display features in a completely networked environment require the DN Network Attributes feature.

Operation

Background

Data that describes the parties involved in a call is easy to access for calls that complete in a single office. This information is necessary for line identification, display, and ring again features. When the system routes a call

DN Network Attributes (continued)

interoffice, the necessary information is not available. The system disables these features.

With the start of signaling protocols, the exchange of information can occur between offices. Signaling protocols include Common Channel Signaling 7 (CCS7) and integrated services digital network (ISDN) primary rate interface (PRI). This event provides access to features in the complete network.

Logical networks

Different addresses can identify a single telephone station. Different addresses correspond to different numbering plans. When this event occurs, the station is a member of several logical networks.

Each logical network employs an address design, or numbering plan, to identify the stations in the network. The numbering plan of a logical network defines the logical network. For example, one address for calls that originate or terminate inside the company can identify a telephone station. The other address for calls that originate or terminate outside the company can identify the same telephone station. When this event occurs, the station is a member of two logical networks.

In a networked environment, the parties involved in a call exchange network specified data. Examples of this data are station addresses and display names. To select the appropriate data for exchange, the logical network that associates with the call must be determined.

The DN Network Attributes provides data tables that line identification and display features in a networked environment can use. The DN Network Attributes does not modify call processing. The DN Network Attributes provides the tables that other features can use.

The DN Network Attributes provides the following three tables:

- NETNAMES (Internal Logical Network Names)
- DNGRPS (Directory Number Groups)
- DNATTRS (Directory Number Attributes)

This feature adds options to tables NCOS (Network Class of Service) and IBNXLA (IBN Translation).

DN Network Attributes (continued)

Translations table flow

A description of the DN Network Attributes translations appears in the following list:

- Table NETNAMES (Internal Logical Network Names) allows the operating company to define logical network names. This table allows the operating company to associate each name with a numerical network identifier.
- Table DNATTRS (Directory Number Attributes) contains the attributes for individual DNs. The operating company can enter a set of attributes for each logical network to which the DN belongs.

Applications like call processing can be required to determine the attributes for a specified DN and network. When this event occurs, the system accesses table DNATTRS first. When the operating company does not enter information for the DN, the system accesses table DNGRPS next. When attributes are not present in the two tables, the system uses default attributes. The defaults are as follows:

- For all networks, the address that identifies the station is the same as the DN assigned to the station.
- A name does not associate with the station for display purposes.
- The system allows the information about the station to appear.

The operating company must enter data that differs from these defaults. The system assumes the DNs are published and allows the DNs to appear by default. The operating company must make sure to enter each number that is not published. This action suppresses the appearance of these numbers.

- Table DNGRPS (Directory Number Groups) allows the operating company to assign attributes to a group of DNs. The assignment of a set of attributes can occur for each logical network to which the group belongs.

The following are the attributes that an operating company can assign to a group:

- a station address, that contains a serving numbering plan area (SNPA) code, an office code and a station number
- a name associated with the stations in the group for display purposes
- an indication that the display of the address can be suppressed

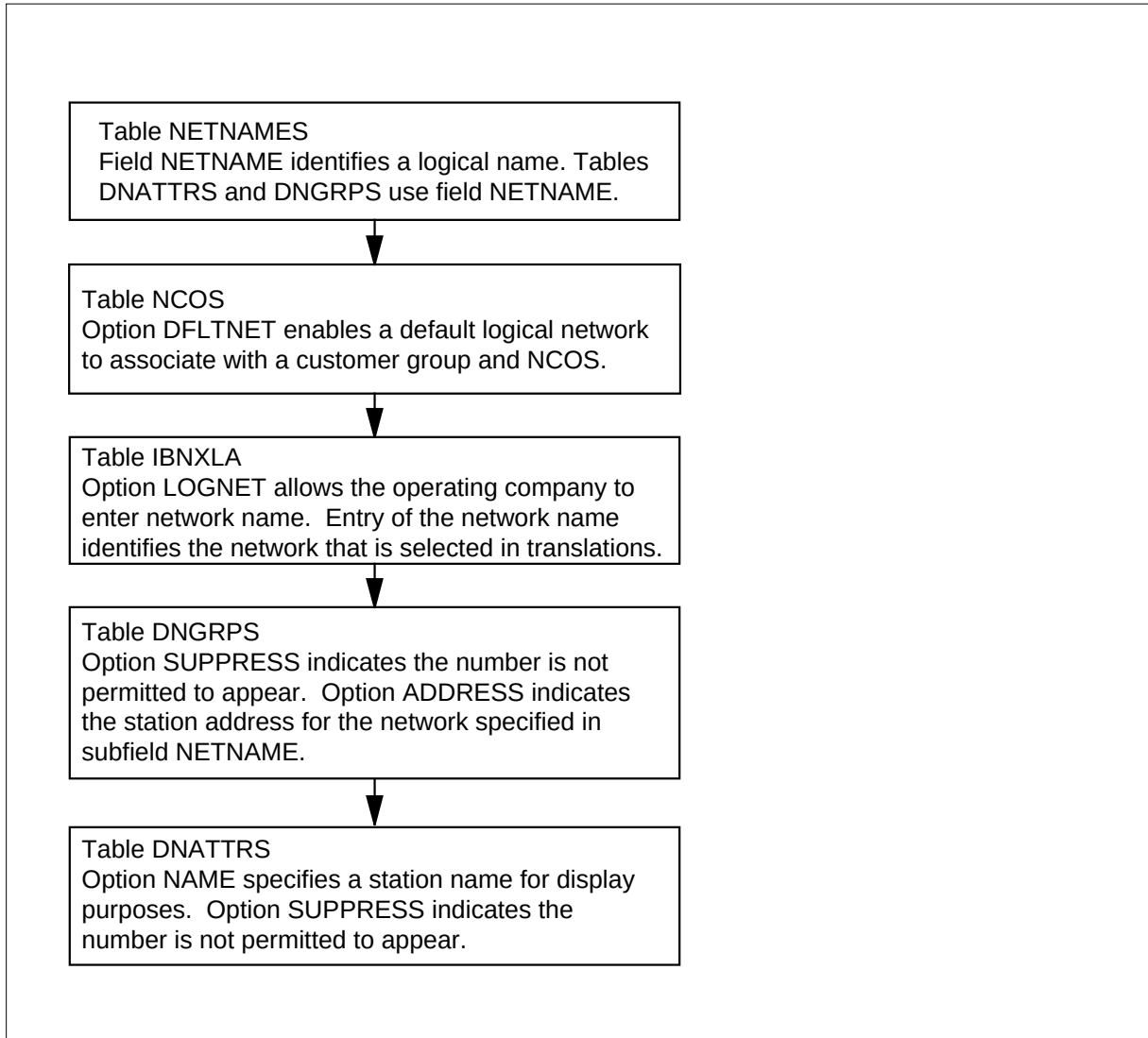
DN Network Attributes (continued)

- Table NCOS (Network Class of Service) describes the class of service assignments. The class of service is assigned to the following:
 - attendant consoles
 - IBN stations,
 - incoming or two-way IBN trunk groups
 - authorized codes
 - customer groups

This feature adds option DFLTNET to the options in subfield NCOSOPTN. Option DFLTNET allows a default logical network to associate with a customer group and NCOS.

- Table IBNXLA (IBN Translation) contains the data required for the digit translation of calls. These calls are from an IBN station, attendant console, or incoming side of a two-way IBN trunk group. This feature sets subfield TRSEL of field RESULT to NET, subfield NETTYPE of field RESULT to GEN, and subfield OPTION of field RESULT to LOGNET. Option LOGNET allows you to enter a network name to identify the network selected in translations. This selection provides for network determination by prefix digits.

The DN Network Attributes translation process appears in the following flowchart.

DN Network Attributes (continued)**Table flow for DN Network Attributes**

The datafill content that the flowchart uses appears in the following table.

Datafill example for DN Network Attributes (Sheet 1 of 2)

Datafill table	Example data
NETNAM	PUBLIC 0 0 \$
NCOS	MDCGRP1 1 TRK 0 0 (DFLTNET PUBLIC) \$
IBXLA	CXT1 9 NET N N N 0 N POTS N N GEN (LOGNET PUBLIC) (LATTR 4)

DN Network Attributes (continued)

Datafill example for DN Network Attributes (Sheet 2 of 2)

Datafill table	Example data
DNGRPS	555 555 1000 4000 (NT (NAME NT_BLDG1) \$) (PUBLIC (ADDRESS 555 555 5000) (NAME NT) (SUPPRESS) \$) \$ \$
DNATTRS	555 555 5000 (PUBLIC (SUPPRESS Y Y) \$) (NT (NAME JANE_DOE) \$) \$

Limits

The following limits apply to DN Network Attributes:

- The DN Network Attributes provides the tables that line identification and display use. The DN Network Attributes does not provide the software required to use these tables.
- The DN Network Attributes does not provide the means to associate a DN with an attendant console for line identification purposes.
- The DN Network Attributes does not provide access to tables NETNAMES, DNGRPS, and DNATTRS through service orders.
- The DN Network Attributes does not support access to tables DNGRPS and DNATTRS through the partitioned table editor (PTE). This condition applies to end users that subscribe to the Customer Data Change (CDC) feature.

Interactions

The DN Network Attributes does not have interactions.

Activation/deactivation by the end user

The DN Network Attributes does not require activation or deactivation by the end user.

Billing

The DN Network Attributes does not affect billing.

Station Message Detail Recording

The DN Network Attributes does not affect Station Message Detail Recording.

Datafilling office parameters

The DN Network Attributes does not affect office parameters.

DN Network Attributes (continued)

Datafill sequence

A list of the tables that require datafill to implement DN Network Attributes appear in the following table. The tables appear in the correct entry order.

Datafill requirements for DN Network Attributes

Table	Purpose of table
NETNAMES	Internal Logical Network Names Table. An operating company uses table NETNAMES, DNGRPS, AND DNATTRS, with tables NCOS and IBNXLA. These tables allow an operating company to enter station information against a directory number (DN) for each logical network.
NCOS	Network Class of Service Table. This table contains the following: • service (NCOS) numbers assigned to attendant consoles (AC) • Integrated Business Network (IBN) • Residential Enhanced Services (RES) stations • incoming or incoming side of two-way IBN trunk groups • authorization codes • customer groups
IBNXLA	IBN Translation Table. This table stores data for the digit translation of calls from the following: • IBN station • attendant console • incoming IBN trunk group • incoming side of a two-way IBN trunk group.
DNGRPS	Directory Number Groups Table. This table has the Directory Number attributes for blocks of DNs normally assigned to a specified customer group.
DNATTRS	Directory Number Attributes Table. This table has DN attributes for specified DNs.

Datafilling table NETNAMES

Table NETNAMES (Internal Logical Network Names) defines internal logical network names. Tables that store DN attributes that correspond to each network use the names. This table associates each network name with an external global network identifier. Interoffice high-level protocol messages use this identifier to provide for party address exchange.

DN Network Attributes (continued)

The first entry in this table, PUBLIC 0, corresponds to the public telephone system. The system automatically enters this first entry. You cannot delete this entry.

A logical network name can be in use in table NCOS, IBNXLA, DNGRPS, or DNATTRS. When a logical network name is in use, you cannot delete a logical network name from table NETNAMES. When an attempt to delete a logical network name in use in another table occurs, the following warning message appears:

**DANGER****Data that is not defined**

The following tables can reference this NETNAME:
NCOS, IBNXLA, DNGRPS, and DNATTRS.

Check and delete these netnames. When you do not delete these netnames in these tables, these tables contain data that is not defined.

Datafill for DN Network Attributes for table NETNAMES appears in the following table. The fields that apply to DN Network Attributes appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table NETNAMES (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
NETNAME		1 to 32 characters	Logical network name. This field specifies the logical network name for internal office use. The system reserves PUBLIC for the public telephone network. You cannot delete PUBLIC. Enter the 1- to 32-character logical network name.

DN Network Attributes (continued)**Datafilling table NETNAMES (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
EXTNETID		0 to 32 600	External network identifier. This field is in external use to identify the logical network. Offices must agree on the values. Enter a different global network identifier. Valid entries range from 0 to 32 600. The system reserves value 0 for logical network PUBLIC. You cannot delete value 0.
NETDIGS		0 to 10	Network digits. This field specifies the number of digits in the logical network. The values in this field extract the correct number of digits from the stored DN. Enter a value from 0 to 10.

Datafill example for table NETNAMES

Sample datafill for table NETNAMES appears in the following example. The default public network and two private networks appear.

MAP example for table NETNAMES

TABLE: NETNAMES			
NETNAME	EXTNETID	NETDIGS	NETOPTS
PUBLIC	0	0	\$
PRIVATENET	7	0	\$
NT	26	10	\$

Datafilling table NCOS

Table NCOS (Network Class of Service) describes the class of service assigned to the following:

- attendant consoles
- IBN stations
- incoming or two-way IBN trunk groups
- authorized codes
- customer groups

This feature adds option DFLTNET to the options in subfield NCOSOPTN. Option DFLTNET allows a default logical network to associate with a

DN Network Attributes (continued)

customer group and NCOS. Entry of this logical network occurs in subfield NETNAME. You must also enter this logical network in table NETNAMES.

The datafill specified to DN Network Attributes for table NCOS appears in the following table. The fields that apply directly to DN Network Attributes appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table NCOS

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see subfield	Options. This field has subfield NCOSOPTN.
	NCOSOPTN	DFLTNET	Network class of service option. This subfield specifies the option associated with the NCOS number. Enter DFLTNET. When NCOSOPTN is set to DFLTNET, subfield NETNAME requires datafill.
	NETNAME	local logical network name	Network Name. This subfield specifies the name assigned to the logical network. Enter the local logical network name, as entered in table NETNAMES.

Datafill example for table NCOS

Sample datafill for table NCOS appears in the following example.

MAP example for table NCOS

TABLE: NCOS				
CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO OPTIONS
MDCGRP1	1	TRK	0	0
				(DFLTNET PUBLIC) \$

Datafilling table IBNXLA

Table IBNXLA (IBN Translation) contains the data required for the digit translation of calls. These calls are from an IBN station, attendant console, or incoming side of a two-way IBN trunk group. The addition of option LOGNET to the list of options for subfield OPTION occurs. When you select

DN Network Attributes (continued)

option LOGNET, you can enter a logical network name. This event allows for the selection of a network by digit translations.

You can enter option LOGNET when subfield TRSEL is NET and subfield NETTYPE is GEN. Subfield TRSEL can be set to a different translation selector. When this condition occurs, subfield NETTYPE must be set to an equivalent network type before you can enter option LOGNET.

The datafill specified to DN Network Attributes for table IBNXLA appears in the following table. The fields that apply directly to DN Network Attributes appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table IBNXLA

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfields	Key. This field has subfields XLANAME and DGLIDX.
	XLANAME	NETGEN	Translator name. This subfield specifies the translator name. Enter NETGEN to indicate that NET is the translation selector and GEN is the network type.
	DGLIDX	1- to 18-digit number	Digilator index. This subfield specifies the access code. Enter the 1- to 18-digit number assigned as the access code.
RESULT		see subfields	Result. This field has several subfields. Subfields TRSEL, NETTYPE, and OPTION relate to this feature.
	TRSEL	NET	Translation selector. This subfield defines the translation selector. Enter NET.
	NETTYPE	GEN	Network type. This subfield specifies the network type. Enter GEN.
	OPTION	LOGNET	Option. This subfield specifies the option. Enter LOGNET.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appears in the following example. Option LOGNET appears with NET entered as the translation selector. Option LOGNET appears with GEN entered as the network type with the logical network name PUBLIC.

DN Network Attributes (continued)

MAP example for table IBNXLA

TABLE: IBNXLA		KEY		RESULT	
CXT1		9			
NET	N	N	N	0	N
POTS	N	N	GEN	(LOGNET PUBLIC)	(LATTR 4) \$

Datafilling table DNGRPS

Table DNGRPS (Directory Number Groups) assigns station attributes to DN groups. This table can assign a set of attributes for each logical network to which a DN group belongs. A group of DNs can belong to a maximum of two logical networks. Enter the logical networks in table NETNAMES.

Table DNGRPS assigns the following optional attributes to a DN group:

- a station address (ADDRESS)
- a station name for display purposes (NAME)
- an indication that the display of the address can be suppressed (SUPPRESS)

Note: Specify the station addresses in field ADDRESS with the wild card character N. Each occurrence of this wild card character indicates that the digit in the DN that corresponds replaces the N.

Table DNGRPS does not require datafill unless the attributes of the DN group differ from the default attributes. The defaults are as follows:

- The station address in the network is the same as the internal DN assigned to the station.
- A name does not associate with the station for display purposes.
- The system allows information about the station to appear.

The datafill specified to DN Network Attributes for table DNGRPS appears in the following table. The fields that apply directly to DN Network Attributes

DN Network Attributes (continued)

appear in the table. For a description of the other fields, refer to the data schema section of this document.

Datafilling table DNGRPS (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SNPA		numeric (3 digits, range 0 to 9)	Serving numbering plan area. This field specifies the three-digit SNPA to which a block of station numbers is assigned. Enter the SNPA or the serving translation design, which is the first three digits of the DN.
OFC		numeric (3 digits, range 0 to 9)	Office code. This field specifies the office code. Enter the second three digits of the DN.
NETOPTS		see subfields	Network options. This field has subfields NETNAME and OPTIONS.
	NETNAME	alphanumeric (1 to 32 characters)	Logical network name. This subfield specifies the logical network name. Enter the name of the logical network, as entered in table NETNAMES.
	OPTIONS	a vector of a maximum four options	Option list. This subfield specifies the list of DN group options for the network specified in field NETNAME. This vector contains the subfield OPTION.
	OPTION	ADDRESS, NAME, or SUPPRESS	Network option. This subfield specifies the options available for the network. Enter ADDRESS, NAME, or SUPPRESS. When OPTION is set to ADDRESS, subfields NPA, OFC, and DIGS require datafill.
	NPA	numeric (3 digits, range 0 to 9 or N)	Numbering Plan Area. This subfield specifies the numbering plan area. Enter the first three digits of the address. Correct entries for each digit are 0 to 9 or N.
	OFC	numeric (3 digits, range 0 to 9 or N)	Office Code. This subfield specifies the office code. Enter the second three digits of the address. Correct entries for each digit are 0 to 9 or N.

DN Network Attributes (continued)

Datafilling table DNGRPS (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	DIGS	numeric (4 digits, range 0 to 9 or N)	Digits. This subfield specifies the last four digits of the address. Enter the last four digits of the address. Correct entries for each digit are 0 to 9 or N. When OPTION is set to NAME, subfield NAME requires datafill.
	NAME	1 to 15 characters	Name. This subfield specifies the station name. Enter the 1- to 15-character station name. Use underscores instead of spaces. Enclose mixed case strings in single quotation marks.

Datafill example for table DNGRPS

Sample datafill for table DNGRPS appears in the following example. The two groups have options specified for two logical networks: NT and PUBLIC.

The first DN group includes numbers from 555-555-1000 to 555-555-4000. For this group, the NT network has the name NT_BLDG1 associated with the network. In the NT network, the system allows number display because you did not enter option SUPPRESS.

The PUBLIC network has the name NT associated with the network. Option SUPPRESS indicates that the system does not allow number display.

The second DN group includes numbers from 555-555-5000 to 555-555-6000. For this group, the NT network has the name NT_BLDG2 associated with the network. The system allows number display. In the PUBLIC network, the name NT associates with the DN group. The system allows number display.

DN Network Attributes (continued)

MAP example for table DNGRPS

TABLE: DNGRPS

SNPA	OFC	FROMDIGS	TODIGS	NETOPTS
555	555	5000	6000	(NT (NAME NT_BLDG2) \$) (PUBLIC (ADDRESS 555 55N NNNN) (NAME NT) \$)\$
555	555	5000	6000	(NT (NAME NT_BLDG2) \$) (PUBLIC (ADDRESS 555 55N NNNN) (NAME NT) \$)\$

Datafilling table DNATTRS

Table DNATTRS (Directory Number Attributes) assigns attributes to separate DNs. The DN is the key to this table. The SNPA, office code, and station number specify this DN. You can assign a set of optional attributes to the DN for each network to which the DN belongs. A DN can belong to a maximum of two networks. Before you enter this table, you must enter a correct network name in table NETNAMES.

The following DN options can be specified for each network:

- option NAME, which indicates a station name for display purposes
- option SUPPRESS, which indicates that the suppression of the number display can occur

This table does not require datafill unless the data differs from the standard defaults or from the data in table DNGRPS. The defaults are as follows:

- A name for display purposes is not present.
- The suppression of the number display does not occur.

The datafill specified to DN Network Attributes for table DNATTRS appears in the following table. The fields that apply directly to DN Network Attributes

DN Network Attributes (continued)

appear. For a description of the other fields, refer to the data schema section of this document.

Datafilling table DNATTRS (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfields	Directory number key. This field has subfields SVGNPA, NNX and DEFGDIGS.
	SVGNPA	numeric (3 digits, range 0 to 9)	Serving numbering plan area. This subfield specifies the SNPA. Enter the SNPA, which is the first three digits of the DN.
	NNX	numeric (3 digits, range 0 to 9)	Office code. This subfield specifies the office code. Enter the office code, which is the second three digits of the DN.
	DEFGDIGS	numeric (4 digits, range 0 to 9)	Station number. This subfield specifies the station number. Enter the station number, which is the last four digits of the DN.
DATA		see subfields	Network attributes. This field has subfields NETNAME and NETOPTS. An entry can have a maximum of two network names and the attributes.
	NETNAME	name of the logical network	Logical network name. This subfield specifies a logical network name. Enter the name of the logical network, as entered in table NETNAMES.
	NETOPTS	see subfield	Network options list. This subfield has subfield OPTID.
	OPTID	NAME, SUPPRESS, MEMDISP, or NONUNIQUE	Network option identifier. This subfield specifies the options for each network. Enter NAME, SUPPRESS, MEMDISP, or NONUNIQUE. When OPTID is set to NAME, subfield DNAME requires datafill. When OPTID is set to SUPPRESS, subfields SUPPDN and SUPPNAME require datafill.

DN Network Attributes (end)**Datafilling table DNATTRS (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	DNAME	1 to 15 characters	Display name. This subfield specifies the associated station name. Enter a 1- to 15-character station name. Use underscores instead of spaces. Enclose mixed case strings in single quotation marks.
	SUPPDN	Y or N	Suppress directory number. This subfield specifies the suppression of the DN. Enter Y or N.
	SUPPNAME	Y or N	Suppress name. This subfield specifies the suppression of the name associated with the DN. Enter Y or N.

Datafill example for table DNATTRS

Sample datafill for table DNATTRS appears in the following example. In this example, the DN 555-555-5000 belongs to two networks, PUBLIC and NT. On the PUBLIC network, the system does not allow the display of information about the DN. Option SUPPRESS indicates this condition. The DN does not have an associated name. In the NT network, the system does not suppress information about the DN. The associated name is JANE_DOE.

MAP example for table DNATTRS

TABLE: DNATTRS									
KEY									
								DATA	
								OPTDATA	
555	555	5000							
(PUBLIC	(SUPPRESS	Y	Y)	\$)	(NT	(NAME	JANE_DOE)	\$)	\$
									\$

Tools for verifying translations

The DN Network Attributes does not use tools for verifying translations.

SERVORD

The DN Network Attributes does not use SERVORD.

EADAS Interface-U.S.

Ordering codes

Functional group ordering code: BAS00003

Functionality ordering code: does not apply

Release applicability

BCS31 and later versions

Requirements

This document includes the datafill information for this functionality. Complete implementation can require software or hardware.

Description

The engineering and administrative data acquisition system (EADAS) is a product of Lucent Technology. The EADAS provides near real-time traffic or operational measurement (OM) data collection. The EADAS provides control from a number of switching systems. The EADAS performs these actions with an EADAS data collection (EADAS/DC) interface from each office. The data goes to the EADAS network management (EADAS/NM) system.

The NetMinder system of Lucent Technology provides an expanded capacity interface to enhance the EADAS/NM system. The NetMinder Interface is a computer system that collects a larger amount of 5 min network trunk group data. The NetMinder Interface can collect a maximum of 1024 trunk groups, at a greater data transmission rate (19.2kbit/s) than the EADAS Interface. The two 5 min network management OM classes involved are PREV5M and CURR5M. Table OMACC contains these OM classes. The EADAS/NM Interface and the NetMinder Interface operate separately.

The EADAS performs the following functions:

- data collection

The EADAS collects and validates data from the DMS-100 switch. The EADAS polls the switch through BX.25 protocol.

- report generation

The EADAS generates near real-time reports on network terminals at different operations centers. These reports allow users to take immediate correcting action when the associated switching system does not perform as expected. The system generates Reports on a scheduled, exception, or demand condition. Users can request data that is not formatted or make

EADAS Interface-U.S. (continued)

database changes when necessary. Data can be written to tape for downstream processing.

- database management

The EADAS supports two user interfaces for database management and resolution of data collection problems. Through both network terminals and the file system, users can establish collection schedules and provide data collection device (DCD) assignments. Through these terminals users can establish other parameters and thresholds necessary to collect and report traffic data.

EADAS OM interface

When EADAS submits a poll or request for data, the switch responds through the EADAS interface. The switch responds with the requested data or a message that indicates why the switch cannot send the data.

The EADAS OM interface formats operational measurement data based on EADAS requirements, with introductions and necessary headers. The OM data has the following three OM classes for EADAS only:

- EADAS30M (half-hourly data)
- EADAS60M (hourly data)
- EADAS24H (daily data)

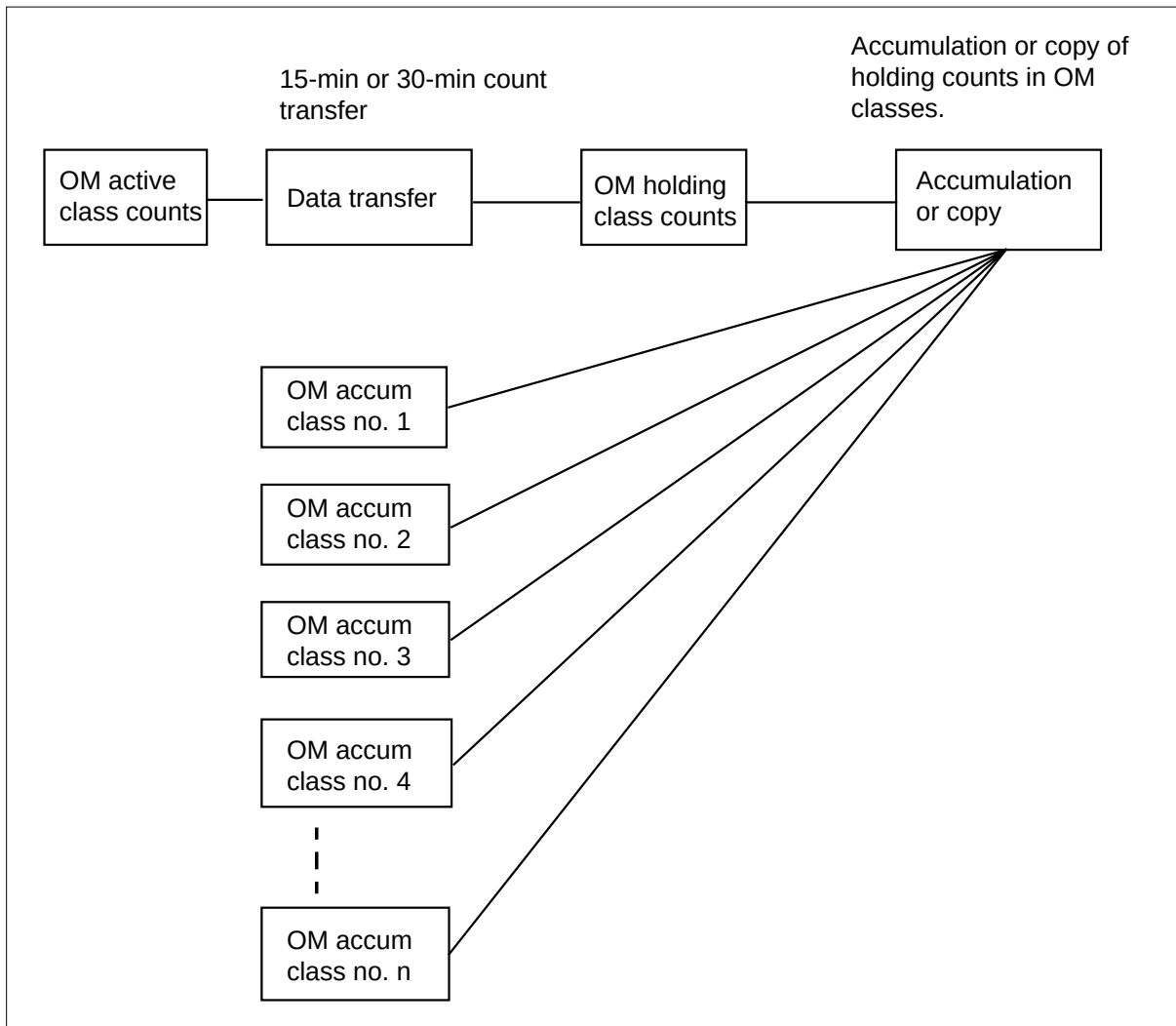
Current OM operation

The OM system counts every event and use register of the OM active class in real time. The contents of the OM active class transfer to the OM holding class at the end of each OM transfer period. The OM transfer period is 15 or 30 min. These contents transfer by a data transfer process that eliminates most measurement skew.

After OM transfer, the OM active class registers return to 0 and collect counts for the next OM transfer period. The ACCUMULATION or COPY accumulates or assigns the holding data measurements in OM accumulating classes. This condition appears in the following figure.

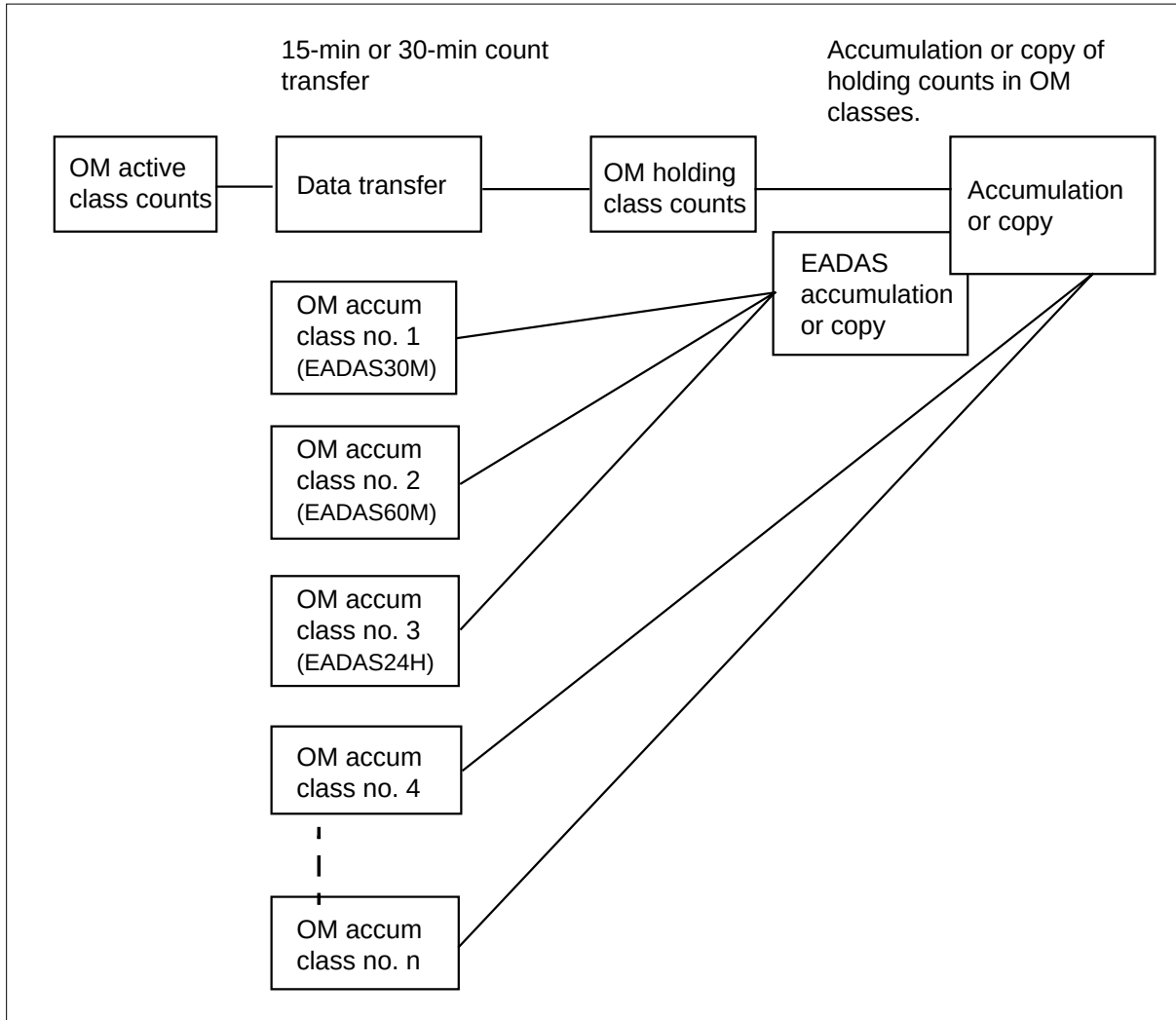
EADAS Interface-U.S. (continued)

Normal OM accumulating system



OM Operation with EADAS interface added

The OM operation with the EADAS interface appears in the following figure.

EADAS Interface-U.S. (continued)**EADAS/DC class incorporation into the OM accumulating system**

Formatted data in the three EADAS classes waits for an EADAS poll. When the EADAS receives the data, the data goes to EADAS from the correct EADAS accumulating class. Table OMACC appears in the following example.

Table OMACC sample datafill

CLASS	ENABLED	PRECSN	WHEN
EADAS30M	Y	SPRECISION	HALFHOURLY C00
EADAS60M	Y	SPRECISION	HOURLY C00
EADAS24H	Y	SPRECISION	DAILY 0 C00 0 C00

EADAS Interface-U.S. (continued)

Office parameter additions for EADAS

The EADAS classes add the following parameters to office parameter tables OFCVAR and OFCENG:

- The OFCVAR
 - The EADAS_GENERIC_ID: Identifies the current DMS-100 software release number with generic switch identification numbers
- The OFCENG
 - The EADAS30M_BUFFER_SIZE. Sets buffer sizes for EADAS 30 min data.
 - The EADAS60M_BUFFER_SIZE. Sets buffer sizes for EADAS 60 min data.
 - The EADAS24H_BUFFER_SIZE. Sets buffer sizes for EADAS 24 h data.

1A/1B EADAS-BX.25 Interface functionality

This functionality configures the switch to receive polls from EADAS and return correct responses. This functionality provides time-response and deals with application-level error conditions.

The following current office parameters in table OFCVAR are used:

- The EADAS_MPC_AND_LINK. Defines multiprotocol controller (MPC) numbers and link numbers for EADAS.
- The EADAS_ENABLED. Enables or disables transmission and reception of EADAS data on EADAS data link.

EADAS Flexible OM Transfer Period functionality

This functionality makes sure that data in EADAS accumulation classes remains available to EADAS polls through the next accumulation period.

The EADAS requires that 30 min data be available for 30 min after accumulation. The EADAS requires that the 60 min and 24 h data be available for 60 min and 24 h, in that order. This feature meets these requirements with the EADAS_SHORT_XFER_ALLOWED parameter.

The EADAS_SHORT_XFER_ALLOWED can be Y. If this event occurs the default, the data store for the EADAS classes is double the amount the three BUFFER_SIZE parameters specify.

When EADAS_SHORT_XFER_ALLOWED is N, the office parameters specify the data store for each EADAS class. The office parameters are

EADAS Interface-U.S. (continued)

EADAS30M_BUFFER_SIZE, EADAS60M_BUFFER_SIZE and EADAS24H_BUFFER_SIZE.

**CAUTION**

Do not set EADAS_SHORT_XFER_ALLOWED to N

The EADAS_SHORT_XFER_ALLOWED parameter of table OFCOPT must not be set to N, unless an emergency need for additional data store occurs. If this parameter is set to N, the class data is available only until the next transfer (OMXFR) period occurs.

EADAS Datafill Sequence Simplification functionality

Before this functionality, Northern Telecom (Nortel) support personnel had to change the EADAS/DC OM class buffer sizes. Nortel support personnel performed this action at loadbuild or dump and restore.

This feature allows Nortel support personnel to change these buffer sizes after first entry by Nortel support personnel.

In every software release that contains EADAS, buffer sizes for EADAS/DC OM classes EADAS30M, EADAS60M, and EADAS24H are set at loadbuild for each initial BCS load. The BCS19 software releases require a dump and restore to alter buffer sizes for these classes.

For BCS20 releases and later versions, BC1721 allows changes to buffer sizes. These changes occur through changes to table OFCENG office parameters and completion of a reload/restart. A dump and restore is not necessary.

When a switch is first provisioned with a load that contains the EADAS interface software, the EADAS_ENABLED office parameter is N. Entry of the correct MPC and link number occurs in EADAS_MPC_AND_LINK and NETMINDER_MPC_AND_LINK. The office parameters that define the buffer are set and verified. The operating company completes the necessary steps. When every parameter is correct, the operating company sets the EADAS_ENABLED office parameter to Y. The EADAS/DC interface is operational.

If allocation of the EADAS class does not occur at loadbuild, enter EADAS buffer sizes in table OFCENG. The EADAS OM class buffer size calculations provide complete datafill information later in this document.

EADAS Interface-U.S. (continued)

EADAS Data Format Robustness functionality

The EADAS Data Format Robustness creates the OM MMI command EADSECTS. For BCS21 releases and greater the EADASOM datafill file specifies, EADAS/DC OM class contents. This file contains a series of EADSECTS commands. These commands automatically enter the fields in the assigned sections.



CAUTION

EADSECTS command can corrupt EADAS interface

Use the EADSECTS command only when data is not transmitted to EADAS/DC correctly. Unnecessary use of the EADSECTS command can corrupt the specified DMS-100/EADAS interface.

Do not use the following tables with EADAS Data Robustness:

- table OMPRT
- table OMGRPORD
- table OMTAPE

EADAS NetMinder Interface

NetMinder is an off-site computer system, like EADAS, that provides near real-time data collection and control from central office switching systems. The NetMinder system communicates with the DMS-100 switch through a NetMinder Interface.

The NetMinder Interface on a DMS-100 switch sends the 5 min OM data for a maximum of 1024 trunk groups. The NetMinder interface sends the OM data to the NetMinder system. The NetMinder Interface transmits through a separate multiprotocol controller (MPC) data link at 19.2 kbit/s. This event occurs on receipt of a poll for data from the NetMinder system.

These measurements provide peg counts and use information on the performance features of the network management trunk groups. When NetMinder sends a request for the network management data, the DMS-100 uses the NetMinder Interface to send the data requested. The NetMinder Interface can send a message that indicates why the NetMinder Interface cannot send data.

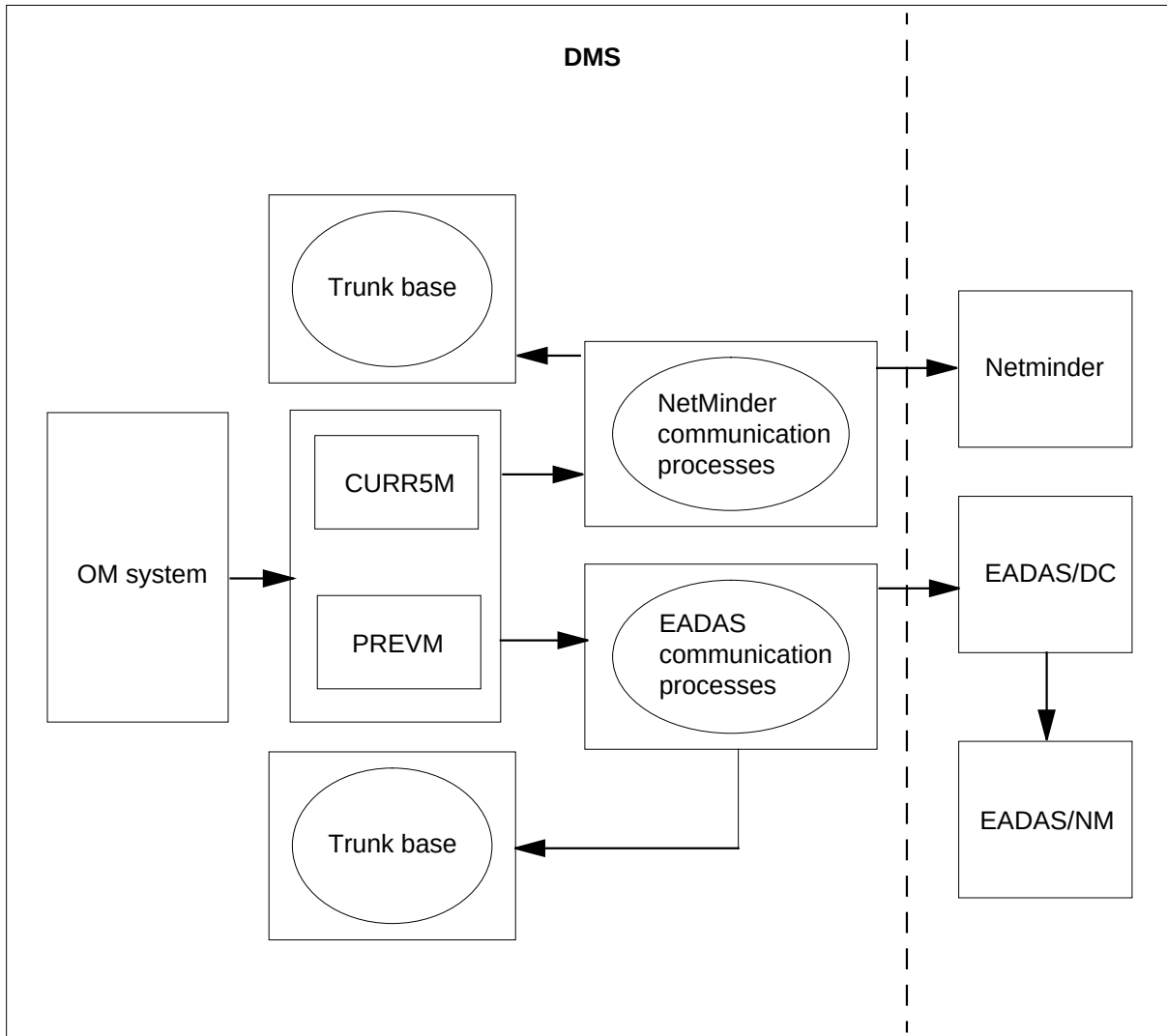
The NetMinder system is necessary to send and receive data with a 19.2 kbit/s or greater transmission rate. This system sends this transmission through a dedicated MPC port. The complete transmission process is identical to the

EADAS Interface-U.S. (continued)

process of the EADAS/NM Interface. Emphasis is on the transmitted 5 min network management data.

The relationship between the NetMinder Interface and EADAS appears in the following figure.

EADAS and NetMinder Interface



Note: Only one network management interface can be active on the DMS-100 switch at any time. The EADAS/NM Interface or the NetMinder Interface can be active through the software optionality control (SOC) right-to-use (RTU) password. The EADAS/NM Interface has 250 trunk groups. The NetMinder Interface has 1024 trunk groups. Each interface must have a dedicated MPC port.

EADAS Interface-U.S. (continued)

Operation

Requirement hardware

At least one MPC card must be equipped for each DMS-100 switch.

EADAS optionality

The SOC Utility user interface, that supports two SOC states, activates, or deactivates the EADAS.

- IDLE

In the IDLE state, EADAS is not functional, except for data entry. The SOC state determines if commands that are not datafill-related CI are enabled or disabled. A message displays when an attempt is made to use a disabled CI command. For example:

SOC option 0AM00004 is not ON. EADASHOW command not allowed.
Any functionality that is not CI EADAS, like background polling is not active in the IDLE state.

- ON

In the ON state, EADAS is completely functional, if the required datafill is present.

NetMinder optionality

The NetMinder Interface transmits network management data for a maximum of 1024 trunk groups to the NetMinder system. The user can select between the EADAS/NM interface and the NetMinder Interface through the SOC Utility user interface. The NetMinder Interface supports two SOC states:

- IDLE

In the IDLE state, the EADAS/NM Interface is active and the NetMinder Interface is inactive.

- ON

In the ON state, the NetMinder Interface is active. A SOC RTU password is necessary to set the option state to ON. The EADAS is completely functional, if the required datafill is present.

Requirement datafill

A switch can be first provisioned with a load that contains the EADAS interface software. If this event occurs the EADAS_ENABLED office parameter is N. The operating company must enter the correct MPC and link number in the EADAS_MPC_AND_LINK or NETMINDER_MPC_AND_LINK. The operating company must set the office parameter that defines the buffer sizes. The first three OM accumulating

EADAS Interface-U.S. (continued)

classes must have the definition EADAS30M, EADAS60M, and EADAS24H in this order. The operating company personnel verify these steps. The operating company personnel complete the necessary steps. The operating company sets EADAS_ENABLED to Y, and the EADAS interface is operational.

Table OMACC must be enabled. Manual data entry must occur in the WHEN fields to prevent a default to values that are not correct.

EADSECTS command for EADAS/DC class datafill

For BCS21, the EADSECTS MMI command enters EADAS/DC classes. Parameters for this command are as follows:

- first parameter: EADAS/DC class name
- second parameter: Section ID number
- third parameter: Function—specifies to add or delete the section from the class.

A list of a maximum of 32 group and field combinations to include in the section appears after the third parameter. In some occurrences, not every field specified is present in an office. Correctly spelled fields not in an office have a 0 transmitted as the record data. Field names that are not spelled correctly generate an error message. These field names prevent addition of section data in the EADAS/DC class. A no longer in use field transmits 0 as the register data under the field name dummy. An artificial value for fields that are no longer in use is necessary to keep register data in the correct sequence.

The following OM tables are not for use with EADAS Data Robustness:

- table OMPRT
- table OMGRPORD
- table OMTAPE

Office parameters

The following are new and current EADAS office parameters:

- OFCOPT
 - The EADAS_SHORT_XFER_ALLOWED

This parameter implements a transfer procedure. This procedure makes sure that data in the EADAS accumulating classes remains

EADAS Interface-U.S. (continued)

available to EADAS polls. The data remains available in the accumulation period that follows.

The EADAS requires that 30 min data be available for 30 minutes after accumulation. The EADAS requires the 60 min and 24 h data be available for 60 min and 24 h. The EADAS_SHORT_XFER_ALLOWED parameter meets these requirements.

When EADAS_SHORT_XFER_ALLOWED is Y, the data store used for the EADAS classes is double the amount the three BUFFER_SIZE parameters specify. The Y is the default value.

When EADAS_SHORT_XFER_ALLOWED is N, the following office parameters specify the data store used for each EADAS class:

- EADAS30M_BUFFER_SIZE
- EADAS60M_BUFFER_SIZE
- EADAS24H_BUFFER_SIZE



CAUTION

Class data availability restricted if parameter is N

Set the EADAS_SHORT_XFER_ALLOWED parameter of table OFCOPT to Y unless an emergency need for additional data store occurs. If this parameter is set to N, class data is available only during the next transfer (OMXFR) period. If the OMXFR period is set at 15 min, data is available for 15 min only. If the OMXFR period is set at 30 min, data is available for 30 min.

- OFCVAR

- EADAS_GENERIC_ID

This parameter contains the switch generic identification numbers that identify the current DMS-100 software release number. These numbers appear in the header of every message that goes to EADAS. The EADAS can determine the switch software release with which the EADAS communicates. This table is an alphanumeric table with the range 000 to FFF. The operating company must determine these values for each new software release. The operating company must copy the current value of the parameter when the company performs a dump and restore. The dump and restore occurs from one software release to another. When the operating company performs a dump and restore

EADAS Interface-U.S. (continued)

from a lower to a higher BCS or DRU, this parameter must change to identify the new software release.

For SOC option OAM00007:

- Before setting parameter EADAS_GENERIC_ID to a Semi-TR compliant header, verify that the downstream EADAS data collector can handle the new header and an office CLLI that is not in the NON-TR compliant header.
- Set office parameter EADAS_GENERIC_ID to a Semi-TR compliant header by setting its first field to 74.

— EADAS_MPC_AND_LINK

This parameter allows EADAS polling. The parameter contains two numeric fields. Field MPC contains the MPC number that the transceivers use. Field LINK contains the link number that the transceivers use. These fields can change on site to allow for hardware replacement when necessary and to permit first system configuration. Copy the current value of the parameter when you perform dump and restore.

— NETMINDER_MPC_AND_LINK

This parameter allows NETMINDER polling. The parameter contains two numeric fields. Field MPC contains the MPC number that the transceivers use. Field LINK contains the link number that the transceivers use. These fields can change on site to allow for hardware replacement, if necessary, and to permit initial system configuration. The default value for NETMINDER_MPC_AND_LINK is 03. The EADAS initialization procedure handles this value.

— EADAS_ENABLED

This parameter is an on-off switch. This parameter enables or disables transmission and reception of EADAS data on the EADAS data link. This parameter is for conditions when the EADAS software is present in the switch while the necessary hardware is not available. This

EADAS Interface-U.S. (continued)

parameter also applies when the necessary hardware fails. Disable the transceivers stops log generation.

Note: Restart is not necessary to use this parameter. Copy the current value of the parameter when you perform dump and restore.

- OFCENG

The following parameters set buffer sizes for EADAS 30 min, 60 min, and 24 h data.

— EADAS30M_BUFFER_SIZE

— EADAS60M_BUFFER_SIZE

— EADAS24H_BUFFER_SIZE

Nortel support personnel enter values for these parameters at loadbuild. These values equal the number of words of data store allocated for that class. A reload/restart is necessary for these parameters to function.

For BCS releases before BCS20, Nortel sets the buffer sizes for these three parameters. Information that each operating company provides determines how these buffers are set. These buffer sizes can change during a loadbuild or upgrade. Consider future office needs when you calculate buffer sizes. For software releases for BCS20 or greater, these parameters can change to modify buffer sizes as required. The following section provides this information.

How to change EADAS OM class buffer sizes

In every software release that contains EADAS, buffer sizes for EADAS/DC OM classes EADAS30M, EADAS60M, and EADAS24H are set at loadbuild for each initial BCS load. The BCS19 software releases required a dump and restore to alter buffer sizes for these classes.

For BCS20 releases and later versions, BC1721 allows changes to these buffer sizes. These changes occur through changes to table OFCENG office

EADAS Interface-U.S. (continued)

parameters and completion of a reload/restart. A dump and restore is not necessary.

**CAUTION****Data can fragment if buffer size allocation is too small.**

The EADAS buffers are contiguous blocks of data store that can include a maximum of 256 000 words. Frequent reallocation of buffer sizes can result in fragmentation of data store. The lack of contiguous storage space can prevent successful buffer size reallocations at a later time. Make sure initial buffer sizes are allocated correctly. Large initial buffer size calculations can reduce the need for buffer size changes after loadbuild. Adequate initial allocations can make sure data store fragmentation does not occur. Adequate initial allocations can make sure allocation problems that result from frequent changes to buffer sizes do not occur.

The procedure to change EADAS OM class buffer sizes appears below. For each EADAS OM class change, complete the following steps:

- 1 Determine the size of the buffer required.

EADAS OM class buffer size calculations in this document outline formulas to calculate buffer sizes for each class. An area of 256 000 words is enough for a correct buffer size.

- 2

**CAUTION****Limits on altering buffer size**

The STORE DSPERM command must indicate that a minimum of four large areas of storage are available. Buffer sizes cannot change without a minimum of four large areas available for use.

Use the STORE command to check if a contiguous block of perm store is available for the selected buffer size.

1. The office parameter EADAS_SHORT_XFER_ALLOWED can be Y. If this event occurs two blocks of perm store for each class of the size chosen for the new buffer are required. This storage area must be available to correctly reallocate EADAS OM class buffer sizes.
2. Make sure that enough DSPERM storage is available for the EADAS classes before you complete a reload/restart. Use the STORE

EADAS Interface-U.S. (continued)

command to perform this action. The STORE command and output that corresponds appears as follows:

>STORE DSPERM SCAN FREE

Statistics for DSPERM:

- total number of blocks free = 13
- total size of blocks free = #0000 A6E3
- size of smallest block free = #0001
- size of largest block free = #400F
- free vast areas = 11

Note 1: The total size of blocks free must be large enough to handle the request memory.

Note 2: The size of the largest free block of storage must equal the largest allocated buffer size. You can assign a maximum of six large areas, two for each class.

Note 3: If six or more large areas are available, storage problems do not occur.

3. Disable the class in table OMACC. To perform this action change the ENABLED field from Y to N.

Record the class accumulation period for future use in resets of the accumulating period.

4. Perform an OMDUMP on the class. Send OMDUMP information to a file from which the system can read information later to create this class again. The file can be SFDEV, for example.

Example command:

>OMDUMP CLASS EADAS30M COMMANDS

5. Set the new buffer size in table OFCENG.
6. Perform a RELOAD RESTART.
When buffer size allocations are correct, complete the following steps.
7. Read the OMDUMP file to return OM groups to affected EADAS classes.
8. Activate the affected classes in table OMACC.
9. Reset WHEN field in table OMACC to the original accumulating period. To perform this action use the values recorded when the class is not active (item 3 in the preceding paragraph).

EADAS OM class buffer size calculations

Formulas to determine buffer sizes for each EADAS OM class that BC1721 affects appear below. Calculation of sizes occurs on the number of words of data store allocated for each parameter. Single precision determines these sizes.

EADAS Interface-U.S. (continued)**EADAS30M_BUFFER_SIZE**

Calculations for this parameter appear in the following figure.

EADAS30M_BUFFER_SIZE

$$\text{EADAS30M\_BUFFER\_SIZE} = 17172$$

```

+ (89 * number_of_customer_groups)
+ (23 * number_of_customer_subgroups)
+ (20 * number_of_trkgrps)
+ ( 5 * number_of_virtual_facility_grps)
+ (11 * number_of_attendant_consoles)
+ ( 4 * number_of_huntgroups)
+ ( 8 * number_of_ucd_groups)
+ (17 * number_of_acd_groups)
+ (47 * number_of_mpcs)
+ (20 * number_of_lcms)
+ ( 8 * number_of_xpms_equipped_with_lcds)
+ (18 * number_of_FRIUs)
+ (42 * number_of_EIUs)
+ ( 7 * number_of_EIUs + number_of_LIUs)
+ ( 6 * number_of_ENETs)
+ (47 * number_of_nacd_groups)
+ ( 4 * number_of_mpc_applications)
+ ( 8 * number_of_VPUs)
+ (21 * maximum_admin_number_in_use)
+ ( 3 * number_of_ACD_pools)
+ ( 3 * number_of_network_access_registers)
+ (21 * number_of_FRS_agents)

```

Note 1: The number_of_customer_groups equals the number of tuples in table CUSTHEAD.

Note 2: The number_of_customer_subgroups equals the number of tuples in table SUBGRP.

Note 3: The number_of_trkgrps equals the number of tuples in table TRKGRP.

Note 4: The number_of_virtual_facility_grps equals the number of tuples in table VIRTGRPS.

Note 5: The number_of_attendant_consoles equals the number of tuples in table ATTCONS.

Note 6: The number_of_huntgroups equals the number of tuples in table HUNTGRP.

EADAS Interface-U.S. (continued)

Note 7: The number_of_ucd_groups equals the number of tuples in table UCDGRP.

Note 8: The number_of_acd_groups equals the number of tuples in table ACDGRP.

Note 9: The number_of_mpcs equals the number of tuples in table MPC.

Note 10: The number_of_lcms equals the number of tuples in table LCMINV.

Note 11: The number_of_xpms_equipped_with_lcds equals the number of tuples in table LTCPSINV.

Note 12: The number_of_FRIUs equals the number of FRIUs in table LIUINV.

Note 13: The number_of_EIUs equals the number of EIUs in table LIUINV.

Note 14: The number_of_EIUs + number_of_LIUs equals the number of tuples in table LIUINV.

Note 15: The number_of_ENETs equals the number of tuples in table ENINV.

Note 16: The number_of_nacd_groups equals the number of tuples in table NACDGRP.

Note 17: The number_of_mpc_applications equals the number of tuples in table NACDGRP.

Note 18: The number_of_VPUs equals the number of VPUs in table LIUINV.

Note 19: The maximum_admin_number in use equals the maximum value assigned to field ADNUM. These values appear in the following tables: LMINV, LCMINV, RCUINV, LDTINV, RCCINV, LTCINV, DLMINV, RCSINV, RCTINV, RDTINV.

Note 20: The number_of_ACD_pools is the number of tuples in table ACDMISPL.

Note 21: The number_of_network_access_registers is the number of tuples in table NARDATA with a maximum value to include the formula of 8191.

Note 22: The number_of_FRS_agents is the number of tuples in table PVDNAGEN.

EADAS Interface-U.S. (continued)

For offices with ISDN, include the following:

- + (8 * number_of_customer_groups)
- + (32 * number_of_DCHs) * 6
- + (59 * number_of_DCHs)

Note 1: The number_of_customer_groups equals the number of tuples in table CUSTHEAD.

Note 2: The number_of_DCHs equals the number of tuples in table DCHINV.

For offices with CCS7, include the following:

- + (53 * number_of_C7_rtesets)
- + (101 * number_of_C7_links)
- + (16 * number_of_gateway_screening_links)

Note 1: The number_of_C7_resets equals the number of tuples in table C7RTESET.

Note 2: The number_of_C7_links equals the number of tuples in table C7LINK.

Note 3: The number_of_gateway_screening_links equals the number of tuples in table C7GTWLKS.

Assume that an office that is not ISDN and not CCS7 contains the following variables:

- 50 customer groups
- 150 customer subgroups
- 75 trunk groups
- 40 virtual facility groups
- 20 attendant consoles
- 10 hunt groups
- 15 ucd groups
- 5 acd groups
- 89 for the maximum_admin_number in use

The EADAS 30 min buffer size calculation reflects the addition of new OM sections.

EADAS Interface-U.S. (continued)

The EADAS30M_BUFFER_SIZE equals the following:

$$17172 + 4450 + 3450 + 1500 + 200 + 220 + 40 + 120 + 85 + 1869 = 29106$$

EADAS60M_BUFFER_SIZE

The following are calculations for this parameter:

Assume that an office contains 2 048 maximum TSMS intersections.

The EADAS60M_BUFFER_SIZE = $100 + (7 * \text{maximum\_number\_of\_TSMS\_intersections}) + (3 * \text{number\_of\_interexchange\_carriers})$

The EADAS60M_BUFFER_SIZE would equal $100 + 14336 + 600 = 15036$ words.

EADAS24H_BUFFER_SIZE

The following are calculations for this parameter:

The EADAS60M_BUFFER_SIZE = $100 + (7 * \text{maximum\_number\_of\_TSMS\_intersections})$

Note: Every buffer size value entered for these classes must be a minimum of 12. Every value must be a maximum of 256 000.

EADAS/DC class OM datafill in table OMACC

For EADAS/DC, offices can have a maximum of 32 OM classes, labeled 0 to 31. Class 0 represents the ACTIVE class, and Class 1 is the HOLDING class. The OM classes 2 through 31 appear in table OMACC. The classes appear in the order of the definition of the classes. Deletion of a defined class from table OMACC can not occur. When a class is defined you can rename and enter the class again.

Definition of the OM classes for EADAS/DC occurs in the first three positions of table OMACC. This action occurs at initial loadbuild and during software restores. The OM classes for EADAS/DC are 30 min, 60 min and 24 h. The first three positions of table OMACC are Class 2, Class 3, and Class 4. The BCS21 releases and later versions with EADAS/DC lose OM classes positioned at 29, 30, and 31 in table OMACC. This event occurs if these positions are in use with a previous software release.

A loss of the classes assigned to positions 29, 30, and 31 can occur. To prevent this condition the operating company can create these classes again at other positions in table OMACC.

EADAS Interface-U.S. (continued)

The class reassignment method appears in the following example.

The operating company can desire to retain the class assignment at position 29 in table OMACC. This position is OMDATA29. The operating company does not always desire to retain the class assignment at position 15 in the table. This position is OMDATA15. In table OMACC, enter the WHEN field for class 15 so that the class 15 is identical to class 29. Perform the following commands to enter class 15 again as class 29:

```
> omaccgrp omdata15 delete all
```

Note: This command clears the class of measurement.

```
> send sfdev
```

```
> omdump class omdata29 commands
```

Note: This command saves the commands for use when creation of the class again occurs.

```
> send previous
```

```
> omclass omdata29 rename junk1F ()
```

Note: This command deletes the class at position 29.

```
> listsf
```

```
> read console
```

Note: This command displays the file the SEND SFDEV command created. This file contains commands required to enter data in OMDATA29 again.

Enabling EADAS polling to the DMS

To activate EADAS classes and allow a DMS response to EADAS polling, perform the following steps:

EADAS Interface-U.S. (continued)

- 1 Determine the location of the MPC load file as follows:
 1. Enter DSKUT from the CI level of the (MAP).
 2. Enter PRINT ROOTDIR to verify the volumes are present. The XPM or PMLOAD suffixes are primary volume candidates.
 3. When you know the volume, enter LISTVOL. The LISTVOL command lists the volume and provides the contents to the directory of the user.

The MPC Download filename has three possible internal record formats. These formats include:

- MPCxyznn
- MPxyznnA
- MPxyznnB.

The internal record format contains ASCII characters if the record suffixes are nn or nnA. To improve the speed of the download process, use the MPCCOPY command to convert these record types to binary. Use the MPCCOPY command to convert ASCII internal record formats. The syntax for the MPCCOPY command appears below:

>MPCCOPY <known_file_name> <device_name>

When you enter the MPCCOPY command, enter the converted filename (with a nnB suffix) in table control. Issue the DOWNLOAD command.

- 2 Enter the MPC in table MPC.
- 3 Enter MPC links in table MPCLINK.
- 4 Activate table OFCVAR parameters EADAS_MPC_AND_LINK or NETMINDER_MPC_AND_LINK and EADAS_ENABLED *Office Parameters Reference Manual* contains complete datafill information for these parameters.
- 5 Supply the MPC load filename in the download file (DLDFILE) field.
- 6 At the MPC level of the MAP, MBSY the device and enter the DOWNLOAD command.
- 7 When the manual busy state appears on the MAP, return the MPC to service (RTS).
- 8 In table OFCVAR, use the CHANGE (CHA) MAP command to change the NO in the EADAS_ENABLED key to YES.

The DMS-100 can receive to EADAS polling 1 min after these steps are complete.

Summary of datafill steps

To make the EADAS or NetMinder interfaces operational, complete the following steps:

- 1 Make sure that every DMS-100 entity is at BCS20 or later generic.

EADAS Interface-U.S. (continued)

- 2 Make sure that the current conditions meet each hardware and software requirement. Refer to the *Operational Measurements Reference Manual*.
- 3 Enter office parameter tables OFCVAR, OFCENG, and OFCOPT. Additional tables that you must enter are MPC and MPCLINK.

Make sure that EADAS_ENABLED in table OFCVAR is N until you enter each of the different tables. Set this parameter to Y when you are ready to send data for polling only.
- 4 Use the OMSHOW command to verify the establishment of the correct entries in table OMACC. Use this command to make sure the first three entries in table OMACC appear in this order:

First three entries in table OMACC as appears from the MAP

EADAS30M	N	SPRECISION	Halfhourly	000			
EADAS60M	N	SPRECISION	Hourly	000			
EADAS24H	N	SPRECISION	Daily	0	000	0	000

- 5 Enter a read command for file EADASOM\$DATAFILL.

This file is on the office data tool tape. You must copy this data on disk so that this file is available. When read, the EADASOM\$DATAFILL automatically enters the EADAS30M, EADAS60M, and EADAS24H OM classes.
- 6 Post and busy the MPC from the IOC level. Make sure that the unit passes diagnostics, and download file MPCBE14 with the DOWNLD menu command. The download takes 3 to 5 min. When the download is complete, test the unit again and return the MPC to service.

The Link Status must appear Enabled after you download, test, and returned to service the MPC. The status of the MPC during different stages of tests appears in the *Operational Measurements Reference Manual*.
- 7 Go back to table OMACC and change Enabled to Y for EADAS30M, EADAS60M, and EADAS24H OM classes.
- 8 The final step is to change EADAS_ENABLED in table OFCVAR to Y. In 60 s the system is ready for polling.

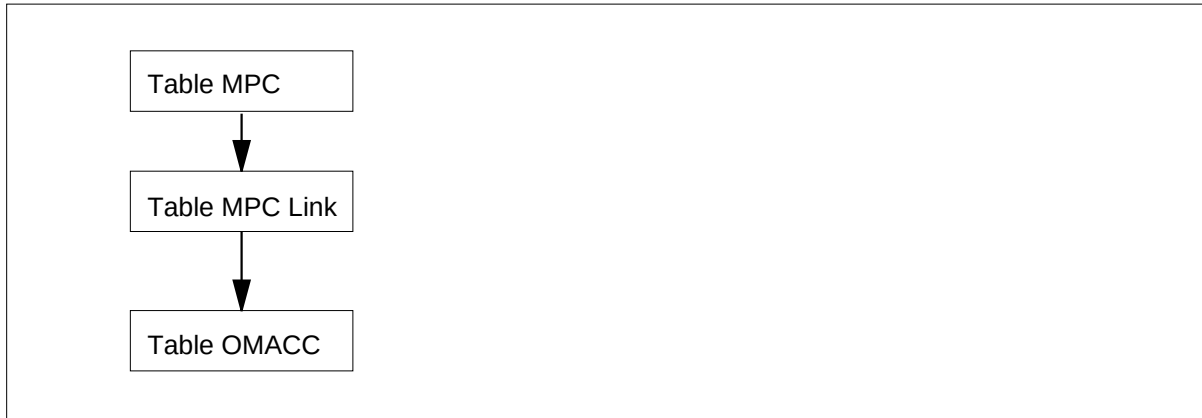
Note: Change EADAS_ENABLED in table OFCVAR to N before you test the MPC/EMPC card.

Translations table flow

The EADAS Interface-U.S. translation process appears in the following flowchart. The tables appear in the correct entry order.

EADAS Interface-U.S. (continued)

Table flow for EADAS interface and for NetMinder interface



Limits

The following limits apply to EADAS Interface-U.S.:

- Offices that already use EADAS do not have SOC Right-To-Use (RTU) assigned. This condition occurs when the customer does not load the option order code and password in the SOC database. The SOC system sets the state to the ON after a one-night process (ONP) to maintain EADAS functionality.
- For offices that do not use EADAS, the system sets the SOC state to IDLE after an ONP. The RTU is not assigned.
- Offices do not always use EADAS. For an office to use EADAS, the office must manually enter the EADAS OM tuples and buffer size. The operating company personnel enter this data on the new-side (no data) load. This method makes it not necessary for a second ONP to introduce EADAS.

Note: An ONP can occur when the user does not perform a manual entry. If this event occurs this feature sets the SOC state to IDLE. This feature does not assign RTU after the ONP because the user does not use EADAS. When this event occurs, the office remains an office that is not EADAS. The first time the user attempts to change from IDLE to ON, the system generates a message warning. This message states that RTU passwords and an ONP are necessary to introduce EADAS in the office, like current NTPs. EADAS can change to ON or IDLE. The SOC RTU state maintains over future ONPs.

- Only one network management interface can be active on the DMS-100 switch at a time. The normal EADAS/NM Interface (250 trunk groups) or the NetMinder Interface (1024 trunk groups) activates through the SOC RTU password. Each interface must have a dedicated MPC port.

EADAS Interface-U.S. (continued)

Interactions

The EADAS Interface-U.S. does not have functionality interactions.

Activation/deactivation by the end user

The EADAS Interface-U.S. does not require activation or deactivation by the end user.

Billing

The EADAS Interface-U.S. does not affect billing.

Station Message Detail Recording

The EADAS Interface-U.S. does not affect Station Message Detail Recording.

Datafilling office parameters

Office parameters only EADAS Interface-U.S. uses appear in the following table. Refer to the *Office Parameters Reference Manual* for additional information.

**CAUTION****Possible loss of data**

The EADAS buffers are blocks of data store, a maximum of 256 000 words. Frequent reallocation can fragment data. Lack of contiguous storage can prevent size reallocations later. Initial size allocations must be correct. Generous initial buffer sizes can reduce changes after loadbuild. Initial allocations can prevent data fragmentation and allocation difficulty from frequent changes.

EADAS Interface-U.S. (continued)

Office parameters that are used by EADAS Interface-U.S. (Sheet 1 of 4)

Table name	Parameter name	Explanation and action
OFCOPT	EADAS_SHORT_XFER_ALLOWED	Parameter transfers EADAS data. This action makes the data available to polls during accumulation. The EADAS requires 30 min data be available for 30 min after accumulation. The EADAS requires 60 min and 24 h data be available for 60 min and 24 hours, in that order. The EADAS_SHORT_XFER_ALLOWED parameter meets these requirements. When set to Y (the default), data store for EADAS classes is double amount three BUFFER_SIZE parameters specify. When set to N, office parameters EADAS30M_BUFFER_SIZE, EADAS60M_BUFFER_SIZE, and EADAS24H_BUFFER_SIZE specify data store for each EADAS class.

EADAS Interface-U.S. (continued)**Office parameters that are used by EADAS Interface-U.S. (Sheet 2 of 4)**

Table name	Parameter name	Explanation and action
OFCENG	EADAS30M_BUFFER_SIZE	Sets buffer size for EADAS 30 min data. Nortel support personnel enter values for the parameters at loadbuild. The values specified equal the number of words of data store allocated for an EADAS accumulating class. A reload/restart is necessary for these parameters to take effect. For BCS releases before BCS20, Nortel sets the buffer sizes for these three parameters. Information that each operating company provide determines the buffer sizes. The buffers can change during BCS loadbuild or an upgrade. Consider future office needs when you calculate buffer sizes. For BCS releases BCS20 or later versions, these parameters can change to modify buffer sizes as required. For information on how to calculate or changing buffer sizes, refer to the <i>Operational Measurements Reference Manual</i>.
OFCENG	EADAS60M_BUFFER_SIZE	Sets buffer size for EADAS 60 min data. See EADAS30M_BUFFER_SIZE for more information.
OFCENG	EADAS24H_BUFFER_SIZE	Sets buffer size for EADAS 24 h data. Refer to EADAS30M_BUFFER_SIZE for more information.
OFCENG	OMXFR	Specifies the time interval when active OM registers copy to the holding registers. This parameter can have a value of 15 or 30 min. The default value is 30 min. If parameter EADAS_SHORT_XFER_ALLOWED in table OFCOPT is N, OMXFR must have a value of 30 min. A cold restart activates changes to OMXFR.

EADAS Interface-U.S. (continued)**Office parameters that are used by EADAS Interface-U.S. (Sheet 3 of 4)**

Table name	Parameter name	Explanation and action
OFCOPT	OMHISTORYON	Switches with the EADAS interface must not turn on the OMHISTORYON parameter. The default value for this parameter is N. If this parameter is Y, OMXFR cannot appear in table OFCENG, and 5 min OM transfer periods occur.
OFCVAR	EADAS_GENERIC_ID	This parameter contains the switch generic identification numbers that identify the current DMS-100 BCS release number. These numbers appear in the header of every message. The system sends this message to EADAS, so that EADAS can determine the switch software release with which EADAS communicates. This table is an alphanumeric table with the range 000 through FFF. The operating company must determine these values for each new BCS. The operating company must copy the current value of the parameter when the operating company performs a dump and restore. The dump and restore is from a BCS to the same BCS. When the operating company performs a dump and restore from a lower to a higher BCS this parameter must change. An example of a dump and restore from a lower to a higher BCS is from BCS30 to BCS31. The parameter must identify the new BCS.
OFCVAR	EADAS_MPC_AND_LINK	This parameter allows EADAS polling. The parameter contains two numeric fields. Field MPC contains the MPC number that the transceivers use. Field LINK contains the link number that the transceivers use. These fields can change on site to allow for hardware replacement when necessary and to permit first system configuration. Copy the current value of the parameter when you perform dump and restore from BCS19 to BCS19 or later versions.

EADAS Interface-U.S. (continued)**Office parameters that are used by EADAS Interface-U.S. (Sheet 4 of 4)**

Table name	Parameter name	Explanation and action
OFCVAR	NETMINDER_MPC_AND_LINK	This parameter allows NETMINDER polling. The parameter contains two numeric fields. Field MPC contains the MPC number that the transceivers use. Field LINK contains the link number that the transceivers use. These fields can change on site to allow for hardware replacement when necessary and also to permit first system configuration. The default value for NETMINDER_MPC_AND_LINK is (0 3). The EADAS initialization procedure handles NETMINDER_MPC_AND_LINK.
OFCVAR	EADAS_ENABLED	This parameter enables or disables transmission and reception of EADAS data on the EADAS data link. This parameter is for events when the EADAS software is present in the switch, but: - the necessary hardware is not available - the necessary hardware fails The system does not generate logs with disabled transceivers. This parameter does not require a start again. Copy the current value of the parameter when you perform dump and restore from BCS19 to BCS19 or later versions. Make sure this parameter is N until data you enter data in each of the different tables. Set this parameter to Y when you are ready to send data for polling only. Always change this parameter to N before you perform tests on the MPC card.

EADAS Interface-U.S. (continued)

Datafill sequence

The tables that require datafill to implement EADAS Interface-U.S. appear in the following table. The tables appear in the correct entry order.

Datafill requirements for EADAS Interface-U.S.

Table	Purpose of table
MPC	Table Multiprotocol Controller (MPC) identifies MPC cards.
MPCLINK	Table Multiprotocol Controller Link (MPCLINK) specifies links and protocol.
OMACC	Table Operation Measurements Accumulating Classes (OMACC) defines time periods for OMs.

Datafilling table MPC

Table MPC contains values necessary to implement the multiprotocol controller/enhanced mutiprotocol controller (MPC/EMPC) in the DMS switch. This table identifies the MPC/EMPC card hardware to the DMS central control (CC). This table requires one entry or tuple for each MPC.

Each entry contains an index number for the following:

- the MPC
- the number of the IOC shelf where the card resides
- the card circuit number
- the product equipment code (PEC)
- the ID for the download file to use

Note: Only one network management interface can be active on the DMS-100 switch at any time. These interfaces are the EADAS/NM Interface (250 trunk groups) or the NetMinder Interface (1024 trunk groups). Each interface must have a dedicated MPC port.

EADAS Interface-U.S. (continued)

Datafill for EADAS Interface-U.S. for table MPC appears in the following table. The fields that apply to EADAS Interface-U.S. appear in this table.

Datafilling table MPC

Field	Subfield or refinement	Entry	Explanation and action
MPCNO		0-255	Multiprotocol controller number. Enter the number of one MPC.
MPCIOC		0-19	Multiprotocol controller input/output controller. Enter the number of the IOC shelf on which the MPC card resides.
IOCCCT		0-35	Input/output circuit number. Enter the circuit number on the IOC shelf.
EQ		1X89AA	Equipment code. Enter the Nortel Product Engineering Code. The 1X89AA is the code for the MPC card.
DLDFILE		alphanumeric (eight characters)	Download file. Enter an eight-character file name that begins with MPC, followed by X for X25ORIG (BX.25). Four alphanumeric characters that designate the BCS cycle and its load name follow this name.

Datafill example for table MPC

Sample datafill for table MPC appears in the following example.

MAP example for table MPC

MPCNO	MPCIOC	IOCCCT	EQ	DLDFILE
0	0	32	1X89AA	MPCX31AA
2	1	28	1X89AA	MPCX31AA
3	0	16	1X89AA	MPCX31AA

Datafilling table MPCLINK

Table MPCLINK was introduced in BCS29. This table replaces table X25LINK in previous BCS releases. This table specifies link and protocol information for cards entered in table MPC. Entry of table MPCLINK occurs after table MPC. This table can receive any correct MPC, link, and protocol group, followed by a group of protocol specified fields as entries.

EADAS Interface-U.S. (continued)

Datafill for EADAS Interface-U.S. for table MPCLINK appears in the following table. The fields that apply to EADAS Interface-U.S. appear in the table.

Datafilling table MPCLINK (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LINKKEY		see subfield	Link key. This field contains subfields MPCNO and LINKNO.
	MPCNO	0-255	The MPC number. Enter the number of one MPC.
	LINKNO	0-3	Link number. Enter the number of the IOC shelf that the MPC card sits on.
LINKALM		Y or N	Link alarm. Enter Y to enable the MPCLINK alarm for system busy (SYSB) MPC links. If you do not want to activate the alarm, enter N.
PRTCLDAT		see subfield	The MPC protocol data area. A multiple field that contains subfield PROTOCOL and several other subfields.
	PROTOCOL	see subfield	Link protocol data. Enter X25ORIG to specify BX.25 protocols. The protocol selection must be the same as the download file table MPC specifies.
			Note: For protocol X25ORIG, data entry occurs in subfields CONVNABL, PARMS, PARMSEL, EXTRAINFL, and EXINFSEL.
	LINKNABL	0-32 767	Link enable. Enter the number of minutes a link is enabling before the link is busied. This value must be a multiple of 5. A 0 (zero) indicates an not determined time. Correct range is 0 through 32767. There is no default.
	CONVNABL	0-32 767	Conversation enable. Enter the number of minutes a conversation is not in service before correcting action occurs. This value must be a multiple of 5. A 0 (zero) value indicates an indefinite period of time. Correct range is 0 to 32767. There is no default.

EADAS Interface-U.S. (continued)

Datafilling table MPCLINK (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	PARMS	numeric	Parameters. This field is a vector field that contains 46 parameter options. To change a parameter default value, enter the parameter option and the associated value. Enter a \$ when you terminate a parameter entry or when the field is not required.
	PARMSEL	numeric	Parameter selector. This field is a vector that contains 45 parameter options. To change a parameter default value, enter the parameter option and the associated value. Parameter entry must be as a group of parm type. This group is field name and value, one at a time in any order. Enter a \$ when you terminate a parameter entry or when the field is not required.
	EXTRINF	alphanumeric	Extra information. This field is a vector that contains 2 parameter options. To change a parameter default value, enter the parameter option and the associated value. Enter a \$ when you terminate a parameter entry or when the field is not required.
	EXINFSEL	SVCDNA or SVCTYPE	Extra information selector. Entry of data in this field is necessary if total SVCs on link is a value other than 0. Correct entries are SVCDNA or SVCTYPE. Note: When SVCs are not entered, the system configures a default of 0 for each type if some PVCs are entered. When PVCs are not entered, the system rejects the tuple. If you specify SVCDNA, you must enter field DIGITS for EXINFSEL.

Datafill example for table MPCLINK

Sample datafill for table MPCLINK appears in the following example.

EADAS Interface-U.S. (continued)

MAP example for table MPCLINK

LINKKEY	LINKALM	PRTCLDAT
0 2 Y		
X25ORIG 55 55 (NUMPVC 16)(L2WINDOW 7)(ENVIRON DCETODTE)(NODETYPE DCE) (TINACTIVE 30) (TIDLE 30) (T25 0) (T20 180) (T22 180)(T21 180)(R23 180) \$ (SVCDNA 1111111) (SVCTYPE NTELPAC) \$		

Datafilling table OMACC

The Operational Measurements Accumulation Table (OMACC) records the time over which the accumulating registers accumulate data for a specified accumulating class of operational measurements.

The system allocates memory automatically for 32 entries in table OMACC.

When a switch contains the EADAS/DC interface, the system adds the following additional OM classes to table OMACC at loadbuild:

- EADAS30M
- EADAS60M
- EADAS24H

These OM accumulating classes collect data from the EADAS interface and the NetMinder Interface that the system sends to the EADAS/DC.

Note: These additional entries must be in positions 1 through 3 of table OMACC. The system adds EADAS30M, EADAS60M, and EADAS24H classes to table OMACC. Manual data entry is necessary in the WHEN subfields. This action makes sure these subfields do not default to values that are not correct.

EADAS Interface-U.S. (continued)

Datafill for EADAS Interface-U.S. for table OMACC appears in the following table. The fields that apply to EADAS Interface-U.S. appear in this table.

Datafilling table OMACC (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CLASS		see subfield	Class name. Contains the name of the accumulating or history class operational measurements to establish accumulative periods are for. This field is read-only. The system enters this field when you establish a class with the OMCLASS command. The two EADAS 5 min network management classes are PREV5M and CURR5M.
ENABLED		Y or N	Enabled. Enter Y where the accumulating class is enabled, and accumulation of data during the specified period occurs. Enter N where the accumulating class is not enabled and accumulation does not occur.

EADAS Interface-U.S. (continued)**Datafilling table OMACC (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
PRECSN		SPRECISION	Precision. This field expands the range of OM registers. This action depends on the accumulation of the OM data. Enter SPRECISION for single precision.
WHEN		see subfield	When. This field includes the following subfields: • REP • FROMDAYOFM • FROMDAYOFW • FROMTIME • TODAY OFM • TODAYOFW • TOTIME • STARTUP • SNAPSHOTS • XFER The entries in these subfields determine how often and at what times the OM measurements accumulate. The entry in subfield REP determines the entries to be made in the other subfields. On form 2612, subfield REP appears followed by REFINEMENTS FOR REP. The values for the subfields are entered in the area REFINEMENTS FOR REP, as the entry in subfield REP determines. Each value in this field separates from the next by a blank column.

Datafill example for table OMACC

Sample datafill for table OMACC appears in the following example.

MAP example for table OMACC

CLASS	ENABLED	PRECSN	WHEN
EADAS30M	N	SPRECISION	AUTO
EADAS60M	N	SPRECISION	AUTO
EADAS24H	N	SPRECISION	AUTO

The command OMACCTAB defines the measurements of which groups can accumulate.

EADAS Interface-U.S. (end)

Tools for verifying translations

The EADAS Interface-U.S. does not use tools for verifying translations.

SERVORD

The EADAS Interface-U.S. does not use SERVORD.

Index

A

activating

1A EADAS Network Management

Vol. 2, 3-10

3-Way Call Chaining Vol. 2, 3-28

Application and file processors Vol. 3, 4-7

Application processor base and file processor Vol. 2, 3-33

Automatic Message Accounting Teleprocessing System Vol. 2, 2-7

Bellcore LAMA Format Vol. 2, 3-297

CAC Blocking for IEC/INC Vol. 2, 3-590

Cancel Call Waiting - per Line Vol. 2, 3-599

CUSD Vol. 2, 3-761

Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-106

DN Attributes Service Order Enhancements Vol. 2, 3-777

DN Network Attributes Vol. 2, 3-790

EADAS Interface Vol. 2, 3-825

Feature Group A Vol. 3, 1-15, Vol. 3, 1-47

Feature Group B AMA - End Office Vol. 3, 1-69

FGB AMA End Office (NT Format) Vol. 3, 1-130

FGB AMA Tandem (ATT Format) Vol. 3, 1-162

Flexible Bellcore AMA Vol. 3, 1-198

LCM REX Controller Enhancement Vol. 3, 1-215

Local Call Detail Recording Vol. 3, 1-225

Network Facility Access Vol. 3, 5-37

Network Management Vol. 3, 1-267

Network Management - Enhanced Vol. 3, 1-335

New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-30

NFA

AMA Modification Vol. 3, 5-11

Remote Access, Flash Processing Vol. 3, 5-103

Preserve EADAS Data Over SW Application Vol. 3, 1-355

Random Conditional Routing Vol. 3, 1-359

Remote Call Forwarding Vol. 3, 1-373

SAID Enhanced Signaling Protocol Vol. 3, 5-147

SERVORD Enhancement for SLE Vol. 3, 1-390

Talk Battery Alarm Vol. 3, 1-402

Ten Digit GTT for CLASS Features Vol. 3, 1-405

Traffic Separation Measurements System (TSMS) Vol. 3, 1-408

Universal Speech Activated Intelligent Dialing Vol. 3, 5-179

Activation/deactivation by end user

Vol. 2, 3-609, Vol. 2, 3-646

AIODGRP, table

datafilling Vol. 1, 2-167, Vol. 1, 2-187,
Vol. 1, 2-455, Vol. 1, 2-509

AMAGRPID, table

datafilling Vol. 2, 3-196, Vol. 2, 3-205,
Vol. 2, 3-543, Vol. 2, 3-553

AMAOPTS, table

datafilling Vol. 2, 3-181, Vol. 2, 3-187,
Vol. 2, 3-189, Vol. 2, 3-191, Vol. 2, 3-194,
Vol. 2, 3-203, Vol. 2, 3-320, Vol. 2, 3-324,
Vol. 2, 3-329, Vol. 2, 3-330, Vol. 2, 3-354,
Vol. 2, 3-365, Vol. 2, 3-379, Vol. 2, 3-411,
Vol. 2, 3-432, Vol. 2, 3-433, Vol. 2, 3-458,

Vol. 2, 3-469, Vol. 2, 3-483, Vol. 2, 3-515,
Vol. 2, 3-536, Vol. 2, 3-543, Vol. 2, 3-552,
Vol. 2, 3-767, Vol. 3, 1-94, Vol. 3, 1-120,
Vol. 3, 1-177
AMAPRT, subtable
 datafilling Vol. 2, 3-178, Vol. 2, 3-548,
 Vol. 3, 1-202
AMATKOPT, table
 datafilling Vol. 2, 3-185, Vol. 2, 3-202,
 Vol. 2, 3-325, Vol. 2, 3-540, Vol. 2, 3-550
AMAXLAID, table
 datafilling Vol. 2, 3-206, Vol. 2, 3-544,
 Vol. 2, 3-554
ANNMEMS, table
 datafilling Vol. 1, 1-79, Vol. 1, 1-180
ANNS, table
 datafilling Vol. 1, 1-76, Vol. 1, 1-177,
 Vol. 3, 5-109
APCDINV, table
 datafilling Vol. 2, 3-47, Vol. 3, 4-20
APINV, table
 datafilling Vol. 2, 3-36, Vol. 3, 4-9
ARUMEMBR, table
 datafilling Vol. 1, 2-716
ASSVFEAT, table
 datafilling Vol. 3, 5-150
ASSVLINK, table
 datafilling Vol. 3, 5-149

B

Base Services

 datafilling Vol. 2, 1-9
 functional groups Vol. 2, 1-15
 translations Vol. 2, 1-1

BCCODES, table

 datafilling Vol. 2, 3-182, Vol. 2, 3-355,
 Vol. 2, 3-369, Vol. 2, 3-380, Vol. 2, 3-412,
 Vol. 2, 3-459, Vol. 2, 3-473, Vol. 2, 3-484,
 Vol. 2, 3-516, Vol. 2, 3-538, Vol. 3, 1-95,
 Vol. 3, 1-123, Vol. 3, 1-180

BCDEF, table

 datafilling Vol. 1, 2-169, Vol. 1, 2-190

BCLIDGRP, table

 datafilling Vol. 1, 2-168, Vol. 1, 2-207

billing

 1A EADAS Network Management
 Vol. 2, 3-10
 3-Way Call Chaining Vol. 2, 3-28
 A5 trunk groups Vol. 1, 2-5
 AI trunk groups Vol. 1, 2-19
 AN trunk groups Vol. 1, 2-25
 ANI trunk groups Vol. 1, 2-33
 Application and file processors Vol. 3, 4-7
 Application processor base and file proces-
 sor Vol. 2, 3-33
 ATC trunk groups Vol. 1, 2-44
 Automatic Message Accounting Telepro-
 cessing System Vol. 2, 2-7
 Bellcore LAMA Format Vol. 2, 3-297
 CA trunk groups Vol. 1, 2-64
 CAC Blocking for IEC/INC Vol. 2, 3-590
 Cancel Call Waiting - per Line Vol. 2, 3-599
 CCS7 equipment tables Vol. 2, 3-609
 CCS7 MTP/SCCP Vol. 2, 3-646
 CELL trunk groups Vol. 1, 2-72
 CISANI trunk groups Vol. 1, 2-79
 CUSD Vol. 2, 3-762
 DA trunk groups Vol. 1, 2-100
 Datafilling FGB AMA End Office (ATT
 Format) Vol. 3, 1-106
 DN Attributes Service Order Enhancements
 Vol. 2, 3-778
 DN Network Attributes Vol. 2, 3-790
 DS0 trunk groups Vol. 1, 2-108
 E911 trunk groups Vol. 1, 2-116
 EADAS Interface Vol. 2, 3-825
 ES trunk groups Vol. 1, 2-128
 Feature Group A Vol. 3, 1-15, Vol. 3, 1-47
 Feature Group B AMA - End Office
 Vol. 3, 1-69
 FGB AMA End Office (NT Format)
 Vol. 3, 1-130
 FGB AMA Tandem (ATT Format)
 Vol. 3, 1-162
 Flexible Bellcore AMA Vol. 3, 1-200
 GER2W trunk groups Vol. 1, 2-138
 GERIC trunk groups Vol. 1, 2-146
 GEROG trunk groups Vol. 1, 2-154
 IBNT2 trunk groups Vol. 1, 2-163
 IBNTI trunk groups Vol. 1, 2-183
 IBNTO trunk groups Vol. 1, 2-203

-
- IET trunk groups Vol. 1, 2-216
 - INT101 trunk groups Vol. 1, 2-231
 - IR trunk groups Vol. 1, 2-238
 - IS trunk groups Vol. 1, 2-244
 - ITL2 trunk groups Vol. 1, 2-268
 - ITOPS trunk groups Vol. 1, 2-277
 - LCM REX Controller Enhancement
Vol. 3, 1-216
 - Line to line translations Vol. 1, 1-28
 - Line to treatment translations Vol. 1, 1-53
 - Line to trunk translations Vol. 1, 1-88
 - Local Call Detail Recording Vol. 3, 1-226
 - LOOPA trunk groups Vol. 1, 2-288
 - LP4W trunk groups Vol. 1, 2-310
 - LPBK trunk groups Vol. 1, 2-322
 - MAINT trunk groups Vol. 1, 2-340
 - MTR trunk groups Vol. 1, 2-351
 - Network Facility Access Vol. 3, 5-38
 - Network Management Vol. 3, 1-267
 - Network Management - Enhanced
Vol. 3, 1-335
 - New Software Delivery Data Transfer Con-
trol Mechanism Vol. 2, 2-30
 - NFA
 - AMA Modification Vol. 3, 5-11
 - Remote Access, Flash Processing
Vol. 3, 5-104
 - NFA trunk groups Vol. 1, 2-365
 - OC trunk groups Vol. 1, 2-385
 - OI trunk groups Vol. 1, 2-397
 - OP trunk groups Vol. 1, 2-407
 - OPR trunk groups Vol. 1, 2-427
 - OS trunk groups Vol. 1, 2-441
 - P2 trunk groups Vol. 1, 2-452
 - Preserve EADAS Data Over SW Applica-
tion Vol. 3, 1-355
 - PRI trunk groups Vol. 1, 2-467
 - PRIVLN trunk groups Vol. 1, 2-496
 - PX trunk groups Vol. 1, 2-505
 - Random Conditional Routing Vol. 3, 1-359
 - RC trunk groups Vol. 1, 2-526
 - Remote Call Forwarding Vol. 3, 1-373
 - RONI trunk groups Vol. 1, 2-534
 - ROTL trunk groups Vol. 1, 2-542
 - SAID Enhanced Signaling Protocol
Vol. 3, 5-147
 - SC trunk groups Vol. 1, 2-551
 - SERVORD Enhancement for SLE
Vol. 3, 1-390
 - SOCKET trunk groups Vol. 1, 2-566
 - SPC trunk groups Vol. 1, 2-575
 - T101 trunk groups Vol. 1, 2-600
 - T105 trunk groups Vol. 1, 2-608
 - T2 trunk groups Vol. 1, 2-584
 - Talk Battery Alarm Vol. 3, 1-402
 - TD trunk groups Vol. 1, 2-616
 - TDDO trunk groups Vol. 1, 2-626
 - Ten Digit GTT for CLASS Features
Vol. 3, 1-405
 - TI trunk groups Vol. 1, 2-635
 - TL trunk groups Vol. 1, 2-650
 - TO trunk groups Vol. 1, 2-656
 - TOPS trunk groups Vol. 1, 2-671
 - TOPSARU trunk groups Vol. 1, 2-710
 - TOPSVL trunk groups Vol. 1, 2-721
 - TPS101 trunk groups Vol. 1, 2-728
 - Traffic Separation Measurements System
(TSMS) Vol. 3, 1-408
 - Trunk to line translations Vol. 1, 1-149
 - Trunk to treatment translations Vol. 1, 1-170
 - Trunk to trunk translations Vol. 1, 1-200
 - TTL2 trunk groups Vol. 1, 2-738
 - Universal Speech Activated Intelligent Dial-
ing Vol. 3, 5-157, Vol. 3, 5-179
 - VR trunk groups Vol. 1, 2-746
 - X75 trunk groups Vol. 1, 2-756
 - ZI trunk groups Vol. 1, 2-767
-
- ## C
- C6TRKMEM, table
 - datafilling Vol. 1, 2-265
 - C7ALIAS, table
 - datafilling Vol. 2, 3-691
 - C7CNGSTN, table
 - datafilling Vol. 2, 3-674
 - C7GTT, table
 - datafilling Vol. 2, 3-742
 - C7GTTYPE, table
 - datafilling Vol. 2, 3-738
 - C7LINK, table
 - datafilling Vol. 2, 3-707
 - C7LKSET, table
 - datafilling Vol. 2, 3-693
-

C7LOCSSN, table
 datafilling Vol. 2, 3-730
C7NETSSN, table
 datafilling Vol. 2, 3-722
C7NETWRK, table
 datafilling Vol. 2, 3-685
C7RPLSSN, table
 datafilling Vol. 2, 3-734
C7RSSCRN, table
 datafilling Vol. 2, 3-727
C7RTESET, table
 datafilling Vol. 2, 3-714
C7TIMER, table
 datafilling Vol. 2, 3-647
C7TRKMEM, table
 datafilling Vol. 1, 2-178, Vol. 1, 2-198,
 Vol. 1, 2-213
CCSDOC, table
 datafilling Vol. 3, 1-343
CCTR, table
 datafilling Vol. 3, 1-277
CLLI, table
 datafilling Vol. 1, 1-73, Vol. 1, 1-102,
 Vol. 1, 1-151, Vol. 1, 1-173, Vol. 1, 1-202,
 Vol. 1, 2-7, Vol. 1, 2-20, Vol. 1, 2-27, Vol. 1, 2-35,
 Vol. 1, 2-46, Vol. 1, 2-66, Vol. 1, 2-73,
 Vol. 1, 2-81, Vol. 1, 2-102, Vol. 1, 2-110,
 Vol. 1, 2-118, Vol. 1, 2-129, Vol. 1, 2-140,
 Vol. 1, 2-148, Vol. 1, 2-156, Vol. 1, 2-166,
 Vol. 1, 2-186, Vol. 1, 2-206, Vol. 1, 2-217,
 Vol. 1, 2-232, Vol. 1, 2-239, Vol. 1, 2-246,
 Vol. 1, 2-255, Vol. 1, 2-270, Vol. 1, 2-279,
 Vol. 1, 2-290, Vol. 1, 2-311, Vol. 1, 2-324,
 Vol. 1, 2-342, Vol. 1, 2-353, Vol. 1, 2-367,
 Vol. 1, 2-376, Vol. 1, 2-387, Vol. 1, 2-399,
 Vol. 1, 2-410, Vol. 1, 2-429, Vol. 1, 2-443,
 Vol. 1, 2-454, Vol. 1, 2-469, Vol. 1, 2-497,
 Vol. 1, 2-508, Vol. 1, 2-527, Vol. 1, 2-535,
 Vol. 1, 2-544, Vol. 1, 2-552, Vol. 1, 2-568,
 Vol. 1, 2-576, Vol. 1, 2-586, Vol. 1, 2-601,
 Vol. 1, 2-609, Vol. 1, 2-617, Vol. 1, 2-627,
 Vol. 1, 2-637, Vol. 1, 2-651, Vol. 1, 2-661,
 Vol. 1, 2-674, Vol. 1, 2-711, Vol. 1, 2-722,
 Vol. 1, 2-730, Vol. 1, 2-739, Vol. 1, 2-747,
 Vol. 1, 2-758, Vol. 1, 2-768, Vol. 2, 2-9,
 Vol. 2, 3-382, Vol. 2, 3-486, Vol. 3, 5-148

CLSVSCRC, table
 datafilling Vol. 1, 1-64, Vol. 1, 1-188
CLSVSCRC.CLSVSCR, subtable
 datafilling Vol. 1, 1-66, Vol. 1, 1-189
Components of a telephone call Vol. 3, 3-1
CRSFMT, table
 datafilling Vol. 2, 3-188, Vol. 2, 3-319,
 Vol. 3, 1-136
CUSTHEAD, table
 datafilling Vol. 2, 3-338, Vol. 2, 3-400,
 Vol. 2, 3-417, Vol. 2, 3-442, Vol. 2, 3-504,
 Vol. 2, 3-521
CUSTSTN, table
 datafilling Vol. 3, 5-67, Vol. 3, 5-110,
 Vol. 3, 5-187
CXGRP, table
 datafilling Vol. 1, 2-516

D

datafill sequence
 1A EADAS Network Management
 Vol. 2, 3-15
 3-Way Call Chaining Vol. 2, 3-28
 A5 trunk groups Vol. 1, 2-6
 AI trunk groups Vol. 1, 2-19
 AN trunk groups Vol. 1, 2-26
 ANI trunk groups Vol. 1, 2-33
 Application and file processors Vol. 3, 4-8
 Application processor base and file proces-
 sor Vol. 2, 3-34
 ATC trunk groups Vol. 1, 2-45
 Automatic Message Accounting Telepro-
 cessing System Vol. 2, 2-8
 Bellcore CAMA Format Vol. 2, 3-173
 Bellcore LAMA Format
 AMA Test Call Capability Vol. 2, 3-323
 AMA Test Call Enhancements Vol. 2, 3-325
 Call Code 072 Vol. 2, 3-392, Vol. 2, 3-496
 Call Code 117 Vol. 2, 3-413, Vol. 2, 3-517
 Call Codes 009, 033, 121 Assignment Via
 Translations Vol. 2, 3-371,
 Vol. 2, 3-475
 Call Codes 072 and 117 Vol. 2, 3-381,
 Vol. 2, 3-485
 CAMA, LAMA, and LAMA enhancement
 formats Vol. 2, 3-356, Vol. 2, 3-460
 DWS 1203 AMA Billing Vol. 2, 3-319

-
- Global EBAF AMA (Clone) Vol. 2, 3-320
 - IBN Compatibility with Bellcore LAMA Format and MUMR Vol. 2, 3-356, Vol. 2, 3-460
 - OUTWATS station billing for Call Code 111 Vol. 2, 3-331, Vol. 2, 3-435
 - TR-508 AMA Compliancy II Vol. 2, 3-330, Vol. 2, 3-433
 - TR-862 AMA Compliance Circuit Vol. 2, 3-326
 - Universal Bellcore Centrex Billing (North American offices) Vol. 2, 3-540
 - Universal Bellcore Centrex Billing (Universal offices) Vol. 2, 3-549
 - VFG AMA Support for EX and ETS Calls Vol. 2, 3-321
 - CA trunk groups Vol. 1, 2-65
 - CAC Blocking for IEC/INC Vol. 2, 3-590
 - Cancel Call Waiting - per Line Vol. 2, 3-601
 - CCS7 equipment tables Vol. 2, 3-609
 - CCS7 MTP/SCCP Vol. 2, 3-646
 - CELL trunk groups Vol. 1, 2-72
 - CISANI trunk groups Vol. 1, 2-80
 - CUSD Vol. 2, 3-766
 - DA trunk groups Vol. 1, 2-101
 - Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-107
 - DN Attributes Service Order Enhancements Vol. 2, 3-779
 - DN Network Attributes Vol. 2, 3-791
 - DS0 trunk groups Vol. 1, 2-109
 - E911 trunk groups Vol. 1, 2-117
 - EADAS Interface Vol. 2, 3-830
 - ES trunk groups Vol. 1, 2-128
 - Feature Group A Vol. 3, 1-16, Vol. 3, 1-25, Vol. 3, 1-47
 - Feature Group B AMA - End Office Vol. 3, 1-70
 - FGB AMA End Office (NT Format) Vol. 3, 1-135
 - FGB AMA Tandem (ATT Format) Vol. 3, 1-163
 - GER2W trunk groups Vol. 1, 2-139
 - GERIC trunk groups Vol. 1, 2-147
 - GEROG trunk groups Vol. 1, 2-155
 - IBNT2 trunk groups Vol. 1, 2-61, Vol. 1, 2-62, Vol. 1, 2-164
 - IBNTI trunk groups Vol. 1, 2-185
 - IBNTO trunk groups Vol. 1, 2-204
 - IET trunk groups Vol. 1, 2-217
 - INT101 trunk groups Vol. 1, 2-231
 - IR trunk groups Vol. 1, 2-238
 - IS trunk groups Vol. 1, 2-245
 - IT trunk groups Vol. 1, 2-254
 - ITL2 trunk groups Vol. 1, 2-269
 - ITOPS trunk groups Vol. 1, 2-277
 - LCM REX Controller Enhancement Vol. 3, 1-217
 - Line to line translations Vol. 1, 1-29
 - Line to treatment translations Vol. 1, 1-55
 - Line to trunk translations Vol. 1, 1-89
 - LOOPA trunk groups Vol. 1, 2-289
 - LP4W trunk groups Vol. 1, 2-309
 - LPBK trunk groups Vol. 1, 2-322
 - MAINT trunk groups Vol. 1, 2-341
 - MTR trunk groups Vol. 1, 2-352
 - Network Facility Access Vol. 3, 5-55
 - Network Management Vol. 3, 1-268
 - Network Management - Enhanced Vol. 3, 1-336
 - New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-30
 - NFA
 - AMA Modification Vol. 3, 5-13
 - Remote Access, Flash Processing Vol. 3, 5-106
 - NFA trunk groups Vol. 1, 2-366
 - NU trunk groups Vol. 1, 2-375
 - OC trunk groups Vol. 1, 2-386
 - OI trunk groups Vol. 1, 2-398
 - OP trunk groups Vol. 1, 2-408
 - OPR trunk groups Vol. 1, 2-427
 - OS trunk groups Vol. 1, 2-442
 - P2 trunk groups Vol. 1, 2-453
 - Preserve EADAS Data Over SW Application Vol. 3, 1-355
 - PRI trunk groups Vol. 1, 2-468
 - PRIVLN trunk groups Vol. 1, 2-496
 - PX trunk groups Vol. 1, 2-506
 - Random Conditional Routing Vol. 3, 1-359
 - RC trunk groups Vol. 1, 2-526
 - Remote Call Forwarding Vol. 3, 1-375
 - RONI trunk groups Vol. 1, 2-534
 - ROTL trunk groups Vol. 1, 2-543
-

- SAID Enhanced Signaling Protocol
Vol. 3, 5-147
- SC trunk groups Vol. 1, 2-551
- SERVORD Enhancement for SLE
Vol. 3, 1-391
- SOCKET trunk groups Vol. 1, 2-567
- SPC trunk groups Vol. 1, 2-575
- T101 trunk groups Vol. 1, 2-600
- T105 trunk groups Vol. 1, 2-608
- T2 trunk groups Vol. 1, 2-584
- Talk Battery Alarm Vol. 3, 1-403
- TD trunk groups Vol. 1, 2-616
- TDDO trunk groups Vol. 1, 2-626
- Ten Digit GTT for CLASS Features
Vol. 3, 1-406
- TI trunk groups Vol. 1, 2-636
- TL trunk groups Vol. 1, 2-650
- TO trunk groups Vol. 1, 2-660
- TOPS trunk groups Vol. 1, 2-673
- TOPSARU trunk groups Vol. 1, 2-710
- TOPSVL trunk groups Vol. 1, 2-721
- TPS101 trunk groups Vol. 1, 2-729
- Traffic Separation Measurements System
(TSMS) Vol. 3, 1-410
- Trunk to line translations Vol. 1, 1-150
- Trunk to treatment translations Vol. 1, 1-172
- Trunk to trunk translations Vol. 1, 1-201
- TTL2 trunk groups Vol. 1, 2-738
- Universal Speech Activated Intelligent Dial-
ing Vol. 3, 5-185
- VR trunk groups Vol. 1, 2-746
- X75 trunk groups Vol. 1, 2-757
- ZI trunk groups Vol. 1, 2-767
- deactivating
 - 1A EADAS Network Management
Vol. 2, 3-10
 - 3-Way Call Chaining Vol. 2, 3-28
 - Application and file processors Vol. 3, 4-7
 - Application processor base and file proces-
sor Vol. 2, 3-33
 - Automatic Message Accounting Telepro-
cessing System Vol. 2, 2-7
 - Bellcore LAMA Format Vol. 2, 3-297
 - CAC Blocking for IEC/INC Vol. 2, 3-590
 - Cancel Call Waiting - per Line Vol. 2, 3-599
 - CUSD Vol. 2, 3-761
 - Datafilling FGB AMA End Office (ATT
Format) Vol. 3, 1-106
 - DN Attributes Service Order Enhancements
Vol. 2, 3-777
 - DN Network Attributes Vol. 2, 3-790
 - EADAS Interface Vol. 2, 3-825
 - Feature Group A Vol. 3, 1-15, Vol. 3, 1-47
 - Feature Group B AMA - End Office
Vol. 3, 1-69
 - FGB AMA End Office (NT Format)
Vol. 3, 1-130
 - FGB AMA Tandem (ATT Format)
Vol. 3, 1-162
 - Flexible Bellcore AMA Vol. 3, 1-198
 - LCM REX Controller Enhancement
Vol. 3, 1-215
 - Local Call Detail Recording Vol. 3, 1-225
 - Network Facility Access Vol. 3, 5-37
 - Network Management Vol. 3, 1-267
 - Network Management - Enhanced
Vol. 3, 1-335
 - New Software Delivery Data Transfer Con-
trol Mechanism Vol. 2, 2-30
 - NFA
 - AMA Modification Vol. 3, 5-11
 - Remote Access, Flash Processing
Vol. 3, 5-103
 - Preserve EADAS Data Over SW Applica-
tion Vol. 3, 1-355
 - Random Conditional Routing Vol. 3, 1-359
 - Remote Call Forwarding Vol. 3, 1-373
 - SAID Enhanced Signaling Protocol
Vol. 3, 5-147
 - SERVORD Enhancement for SLE
Vol. 3, 1-390
 - Talk Battery Alarm Vol. 3, 1-402
 - Ten Digit GTT for CLASS Features
Vol. 3, 1-405
 - Traffic Separation Measurements System
(TSMS) Vol. 3, 1-408
 - Universal Speech Activated Intelligent Dial-
ing Vol. 3, 5-179
- description
 - 1A EADAS Network Management
Vol. 2, 3-3
 - 3-Way Call Chaining Vol. 2, 3-25
 - A5 trunk groups Vol. 1, 2-4

-
- AI trunk groups Vol. 1, 2-17
 - AN trunk groups Vol. 1, 2-24
 - ANI trunk groups Vol. 1, 2-31
 - Application and file processors Vol. 3, 4-3
 - Application processor base and file processor Vol. 2, 3-29
 - ATC trunk groups Vol. 1, 2-41
 - Automatic Message Accounting Teleprocessing System Vol. 2, 2-2
 - Bellcore LAMA Format Vol. 2, 3-220
 - CA trunk groups Vol. 1, 2-63
 - CAC Blocking for IEC/INC Vol. 2, 3-589
 - Cancel Call Waiting - per Line Vol. 2, 3-592
 - CCS7 equipment tables Vol. 2, 3-605
 - CCS7 MTP/SCCP Vol. 2, 3-641
 - CELL trunk groups Vol. 1, 2-71
 - CISANI trunk groups Vol. 1, 2-78
 - CUSD Vol. 2, 3-755
 - DA trunk groups Vol. 1, 2-99
 - Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-100
 - DN Attributes Service Order Enhancements Vol. 2, 3-773
 - DN Network Attributes Vol. 2, 3-785
 - DS0 trunk groups Vol. 1, 2-107
 - E911 trunk groups Vol. 1, 2-114
 - EADAS Interface Vol. 2, 3-802
 - ES trunk groups Vol. 1, 2-126
 - Feature Group A Vol. 3, 1-3, Vol. 3, 1-37
 - Feature Group B AMA - End Office Vol. 3, 1-53
 - FGB AMA End Office (NT Format) Vol. 3, 1-128
 - FGB AMA Tandem (ATT Format) Vol. 3, 1-159
 - Flexible Bellcore AMA Vol. 3, 1-184
 - GER2W trunk groups Vol. 1, 2-137
 - GERIC trunk groups Vol. 1, 2-145
 - GEROG trunk groups Vol. 1, 2-153
 - IBNT2 trunk groups Vol. 1, 2-160
 - IBNTI trunk groups Vol. 1, 2-180
 - IBNTO trunk groups Vol. 1, 2-200
 - IET trunk groups Vol. 1, 2-215
 - INT101 trunk groups Vol. 1, 2-230
 - IR trunk groups Vol. 1, 2-237
 - IS trunk groups Vol. 1, 2-243
 - IT trunk groups Vol. 1, 2-251
 - ITL2 trunk groups Vol. 1, 2-267
 - ITOPS trunk groups Vol. 1, 2-275
 - LCM REX Controller Enhancement Vol. 3, 1-207
 - Line to line translations Vol. 1, 1-23
 - Line to treatment translations Vol. 1, 1-48
 - Line to trunk translations Vol. 1, 1-82
 - Local Call Detail Recording Vol. 3, 1-222
 - LOOPA trunk groups Vol. 1, 2-287
 - LP4W trunk groups Vol. 1, 2-294
 - LPBK trunk groups Vol. 1, 2-320
 - MAINT trunk groups Vol. 1, 2-332
 - MTR trunk groups Vol. 1, 2-349
 - Network Facility Access Vol. 3, 5-14
 - Network Management Vol. 3, 1-244
 - Network Management - Enhanced Vol. 3, 1-280
 - New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-27
 - NFA
 - AMA Modification Vol. 3, 5-2
 - Remote Access, Flash Processing Vol. 3, 5-82
 - NFA trunk groups Vol. 1, 2-364
 - NU trunk groups Vol. 1, 2-373
 - OC trunk groups Vol. 1, 2-384
 - OI trunk groups Vol. 1, 2-396
 - OP trunk groups Vol. 1, 2-405
 - OPR trunk groups Vol. 1, 2-420
 - OS trunk groups Vol. 1, 2-440
 - P2 trunk groups Vol. 1, 2-450
 - Preserve EADAS Data Over SW Application Vol. 3, 1-347
 - PRI trunk groups Vol. 1, 2-464
 - PRIVLN trunk groups Vol. 1, 2-495
 - PX trunk groups Vol. 1, 2-503
 - Random Conditional Routing Vol. 3, 1-358
 - RC trunk groups Vol. 1, 2-524
 - Remote Call Forwarding Vol. 3, 1-363
 - RONI trunk groups Vol. 1, 2-532
 - ROTL trunk groups Vol. 1, 2-541
 - SAID Enhanced Signaling Protocol Vol. 3, 5-126
 - SAID on MBS Vol. 3, 5-152
 - SC trunk groups Vol. 1, 2-549
 - SERVORD Enhancement for SLE Vol. 3, 1-389
-

- SOCKET trunk groups Vol. 1, 2-564
- SPC trunk groups Vol. 1, 2-573
- T101 trunk groups Vol. 1, 2-598
- T105 trunk groups Vol. 1, 2-606
- T2 trunk groups Vol. 1, 2-582
- Talk Battery Alarm Vol. 3, 1-396
- TD trunk groups Vol. 1, 2-614
- TDDO trunk groups Vol. 1, 2-624
- Ten Digit GTT for CLASS Features
Vol. 3, 1-404
- TI trunk groups Vol. 1, 2-633
- TL trunk groups Vol. 1, 2-648
- TO trunk groups Vol. 1, 2-656
- TOPS trunk groups Vol. 1, 2-668
- TOPSARU trunk groups Vol. 1, 2-708
- TOPSVL trunk groups Vol. 1, 2-719
- TPS101 trunk groups Vol. 1, 2-726
- Traffic Separation Measurements System
(TSMS) Vol. 3, 1-407
- Trunk to line translations Vol. 1, 1-145
- Trunk to treatment translations Vol. 1, 1-166
- Trunk to trunk translations Vol. 1, 1-196
- TTL2 trunk groups Vol. 1, 2-736
- Universal Speech Activated Intelligent Dial-
ing Vol. 3, 5-166
- VR trunk groups Vol. 1, 2-744
- X75 trunk groups Vol. 1, 2-754
- ZI trunk groups Vol. 1, 2-765
- DIGCOL, table
 - datafilling Vol. 2, 3-337, Vol. 2, 3-399,
Vol. 2, 3-416, Vol. 2, 3-441, Vol. 2, 3-503,
Vol. 2, 3-520
- DIRPPOOL, table
 - datafilling Vol. 2, 2-25
- DIRPSSYS, table
 - datafilling Vol. 2, 2-18
- DNATTRS, table
 - datafilling Vol. 2, 3-328, Vol. 2, 3-799
- DNGRPS, table
 - datafilling Vol. 2, 3-796
- DNINV, table
 - datafilling Vol. 1, 1-40, Vol. 1, 1-160
- DNROUTE, table
 - datafilling Vol. 2, 3-193, Vol. 2, 3-542,
Vol. 2, 3-551, Vol. 3, 5-112, Vol. 3, 5-185
- DPP, table
 - datafilling Vol. 2, 2-16
- DPROFILE, table
 - datafilling Vol. 2, 3-390, Vol. 2, 3-494
- E**
- E911ESN, table
 - datafilling Vol. 1, 2-125
- E911NPD, table
 - datafilling Vol. 1, 2-119
- EADAS, table
 - datafilling Vol. 3, 1-355
- EADNMPK, table
 - datafilling Vol. 2, 3-16
- EADNMTG, table
 - datafilling Vol. 2, 3-19
- EADNMTGP, table
 - datafilling Vol. 2, 3-20
- Elements of a CCS7 network Vol. 3, 3-6
- F**
- FGBCIC, table
 - datafilling Vol. 3, 1-96, Vol. 3, 1-125,
Vol. 3, 1-181
- FLEXAMA, table
 - datafilling Vol. 2, 3-198, Vol. 2, 3-207,
Vol. 2, 3-546, Vol. 2, 3-556
- FPDEVINV, table
 - datafilling Vol. 2, 3-59, Vol. 3, 4-30
- FPDIPINV, table
 - datafilling Vol. 2, 3-54, Vol. 3, 4-26
- Functional groups
 - trunk tables Vol. 1, 2-3
- functional groups
 - 10-digit translations Vol. 1, 1-22
- functionality
 - A5 trunk groups Vol. 1, 2-4
 - AI trunk groups Vol. 1, 2-17
 - AN trunk groups Vol. 1, 2-24
 - ANI trunk groups Vol. 1, 2-31
 - ATC trunk groups Vol. 1, 2-41
 - CA trunk groups Vol. 1, 2-63
 - CELL trunk groups Vol. 1, 2-71
 - DA trunk groups Vol. 1, 2-99
 - DS0 trunk groups Vol. 1, 2-107
 - E911 trunk groups Vol. 1, 2-114
 - ES trunk groups Vol. 1, 2-126
 - GER2W trunk groups Vol. 1, 2-137

GERIC trunk groups Vol. 1, 2-145
 GEROG trunk groups Vol. 1, 2-153
 IBNT2 trunk groups Vol. 1, 2-160
 IBNTI trunk groups Vol. 1, 2-180
 IBNTO trunk groups Vol. 1, 2-200
 IET trunk groups Vol. 1, 2-215
 MTR trunk groups Vol. 1, 2-349
 NFA trunk groups Vol. 1, 2-364
 NU trunk groups Vol. 1, 2-373
 OC trunk groups Vol. 1, 2-384
 OI trunk groups Vol. 1, 2-396
 OP trunk groups Vol. 1, 2-405
 P2 trunk groups Vol. 1, 2-450
 PRI trunk groups Vol. 1, 2-464
 PX trunk groups Vol. 1, 2-503
 SC trunk groups Vol. 1, 2-549
 T2 trunk groups Vol. 1, 2-582
 TI trunk groups Vol. 1, 2-633
 TL trunk groups Vol. 1, 2-648
 TO trunk groups Vol. 1, 2-656
 TOPS trunk groups Vol. 1, 2-668
 VR trunk groups Vol. 1, 2-744

H

HNPACODE, subtable
 datafilling Vol. 2, 3-348, Vol. 2, 3-408,
 Vol. 2, 3-452, Vol. 2, 3-512, Vol. 3, 1-27,
 Vol. 3, 1-92
 HNPACONT, table
 datafilling Vol. 1, 1-30, Vol. 1, 1-61,
 Vol. 1, 1-90, Vol. 1, 1-157, Vol. 1, 1-184,
 Vol. 1, 1-208, Vol. 2, 3-333, Vol. 2, 3-395,
 Vol. 2, 3-414, Vol. 2, 3-436, Vol. 2, 3-499,
 Vol. 2, 3-518, Vol. 3, 1-17, Vol. 3, 1-25,
 Vol. 3, 1-91
 HNPACONT.HNPACODE, subtable
 datafilling Vol. 1, 1-30, Vol. 1, 1-61,
 Vol. 1, 1-91, Vol. 1, 1-92, Vol. 1, 1-158,
 Vol. 1, 1-185, Vol. 1, 1-209
 HNPACONT.RETEREF, subtable
 datafilling Vol. 1, 1-210
 HNPACONT.RTEREF, table
 datafilling Vol. 3, 1-271
 HUNTGRP, table
 datafilling Vol. 1, 1-42, Vol. 1, 1-161,
 Vol. 3, 1-48

HUNTMEM, table
 datafilling Vol. 1, 1-42, Vol. 1, 1-162

I

IBNFEAT, table
 datafilling Vol. 3, 5-69, Vol. 3, 5-117
 IBNRTE, table
 datafilling Vol. 2, 3-340, Vol. 2, 3-443,
 Vol. 3, 1-360
 IBNXLA, table
 datafilling Vol. 2, 3-343, Vol. 2, 3-406,
 Vol. 2, 3-428, Vol. 2, 3-447, Vol. 2, 3-510,
 Vol. 2, 3-532, Vol. 2, 3-794, Vol. 3, 5-63,
 Vol. 3, 5-114, Vol. 3, 5-188
 interactions
 1A EADAS Network Management
 Vol. 2, 3-10
 3-Way Call Chaining Vol. 2, 3-27
 Application and file processors Vol. 3, 4-7
 Application processor base and file proces-
 sor Vol. 2, 3-33
 Automatic Message Accounting Telepro-
 cessing System Vol. 2, 2-7
 Bellcore LAMA Format Vol. 2, 3-294
 CAC Blocking for IEC/INC Vol. 2, 3-590
 Cancel Call Waiting - per Line Vol. 2, 3-598
 CCS7 equipment tables Vol. 2, 3-608
 CCS7 MTP/SCCP Vol. 2, 3-646
 CUSD Vol. 2, 3-761
 Datafilling FGB AMA End Office (ATT
 Format) Vol. 3, 1-106
 DN Attributes Service Order Enhancements
 Vol. 2, 3-776
 DN Network Attributes Vol. 2, 3-790
 EADAS Interface Vol. 2, 3-825
 Feature Group A Vol. 3, 1-15, Vol. 3, 1-46
 Feature Group B AMA - End Office
 Vol. 3, 1-69
 FGB AMA End Office (NT Format)
 Vol. 3, 1-130
 FGB AMA Tandem (ATT Format)
 Vol. 3, 1-162
 Flexible Bellcore AMA Vol. 3, 1-198
 LCM REX Controller Enhancement
 Vol. 3, 1-215

- Local Call Detail Recording Vol. 3, 1-224
- Network Facility Access Vol. 3, 5-31
- Network Management Vol. 3, 1-266
- Network Management - Enhanced
Vol. 3, 1-335
- New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-30
- NFA
 - AMA Modification Vol. 3, 5-11
 - Remote Access, Flash Processing
Vol. 3, 5-101
- Preserve EADAS Data Over SW Application Vol. 3, 1-354
- Random Conditional Routing Vol. 3, 1-358
- Remote Call Forwarding Vol. 3, 1-373
- SAID Enhanced Signaling Protocol
Vol. 3, 5-146
- SERVORD Enhancement for SLE
Vol. 3, 1-390
- Talk Battery Alarm Vol. 3, 1-402
- Ten Digit GTT for CLASS Features
Vol. 3, 1-405
- Traffic Separation Measurements System (TSMS) Vol. 3, 1-408
- Universal Speech Activated Intelligent Dialing Vol. 3, 5-177
- ISDNBILL, table
 - datafilling Vol. 2, 3-327
- ISUPDEST, table
 - datafilling Vol. 1, 2-176, Vol. 1, 2-196,
Vol. 1, 2-211
- K**
- KSETLINE, table
 - datafilling Vol. 2, 3-185
- L**
- LATANAME, table
 - datafilling Vol. 2, 3-352, Vol. 2, 3-456
- LATAOLA, table
 - datafilling Vol. 2, 3-352, Vol. 2, 3-456,
Vol. 2, 3-537
- LCASCR, table
 - datafilling Vol. 2, 3-402, Vol. 2, 3-506
- LCASCRCN, table
 - datafilling Vol. 1, 1-34, Vol. 1, 1-62,
Vol. 1, 1-95, Vol. 1, 2-675, Vol. 2, 3-397,
Vol. 2, 3-501
- LCASCRCN.LCASCR, subtable
 - datafilling Vol. 1, 1-35, Vol. 1, 1-63,
Vol. 1, 1-96
- LENFEAT, table
 - datafilling Vol. 3, 1-143
- LENLINES, table
 - datafilling Vol. 1, 1-38, Vol. 1, 1-56,
Vol. 1, 1-100, Vol. 1, 1-163, Vol. 3, 1-49
- LIMCDINV, table
 - datafilling Vol. 2, 3-618
- LIMINV, table
 - datafilling Vol. 2, 3-616
- limitations
 - 1A EADAS Network Management
Vol. 2, 3-9
 - 3-Way Call Chaining Vol. 2, 3-26
 - A5 trunk groups Vol. 1, 2-5
 - AI trunk groups Vol. 1, 2-18
 - AN trunk groups Vol. 1, 2-25
 - ANI trunk groups Vol. 1, 2-32
 - Application and file processors Vol. 3, 4-6
 - Application processor base and file processor Vol. 2, 3-33
 - ATC trunk groups Vol. 1, 2-44
 - Automatic Message Accounting Teleprocessing System Vol. 2, 2-6
 - Bellcore LAMA Format Vol. 2, 3-287
 - CA trunk groups Vol. 1, 2-64
 - CAC Blocking for IEC/INC Vol. 2, 3-590
 - Cancel Call Waiting - per Line Vol. 2, 3-598
 - CCS7 equipment tables Vol. 2, 3-608
 - CCS7 MTP/SCCP Vol. 2, 3-646
 - CELL trunk groups Vol. 1, 2-72
 - CISANI trunk groups Vol. 1, 2-79
 - CUSD Vol. 2, 3-761
 - DA trunk groups Vol. 1, 2-100
 - Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-106
 - DN Attributes Service Order Enhancements
Vol. 2, 3-776
 - DN Network Attributes Vol. 2, 3-790
 - DS0 trunk groups Vol. 1, 2-108
 - E911 trunk groups Vol. 1, 2-116

-
- EADAS Interface Vol. 2, 3-824
 - ES trunk groups Vol. 1, 2-128
 - Feature Group A Vol. 3, 1-14, Vol. 3, 1-45
 - Feature Group B AMA - End Office
Vol. 3, 1-69
 - FGB AMA End Office (NT Format)
Vol. 3, 1-130
 - FGB AMA Tandem (ATT Format)
Vol. 3, 1-162
 - Flexible Bellcore AMA Vol. 3, 1-197
 - GER2W trunk groups Vol. 1, 2-138
 - GERIC trunk groups Vol. 1, 2-146
 - GEROG trunk groups Vol. 1, 2-154
 - IBNT2 trunk groups Vol. 1, 2-163
 - IBNTI trunk groups Vol. 1, 2-183
 - IBNTO trunk groups Vol. 1, 2-203
 - IET trunk groups Vol. 1, 2-216
 - INT101 trunk groups Vol. 1, 2-231
 - IR trunk groups Vol. 1, 2-238
 - IS trunk groups Vol. 1, 2-244
 - IT trunk groups Vol. 1, 2-253
 - ITL2 trunk groups Vol. 1, 2-268
 - ITOPS trunk groups Vol. 1, 2-277
 - LCM REX Controller Enhancement
Vol. 3, 1-215
 - Line to line translations Vol. 1, 1-27
 - Line to treatment translations Vol. 1, 1-53
 - Line to trunk translations Vol. 1, 1-88
 - Local Call Detail Recording Vol. 3, 1-224
 - LOOPA trunk groups Vol. 1, 2-288
 - LP4W trunk groups Vol. 1, 2-309
 - LPBK trunk groups Vol. 1, 2-321
 - MAINT trunk groups Vol. 1, 2-338
 - MTR trunk groups Vol. 1, 2-350
 - Network Facility Access Vol. 3, 5-29
 - Network Management Vol. 3, 1-264
 - Network Management - Enhanced
Vol. 3, 1-334
 - New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-30
 - NFA
 - AMA Modification Vol. 3, 5-11
 - Remote Access, Flash Processing
Vol. 3, 5-100
 - NFA trunk groups Vol. 1, 2-365
 - NU trunk groups Vol. 1, 2-374
 - OC trunk groups Vol. 1, 2-385
 - OI trunk groups Vol. 1, 2-397
 - OP trunk groups Vol. 1, 2-407
 - OPR trunk groups Vol. 1, 2-426
 - OS trunk groups Vol. 1, 2-441
 - P2 trunk groups Vol. 1, 2-452
 - Preserve EADAS Data Over SW Application Vol. 3, 1-354
 - PRI trunk groups Vol. 1, 2-466
 - PRIVLN trunk groups Vol. 1, 2-496
 - PX trunk groups Vol. 1, 2-505
 - Random Conditional Routing Vol. 3, 1-358
 - RC trunk groups Vol. 1, 2-526
 - Remote Call Forwarding Vol. 3, 1-373
 - RONI trunk groups Vol. 1, 2-533
 - ROTL trunk groups Vol. 1, 2-542
 - SAID Enhanced Signaling Protocol
Vol. 3, 5-146
 - SC trunk groups Vol. 1, 2-551
 - SERVORD Enhancement for SLE
Vol. 3, 1-390
 - SOCKET trunk groups Vol. 1, 2-566
 - SPC trunk groups Vol. 1, 2-575
 - T101 trunk groups Vol. 1, 2-599
 - T105 trunk groups Vol. 1, 2-608
 - T2 trunk groups Vol. 1, 2-584
 - Talk Battery Alarm Vol. 3, 1-401
 - TD trunk groups Vol. 1, 2-615
 - TDDO trunk groups Vol. 1, 2-626
 - Ten Digit GTT for CLASS Features
Vol. 3, 1-405
 - TI trunk groups Vol. 1, 2-635
 - TL trunk groups Vol. 1, 2-650
 - TO trunk groups Vol. 1, 2-656
 - TOPS trunk groups Vol. 1, 2-671
 - TOPSARU trunk groups Vol. 1, 2-710
 - TOPSVL trunk groups Vol. 1, 2-720
 - TPS101 trunk groups Vol. 1, 2-728
 - Traffic Separation Measurements System (TSMS) Vol. 3, 1-408
 - Trunk to line translations Vol. 1, 1-149
 - Trunk to treatment translations Vol. 1, 1-170
 - Trunk to trunk translations Vol. 1, 1-200
 - TTL2 trunk groups Vol. 1, 2-737
 - Universal Speech Activated Intelligent Dialing Vol. 3, 5-176
 - VR trunk groups Vol. 1, 2-746
 - X75 trunk groups Vol. 1, 2-756
-

ZI trunk groups Vol. 1, 2-767
LIMPTINV, table
 datafilling Vol. 2, 3-621
LINEATTR, table
 datafilling Vol. 1, 1-37, Vol. 1, 1-58,
 Vol. 1, 1-99, Vol. 2, 3-174, Vol. 2, 3-341,
 Vol. 2, 3-372, Vol. 2, 3-405, Vol. 2, 3-427,
 Vol. 2, 3-445, Vol. 2, 3-476, Vol. 2, 3-509,
 Vol. 2, 3-531, Vol. 2, 3-547, Vol. 2, 3-557,
 Vol. 3, 1-19, Vol. 3, 1-29, Vol. 3, 1-85,
 Vol. 3, 1-117, Vol. 3, 1-137, Vol. 3, 1-173,
 Vol. 3, 1-376
LIUINV, table
 datafilling Vol. 2, 3-631
LNINV, table
 datafilling Vol. 2, 3-384, Vol. 2, 3-488
LPBKMEM, table
 datafilling Vol. 1, 2-330
LTCINV, table
 datafilling Vol. 2, 3-611
LTDEF, table
 datafilling Vol. 1, 2-489
LTGRP, table
 datafilling Vol. 1, 2-486
LTMAP, table
 datafilling Vol. 1, 2-493

M

MPC, table
 datafilling Vol. 2, 3-830
MPCFASTA, table
 datafilling Vol. 3, 5-148, Vol. 3, 5-151
MPCLINK, table
 datafilling Vol. 2, 3-831
MPCLSET, table
 datafilling Vol. 3, 5-148
MRSANAME, table
 datafilling Vol. 1, 2-456, Vol. 1, 2-510,
 Vol. 2, 3-361, Vol. 2, 3-465
MTAHORIZ, table
 datafilling Vol. 1, 2-752
MTD, table
 datafilling Vol. 2, 2-15
MUMRTAB, table
 datafilling Vol. 2, 3-362, Vol. 2, 3-364,
 Vol. 2, 3-466, Vol. 2, 3-468

N

NCOS, table
 datafilling Vol. 2, 3-340, Vol. 2, 3-403,
 Vol. 2, 3-426, Vol. 2, 3-444, Vol. 2, 3-507,
 Vol. 2, 3-530, Vol. 2, 3-793, Vol. 3, 1-410
NETATTR, table
 datafilling Vol. 1, 2-38, Vol. 1, 2-86,
 Vol. 1, 2-283, Vol. 1, 2-360, Vol. 1, 2-436,
 Vol. 1, 2-733
NETNAMES, table
 datafilling Vol. 2, 3-779, Vol. 2, 3-791
NLUPCLLI, table
 datafilling Vol. 1, 2-382
NWMAOCR, table
 datafilling Vol. 3, 1-340
NWMIDOC, table
 datafilling Vol. 3, 1-269, Vol. 3, 1-338
NWMPPLN, table
 datafilling Vol. 3, 1-275, Vol. 3, 1-343
NWMSC, table
 datafilling Vol. 3, 1-274
NWMSCPT, table
 datafilling Vol. 3, 1-275
NWMSD, table
 datafilling Vol. 3, 1-270, Vol. 3, 1-339
NWMSD.NWMSDPT, table
 datafilling Vol. 3, 1-271, Vol. 3, 1-339

O

OCCINFO, table
 datafilling Vol. 2, 3-419, Vol. 2, 3-523,
 Vol. 2, 3-590, Vol. 3, 1-81, Vol. 3, 1-112,
 Vol. 3, 1-144, Vol. 3, 1-168
OCCNAME, table
 datafilling Vol. 3, 1-71, Vol. 3, 1-109,
 Vol. 3, 1-164
office parameters
 1A EADAS Network Management
 Vol. 2, 3-11
 3-Way Call Chaining Vol. 2, 3-28
 A5 trunk groups Vol. 1, 2-6
 AI trunk groups Vol. 1, 2-19
 AN trunk groups Vol. 1, 2-26
 ANI trunk groups Vol. 1, 2-33
 Application and file processors Vol. 3, 4-7

-
- Application processor base and file processor Vol. 2, 3-34
 - ATC trunk groups Vol. 1, 2-44
 - Automatic Message Accounting Teleprocessing System Vol. 2, 2-8
 - Bellcore CAMA Format Vol. 2, 3-169
 - Bellcore LAMA Format Vol. 2, 3-314
 - CA trunk groups Vol. 1, 2-65
 - CAC Blocking for IEC/INC Vol. 2, 3-590
 - Cancel Call Waiting - per Line Vol. 2, 3-599
 - CCS7 equipment tables Vol. 2, 3-609
 - CCS7 MTP/SCCP Vol. 2, 3-646
 - CELL trunk groups Vol. 1, 2-72
 - CISANI trunk groups Vol. 1, 2-80
 - CUSD Vol. 2, 3-766
 - DA trunk groups Vol. 1, 2-101
 - Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-107
 - DN Attributes Service Order Enhancements Vol. 2, 3-778
 - DN Network Attributes Vol. 2, 3-790
 - DS0 trunk groups Vol. 1, 2-108
 - E911 trunk groups Vol. 1, 2-116
 - EADAS Interface Vol. 2, 3-825
 - ES trunk groups Vol. 1, 2-128
 - Feature Group A Vol. 3, 1-16, Vol. 3, 1-47
 - Feature Group B AMA - End Office Vol. 3, 1-69
 - FGB AMA End Office (NT Format) Vol. 3, 1-135
 - FGB AMA Tandem (ATT Format) Vol. 3, 1-163
 - Flexible Bellcore AMA Vol. 3, 1-201
 - GER2W trunk groups Vol. 1, 2-138
 - GERIC trunk groups Vol. 1, 2-146
 - GEROG trunk groups Vol. 1, 2-154
 - IBNT2 trunk groups Vol. 1, 2-164
 - IBNTI trunk groups Vol. 1, 2-184
 - IBNTO trunk groups Vol. 1, 2-204
 - IET trunk groups Vol. 1, 2-216
 - INT101 trunk groups Vol. 1, 2-231
 - IR trunk groups Vol. 1, 2-238
 - IS trunk groups Vol. 1, 2-245
 - IT trunk groups Vol. 1, 2-253
 - ITL2 trunk groups Vol. 1, 2-268
 - ITOPS trunk groups Vol. 1, 2-277
 - LCM REX Controller Enhancement Vol. 3, 1-216
 - Line to line translations Vol. 1, 1-28
 - Line to treatment translations Vol. 1, 1-53
 - Line to trunk translations Vol. 1, 1-88
 - Local Call Detail Recording Vol. 3, 1-227
 - LOOPA trunk groups Vol. 1, 2-289
 - LP4W trunk groups Vol. 1, 2-318
 - LPBK trunk groups Vol. 1, 2-322
 - MAINT trunk groups Vol. 1, 2-340
 - MTR trunk groups Vol. 1, 2-351
 - Network Facility Access Vol. 3, 5-51
 - Network Management Vol. 3, 1-267
 - Network Management - Enhanced Vol. 3, 1-336
 - New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-30
 - NFA
 - AMA Modification Vol. 3, 5-12
 - Remote Access, Flash Processing Vol. 3, 5-105
 - NFA trunk groups Vol. 1, 2-366
 - NU trunk groups Vol. 1, 2-374
 - OC trunk groups Vol. 1, 2-386
 - OI trunk groups Vol. 1, 2-398
 - OP trunk groups Vol. 1, 2-408
 - OPR trunk groups Vol. 1, 2-427
 - OS trunk groups Vol. 1, 2-442
 - P2 trunk groups Vol. 1, 2-452
 - Preserve EADAS Data Over SW Application Vol. 3, 1-355
 - PRI trunk groups Vol. 1, 2-467
 - PRIVLN trunk groups Vol. 1, 2-496
 - PX trunk groups Vol. 1, 2-505
 - Random Conditional Routing Vol. 3, 1-359
 - RC trunk groups Vol. 1, 2-526
 - Remote Call Forwarding Vol. 3, 1-374
 - RONI trunk groups Vol. 1, 2-534
 - ROTL trunk groups Vol. 1, 2-543
 - SAID Enhanced Signaling Protocol Vol. 3, 5-147
 - SC trunk groups Vol. 1, 2-551
 - SERVORD Enhancement for SLE Vol. 3, 1-391
 - SOCKT trunk groups Vol. 1, 2-566
 - SPC trunk groups Vol. 1, 2-575
 - T101 trunk groups Vol. 1, 2-600
-

- T105 trunk groups Vol. 1, 2-608
- T2 trunk groups Vol. 1, 2-584
- Talk Battery Alarm Vol. 3, 1-403
- TD trunk groups Vol. 1, 2-616
- TDDO trunk groups Vol. 1, 2-626
- Ten Digit GTT for CLASS Features Vol. 3, 1-406
- TI trunk groups Vol. 1, 2-635
- TL trunk groups Vol. 1, 2-650
- TO trunk groups Vol. 1, 2-658, Vol. 1, 2-659
- TOPS trunk groups Vol. 1, 2-671
- TOPSARU trunk groups Vol. 1, 2-710
- TOPSVL trunk groups Vol. 1, 2-721
- TPS101 trunk groups Vol. 1, 2-728
- Traffic Separation Measurements System (TSMS) Vol. 3, 1-409
- Trunk to line translations Vol. 1, 1-150
- Trunk to treatment translations Vol. 1, 1-171
- Trunk to trunk translations Vol. 1, 1-201
- TTL2 trunk groups Vol. 1, 2-738
- Universal Speech Activated Intelligent Dialing Vol. 3, 5-184
- VR trunk groups Vol. 1, 2-746
- X75 trunk groups Vol. 1, 2-756
- ZI trunk groups Vol. 1, 2-767
- OFRT, table
 - datafilling Vol. 1, 1-71, Vol. 1, 1-105, Vol. 1, 1-181, Vol. 2, 3-424, Vol. 2, 3-528, Vol. 3, 1-79, Vol. 3, 1-111, Vol. 3, 1-142, Vol. 3, 1-167, Vol. 3, 1-361
- OMACC, table
 - datafilling Vol. 2, 3-22, Vol. 2, 3-834
- operation
 - 1A EADAS Network Management Vol. 2, 3-4
 - 3-Way Call Chaining Vol. 2, 3-25
 - Application and file processors Vol. 3, 4-3
 - Application processor base and file processor Vol. 2, 3-29
 - Automatic Message Accounting Teleprocessing System Vol. 2, 2-6
 - Bellcore LAMA Format Vol. 2, 3-236
 - CAC Blocking for IEC/INC Vol. 2, 3-589
 - Cancel Call Waiting - per Line Vol. 2, 3-592
 - CCS7 equipment tables Vol. 2, 3-607
 - CCS7 MTP/SCCP Vol. 2, 3-641
 - CUSD Vol. 2, 3-757
 - Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-100
 - DN Attributes Service Order Enhancements Vol. 2, 3-773
 - DN Network Attributes Vol. 2, 3-785
 - EADAS Interface Vol. 2, 3-810
 - Feature Group A Vol. 3, 1-5, Vol. 3, 1-37
 - Feature Group B AMA - End Office Vol. 3, 1-60
 - FGB AMA End Office (NT Format) Vol. 3, 1-128
 - FGB AMA Tandem (ATT Format) Vol. 3, 1-159
 - Flexible Bellcore AMA Vol. 3, 1-187
 - LCM REX Controller Enhancement Vol. 3, 1-207
 - Line to line translations Vol. 1, 1-23
 - Line to treatment translations Vol. 1, 1-48
 - Line to trunk translations Vol. 1, 1-82, Vol. 1, 1-145
 - Local Call Detail Recording Vol. 3, 1-223
 - Network Facility Access Vol. 3, 5-15
 - Network Management Vol. 3, 1-248
 - Network Management - Enhanced Vol. 3, 1-284
 - New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-27
 - NFA
 - AMA Modification Vol. 3, 5-3
 - Remote Access, Flash Processing Vol. 3, 5-83
 - Preserve EADAS Data Over SW Application Vol. 3, 1-347
 - Random Conditional Routing Vol. 3, 1-358
 - Remote Call Forwarding Vol. 3, 1-368
 - SAID Enhanced Signaling Protocol Vol. 3, 5-139
 - SERVORD Enhancement for SLE Vol. 3, 1-389
 - Talk Battery Alarm Vol. 3, 1-396
 - Ten Digit GTT for CLASS Features Vol. 3, 1-405
 - Traffic Separation Measurements System (TSMS) Vol. 3, 1-407
 - Trunk to treatment translations Vol. 1, 1-166
 - Trunk to trunk translations Vol. 1, 1-196

-
- Universal Speech Activated Intelligent Dialing Vol. 3, 5-168
 - ordering codes
 - Application and file processors Vol. 3, 4-3
 - BAS00001 Vol. 2, 2-2
 - BAS00003 Vol. 2, 3-3, Vol. 2, 3-25, Vol. 2, 3-29, Vol. 2, 3-69, Vol. 2, 3-98, Vol. 2, 3-109, Vol. 2, 3-220, Vol. 2, 3-589, Vol. 2, 3-592, Vol. 2, 3-605, Vol. 2, 3-641, Vol. 2, 3-755, Vol. 2, 3-773, Vol. 2, 3-785, Vol. 2, 3-802, Vol. 3, 1-37, Vol. 3, 1-100, Vol. 3, 1-128, Vol. 3, 1-159, Vol. 3, 1-184, Vol. 3, 1-207, Vol. 3, 1-222, Vol. 3, 1-244, Vol. 3, 1-280, Vol. 3, 1-347, Vol. 3, 1-358, Vol. 3, 1-363, Vol. 3, 1-389, Vol. 3, 1-396, Vol. 3, 1-404, Vol. 3, 1-407
 - BAS00008 Vol. 3, 5-126
 - BAS00049 Vol. 2, 3-69
 - BAS0041 Vol. 2, 3-98
 - BASE0001 Vol. 2, 2-27
 - Bellcore LAMA Format Vol. 2, 3-220
 - CISANI trunk groups Vol. 1, 2-78
 - Feature Group B AMA - End Office Vol. 3, 1-53
 - INT101 trunk groups Vol. 1, 2-230
 - IR trunk groups Vol. 1, 2-237
 - IS trunk groups Vol. 1, 2-243
 - ITL2 trunk groups Vol. 1, 2-267
 - ITOPS trunk groups Vol. 1, 2-275
 - Line to line translations Vol. 1, 1-23
 - Line to treatment translations Vol. 1, 1-48
 - Line to trunk translations Vol. 1, 1-82
 - Local Call Detail Recording Vol. 3, 1-222
 - LOOPA trunk groups Vol. 1, 2-287
 - LP4W trunk groups Vol. 1, 2-294
 - LPBK trunk groups Vol. 1, 2-320
 - MAINT trunk groups Vol. 1, 2-332
 - Network Facility Access Vol. 3, 5-14
 - NFA
 - AMA Modification Vol. 3, 5-2
 - Remote Access, Flash Processing Vol. 3, 5-82
 - OPR trunk groups Vol. 1, 2-420
 - OS trunk groups Vol. 1, 2-440
 - PRIVLN trunk groups Vol. 1, 2-495
 - RC trunk groups Vol. 1, 2-524
 - Remote Call Forwarding Vol. 3, 1-363
 - RONI trunk groups Vol. 1, 2-532
 - ROTL trunk groups Vol. 1, 2-541
 - SAID on MBS Vol. 3, 5-152
 - SAID0001 Vol. 3, 5-14, Vol. 3, 5-82
 - SOCKET trunk groups Vol. 1, 2-564
 - SPC trunk groups Vol. 1, 2-573
 - T101 trunk groups Vol. 1, 2-598
 - T105 trunk groups Vol. 1, 2-606
 - TD trunk groups Vol. 1, 2-614
 - TDDO trunk groups Vol. 1, 2-624
 - TOPSARU trunk groups Vol. 1, 2-708
 - TOPSVL trunk groups Vol. 1, 2-719
 - TPS101 trunk groups Vol. 1, 2-726
 - Trunk to line translations Vol. 1, 1-145
 - Trunk to treatment translations Vol. 1, 1-166
 - Trunk to trunk translations Vol. 1, 1-196
 - TTL2 trunk groups Vol. 1, 2-736
 - X75 trunk groups Vol. 1, 2-754
 - ZI trunk groups Vol. 1, 2-765
 - OWATZONE, table
 - datafilling Vol. 2, 3-345, Vol. 2, 3-449
 - P**
 - PADDDATA, table
 - datafilling Vol. 1, 2-471
 - PFXTREAT, table
 - datafilling Vol. 1, 1-36, Vol. 1, 1-68, Vol. 1, 1-97, Vol. 2, 3-396, Vol. 2, 3-500
 - PMLOADS, table
 - datafilling Vol. 2, 3-34, Vol. 2, 3-609, Vol. 3, 4-8
 - POSITION, table
 - datafilling Vol. 3, 1-156
 - preparing to datafill
 - 10-digit translations Vol. 1, 1-1
 - PREPLANS, table
 - datafilling Vol. 3, 1-276, Vol. 3, 1-345
 - prerequisites
 - 1A EADAS Network Management Vol. 2, 3-3
 - 3-Way Call Chaining Vol. 2, 3-25
 - A5 trunk groups Vol. 1, 2-4
 - AI trunk groups Vol. 1, 2-17
 - AN trunk groups Vol. 1, 2-24
 - ANI trunk groups Vol. 1, 2-31
 - Application and file processors Vol. 3, 4-3
-

- Application processor base and file processor Vol. 2, 3-29
- ATC trunk groups Vol. 1, 2-41
- Authcode for MDR Vol. 3, 1-358, Vol. 3, 1-407
- Automatic Message Accounting Teleprocessing System Vol. 2, 2-2
- Bellcore LAMA Format Vol. 2, 3-220
- CA trunk groups Vol. 1, 2-63
- CAC Blocking for IEC/INC Vol. 2, 3-589
- Cancel Call Waiting - per Line Vol. 2, 3-592
- CCS7 equipment tables Vol. 2, 3-605
- CCS7 MTP/SCCP Vol. 2, 3-641
- CELL trunk groups Vol. 1, 2-71
- CISANI trunk groups Vol. 1, 2-78
- CUSD Vol. 2, 3-755
- DA trunk groups Vol. 1, 2-99
- Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-100
- DN Attributes Service Order Enhancements Vol. 2, 3-773
- DN Network Attributes Vol. 2, 3-785
- DS0 trunk groups Vol. 1, 2-107
- E911 trunk groups Vol. 1, 2-114
- EADAS Interface Vol. 2, 3-802
- ES trunk groups Vol. 1, 2-126
- Feature Group A Vol. 3, 1-3, Vol. 3, 1-37
- Feature Group B AMA - End Office Vol. 3, 1-53
- FGB AMA End Office (NT Format) Vol. 3, 1-128
- FGB AMA Tandem (ATT Format) Vol. 3, 1-159
- Flexible Bellcore AMA Vol. 3, 1-184
- GER2W trunk groups Vol. 1, 2-137
- GERIC trunk groups Vol. 1, 2-145
- GEROG trunk groups Vol. 1, 2-153
- IBNT2 trunk groups Vol. 1, 2-160
- IBNTI trunk groups Vol. 1, 2-180
- IBNTO trunk groups Vol. 1, 2-200
- IET trunk groups Vol. 1, 2-215
- INT101 trunk groups Vol. 1, 2-230
- IR trunk groups Vol. 1, 2-237
- IS trunk groups Vol. 1, 2-243
- IT trunk groups Vol. 1, 2-251
- ITL2 trunk groups Vol. 1, 2-267
- ITOPS trunk groups Vol. 1, 2-275
- LCM REX Controller Enhancement Vol. 3, 1-207
- Line to line translations Vol. 1, 1-23
- Line to treatment translations Vol. 1, 1-48
- Line to trunk translations Vol. 1, 1-82
- Local Call Detail Recording Vol. 3, 1-222
- LOOPA trunk groups Vol. 1, 2-287
- LP4W trunk groups Vol. 1, 2-294
- LPBK trunk groups Vol. 1, 2-320
- MAINT trunk groups Vol. 1, 2-332
- MTR trunk groups Vol. 1, 2-349
- Network Facility Access Vol. 3, 5-14
- Network Management Vol. 3, 1-244
- Network Management - Enhanced Vol. 3, 1-280
- New Software Delivery Data Transfer Control Mechanism Vol. 2, 2-27
- NFA
 - AMA Modification Vol. 3, 5-2
 - Remote Access, Flash Processing Vol. 3, 5-82
- NFA trunk groups Vol. 1, 2-364
- NU trunk groups Vol. 1, 2-373
- OC trunk groups Vol. 1, 2-384
- OI trunk groups Vol. 1, 2-396
- OP trunk groups Vol. 1, 2-405
- OPR trunk groups Vol. 1, 2-420
- OS trunk groups Vol. 1, 2-440
- P2 trunk groups Vol. 1, 2-450
- Preserve EADAS Data Over SW Application Vol. 3, 1-347
- PRI trunk groups Vol. 1, 2-464
- PRIVLN trunk groups Vol. 1, 2-495
- PX trunk groups Vol. 1, 2-503
- RC trunk groups Vol. 1, 2-524
- Remote Call Forwarding Vol. 3, 1-363
- RONI trunk groups Vol. 1, 2-532
- ROTL trunk groups Vol. 1, 2-541
- SAID Enhanced Signaling Protocol Vol. 3, 5-126
- SAID on MBS Vol. 3, 5-152
- SC trunk groups Vol. 1, 2-549
- SERVORD Enhancement for SLE Vol. 3, 1-389
- SOCKET trunk groups Vol. 1, 2-564
- SPC trunk groups Vol. 1, 2-573
- T101 trunk groups Vol. 1, 2-598

-
- T105 trunk groups Vol. 1, 2-606
 - T2 trunk groups Vol. 1, 2-582
 - Talk Battery Alarm Vol. 3, 1-396
 - TD trunk groups Vol. 1, 2-614
 - TDDO trunk groups Vol. 1, 2-624
 - Ten Digit GTT for CLASS Features Vol. 3, 1-404
 - TI trunk groups Vol. 1, 2-633
 - TL trunk groups Vol. 1, 2-648
 - TO trunk groups Vol. 1, 2-656
 - TOPS trunk groups Vol. 1, 2-668
 - TOPSARU trunk groups Vol. 1, 2-708
 - TOPSVL trunk groups Vol. 1, 2-719
 - TPS101 trunk groups Vol. 1, 2-726
 - Trunk to line translations Vol. 1, 1-145
 - Trunk to treatment translations Vol. 1, 1-166
 - Trunk to trunk translations Vol. 1, 1-196
 - TTL2 trunk groups Vol. 1, 2-736
 - Universal Speech Activated Intelligent Dialing Vol. 3, 5-166
 - VR trunk groups Vol. 1, 2-744
 - X75 trunk groups Vol. 1, 2-754
 - ZI trunk groups Vol. 1, 2-765
 - PRIPROF, table
 - datafilling Vol. 1, 2-487
 - PXCODE, table
 - datafilling Vol. 2, 3-210, Vol. 2, 3-559
 - PXHEAD, table
 - datafilling Vol. 2, 3-209, Vol. 2, 3-559
 - R**
 - REROUTE, table
 - datafilling Vol. 3, 1-272, Vol. 3, 1-341
 - REROUTE.NWMRROUT, table
 - datafilling Vol. 3, 1-273, Vol. 3, 1-342
 - RESGROUP, table
 - datafilling Vol. 2, 3-386, Vol. 2, 3-490
 - RESINV, table
 - datafilling Vol. 2, 3-388, Vol. 2, 3-492
 - RESMEM, table
 - datafilling Vol. 2, 3-390, Vol. 2, 3-494
 - restrictions
 - 1A EADAS Network Management Vol. 2, 3-9
 - 3-Way Call Chaining Vol. 2, 3-26
 - A5 trunk groups Vol. 1, 2-5
 - AI trunk groups Vol. 1, 2-18
 - AN trunk groups Vol. 1, 2-25
 - ANI trunk groups Vol. 1, 2-32
 - Application and file processors Vol. 3, 4-6
 - Application processor base and file processor Vol. 2, 3-33
 - ATC trunk groups Vol. 1, 2-44
 - Automatic Message Accounting Teleprocessing System Vol. 2, 2-6
 - Bellcore LAMA Format Vol. 2, 3-287
 - CA trunk groups Vol. 1, 2-64
 - CAC Blocking for IEC/INC Vol. 2, 3-590
 - Cancel Call Waiting - per Line Vol. 2, 3-598
 - CCS7 equipment tables Vol. 2, 3-608
 - CCS7 MTP/SCCP Vol. 2, 3-646
 - CELL trunk groups Vol. 1, 2-72
 - CISANI trunk groups Vol. 1, 2-79
 - CUSD Vol. 2, 3-761
 - DA trunk groups Vol. 1, 2-100
 - Datafilling FGB AMA End Office (ATT Format) Vol. 3, 1-106
 - DN Attributes Service Order Enhancements Vol. 2, 3-776
 - DN Network Attributes Vol. 2, 3-790
 - DS0 trunk groups Vol. 1, 2-108
 - E911 trunk groups Vol. 1, 2-116
 - EADAS Interface Vol. 2, 3-824
 - ES trunk groups Vol. 1, 2-128
 - Feature Group A Vol. 3, 1-14, Vol. 3, 1-45
 - Feature Group B AMA - End Office Vol. 3, 1-69
 - FGB AMA End Office (NT Format) Vol. 3, 1-130
 - FGB AMA Tandem (ATT Format) Vol. 3, 1-162
 - Flexible Bellcore AMA Vol. 3, 1-197
 - GER2W trunk groups Vol. 1, 2-138
 - GERIC trunk groups Vol. 1, 2-146
 - GEROG trunk groups Vol. 1, 2-154
 - IBNT2 trunk groups Vol. 1, 2-163
 - IBNTI trunk groups Vol. 1, 2-183
 - IBNTO trunk groups Vol. 1, 2-203
 - IET trunk groups Vol. 1, 2-216
 - INT101 trunk groups Vol. 1, 2-231
 - IR trunk groups Vol. 1, 2-238
 - IS trunk groups Vol. 1, 2-244
 - IT trunk groups Vol. 1, 2-253
-

- ITL2 trunk groups Vol. 1, 2-268
- ITOPS trunk groups Vol. 1, 2-277
- LCM REX Controller Enhancement
Vol. 3, 1-215
- Line to line translations Vol. 1, 1-27
- Line to treatment translations Vol. 1, 1-53
- Line to trunk translations Vol. 1, 1-88
- Local Call Detail Recording Vol. 3, 1-224
- LOOPA trunk groups Vol. 1, 2-288
- LP4W trunk groups Vol. 1, 2-309
- LPBK trunk groups Vol. 1, 2-321
- MAINT trunk groups Vol. 1, 2-338
- MTR trunk groups Vol. 1, 2-350
- Network Management Vol. 3, 1-264
- Network Management - Enhanced
Vol. 3, 1-334
- New Software Delivery Data Transfer Con-
trol Mechanism Vol. 2, 2-30
- NFA
 - AMA Modification Vol. 3, 5-11
 - Remote Access, Flash Processing
Vol. 3, 5-100
- NFA trunk groups Vol. 1, 2-365
- NU trunk groups Vol. 1, 2-374
- OC trunk groups Vol. 1, 2-385
- OI trunk groups Vol. 1, 2-397
- OP trunk groups Vol. 1, 2-407
- OPR trunk groups Vol. 1, 2-426
- OS trunk groups Vol. 1, 2-441
- P2 trunk groups Vol. 1, 2-452
- Preserve EADAS Data Over SW Applica-
tion Vol. 3, 1-354
- PRI trunk groups Vol. 1, 2-466
- PRIVLN trunk groups Vol. 1, 2-496
- PX trunk groups Vol. 1, 2-505
- Random Conditional Routing Vol. 3, 1-358
- RC trunk groups Vol. 1, 2-526
- Remote Call Forwarding Vol. 3, 1-373
- RONI trunk groups Vol. 1, 2-533
- ROTL trunk groups Vol. 1, 2-542
- SAID Enhanced Signaling Protocol
Vol. 3, 5-146
- SC trunk groups Vol. 1, 2-551
- SERVORD Enhancement for SLE
Vol. 3, 1-390
- SOCKET trunk groups Vol. 1, 2-566
- SPC trunk groups Vol. 1, 2-575
- T101 trunk groups Vol. 1, 2-599
- T105 trunk groups Vol. 1, 2-608
- T2 trunk groups Vol. 1, 2-584
- Talk Battery Alarm Vol. 3, 1-401
- TD trunk groups Vol. 1, 2-615
- TDDO trunk groups Vol. 1, 2-626
- Ten Digit GTT for CLASS Features
Vol. 3, 1-405
- TI trunk groups Vol. 1, 2-635
- TL trunk groups Vol. 1, 2-650
- TO trunk groups Vol. 1, 2-656
- TOPS trunk groups Vol. 1, 2-671
- TOPSARU trunk groups Vol. 1, 2-710
- TOPSVL trunk groups Vol. 1, 2-720
- TPS101 trunk groups Vol. 1, 2-728
- Traffic Separation Measurements System
(TSMS) Vol. 3, 1-408
- Trunk to line translations Vol. 1, 1-149
- Trunk to treatment translations Vol. 1, 1-170
- Trunk to trunk translations Vol. 1, 1-200
- TTL2 trunk groups Vol. 1, 2-737
- Universal Speech Activated Intelligent Dial-
ing Vol. 3, 5-176
- VR trunk groups Vol. 1, 2-746
- X75 trunk groups Vol. 1, 2-756
- ZI trunk groups Vol. 1, 2-767
- REXSCHED, table
 - datafilling Vol. 3, 1-217
- RTEREF, subtable
 - datafilling Vol. 2, 3-347, Vol. 2, 3-451,
Vol. 3, 1-93
- S**
- SHADOW, table
 - datafilling Vol. 2, 3-63, Vol. 3, 4-33
- signaling
 - 10-digit translations Vol. 1, 1-1
- SILCNWM, table
 - datafilling Vol. 3, 1-337
- SITE, table
 - datafilling Vol. 1, 2-748
- SMB translations
 - Functional groups Vol. 3, 4-2
 - Preparing to datafill Vol. 3, 4-2
 - Signaling Vol. 3, 4-2
 - Understanding Vol. 3, 4-1

SPCCON, table
 datafilling Vol. 1, 2-577
 station message detail recording
 Bellcore CAMA Format Vol. 2, 3-168
 STDPRT, subtable
 datafilling Vol. 2, 3-176, Vol. 2, 3-350,
 Vol. 2, 3-409, Vol. 2, 3-430, Vol. 2, 3-454,
 Vol. 2, 3-513, Vol. 2, 3-534, Vol. 3, 1-89
 STDPRTCT, table
 datafilling Vol. 1, 1-32, Vol. 1, 1-59,
 Vol. 1, 1-93, Vol. 1, 1-155, Vol. 1, 1-186,
 Vol. 1, 1-206, Vol. 2, 3-175, Vol. 2, 3-334,
 Vol. 2, 3-373, Vol. 2, 3-399, Vol. 2, 3-415,
 Vol. 2, 3-437, Vol. 2, 3-477, Vol. 2, 3-503,
 Vol. 2, 3-519, Vol. 3, 1-88, Vol. 3, 1-118,
 Vol. 3, 1-137, Vol. 3, 1-174
 STDPRTCT.STDPRT, subtable
 datafilling Vol. 1, 1-32, Vol. 1, 1-60,
 Vol. 1, 1-94, Vol. 1, 1-156, Vol. 1, 1-187,
 Vol. 1, 1-207
 STN, table
 datafilling Vol. 1, 1-73, Vol. 1, 1-176
 SUSHELF, table
 datafilling Vol. 2, 3-626

T

table flow
 1A EADAS Network Management
 Vol. 2, 3-8
 3-Way Call Chaining Vol. 2, 3-26
 Application and file processors Vol. 3, 4-4
 Automatic Message Accounting Telepro-
 cessing System Vol. 2, 2-6
 CAC Blocking for IEC/INC Vol. 2, 3-589
 Cancel Call Waiting - per Line Vol. 2, 3-595
 CCS7 equipment tables Vol. 2, 3-607
 CCS7 MTP/SCCP Vol. 2, 3-642
 CUSD Vol. 2, 3-760
 Datafilling FGB AMA End Office (ATT
 Format) Vol. 3, 1-102
 DN Attributes Service Order Enhancements
 Vol. 2, 3-774
 DN Network Attributes Vol. 2, 3-787
 EADAS Interface Vol. 2, 3-823
 Feature Group A Vol. 3, 1-39
 feature BR0520 Vol. 3, 1-6
 feature BR0768 Vol. 3, 1-10
 Feature Group B AMA - End Office
 Vol. 3, 1-65
 FGB AMA Tandem (ATT Format)
 Vol. 3, 1-161
 LCM REX Controller Enhancement
 Vol. 3, 1-215
 Network Facility Access Vol. 3, 5-25
 Network Management Vol. 3, 1-263
 Network Management - Enhanced
 Vol. 3, 1-333
 New Software Delivery Data Transfer Con-
 trol Mechanism Vol. 2, 2-29
 NFA
 AMA Modification Vol. 3, 5-10
 Remote Access, Flash Processing
 Vol. 3, 5-98
 Preserve EADAS Data Over SW Applica-
 tion Vol. 3, 1-354
 Random Conditional Routing Vol. 3, 1-358
 Remote Call Forwarding Vol. 3, 1-371
 SAID Enhanced Signaling Protocol
 Vol. 3, 5-144
 SERVORD Enhancement for SLE
 Vol. 3, 1-389
 Talk Battery Alarm Vol. 3, 1-400
 Ten Digit GTT for CLASS Features
 Vol. 3, 1-405
 Traffic Separation Measurements System
 (TSMS) Vol. 3, 1-408
 Universal Speech Activated Intelligent Dial-
 ing Vol. 3, 5-172
 TERMDEV, table
 datafilling Vol. 2, 2-11
 Terms used in translations Vol. 3, 3-11
 TFANINT, table
 datafilling Vol. 3, 1-411
 TKSIGSYS, table
 datafilling Vol. 1, 2-224
 TMTCNTL, table
 datafilling Vol. 1, 1-69, Vol. 1, 1-182
 TMTCNTL.TREAT, subtable
 datafilling Vol. 1, 1-70, Vol. 1, 1-183
 TOFCNAME, table
 datafilling Vol. 1, 1-40, Vol. 1, 1-159,
 Vol. 2, 3-402, Vol. 2, 3-506, Vol. 3, 1-19,
 Vol. 3, 1-28

- TOLLENTC, table
 datafilling Vol. 1, 2-446, Vol. 3, 1-48
- TONES, table
 datafilling Vol. 1, 1-74, Vol. 1, 1-174
- TOPSBC, table
 datafilling Vol. 1, 2-676
- translating
 1A EADAS Network Management
 Vol. 2, 3-3
 3-Way Call Chaining Vol. 2, 3-25
 A5 trunk groups Vol. 1, 2-4
 AI trunk groups Vol. 1, 2-17
 AN trunk groups Vol. 1, 2-24
 ANI trunk groups Vol. 1, 2-31
 Application and file processors Vol. 3, 4-3
 Application processor base and file proces-
 sor Vol. 2, 3-29
 ATC trunk groups Vol. 1, 2-41
 Automatic Message Accounting Telepro-
 cessing System Vol. 2, 2-2
 BAS ABBT LCDCUT Vol. 2, 3-69
 BAS Enhanced Permanent Signal
 Vol. 2, 3-98
 CA trunk groups Vol. 1, 2-63
 CAC Blocking for IEC/INC Vol. 2, 3-589
 Cancel Call Waiting - per Line Vol. 2, 3-592
 CCS7 equipment tables Vol. 2, 3-605
 CCS7 MTP/SCCP Vol. 2, 3-641
 CELL trunk groups Vol. 1, 2-71
 CISANI trunk groups Vol. 1, 2-78
 CUSD Vol. 2, 3-755
 DA trunk groups Vol. 1, 2-99
 Datafilling FGB AMA End Office (ATT
 Format) Vol. 3, 1-100
 DN Attributes Service Order Enhancements
 Vol. 2, 3-773
 DN Network Attributes Vol. 2, 3-785
 DS0 trunk groups Vol. 1, 2-107
 E911 trunk groups Vol. 1, 2-114
 EADAS Interface Vol. 2, 3-802
 ES trunk groups Vol. 1, 2-126
 Feature Group A Vol. 3, 1-3, Vol. 3, 1-37
 Feature Group B AMA - End Office
 Vol. 3, 1-53
 FGB AMA End Office (NT Format)
 Vol. 3, 1-128
 FGB AMA Tandem (ATT Format)
 Vol. 3, 1-159
 flexible Bellcore AMA Vol. 3, 1-184
 GER2W trunk groups Vol. 1, 2-137
 GERIC trunk groups Vol. 1, 2-145
 GEROG trunk groups Vol. 1, 2-153
 IBNT2 trunk groups Vol. 1, 2-160
 IBNTI trunk groups Vol. 1, 2-180
 IBNTO trunk groups Vol. 1, 2-200
 IET trunk groups Vol. 1, 2-215
 INT101 trunk groups Vol. 1, 2-230
 IR trunk groups Vol. 1, 2-237
 IS trunk groups Vol. 1, 2-243
 ITL2 trunk groups Vol. 1, 2-267
 ITOPS trunk groups Vol. 1, 2-275
 LCM REX Controller Enhancement
 Vol. 3, 1-207
 Line to line translations Vol. 1, 1-23
 Line to treatment translations Vol. 1, 1-48
 Line to trunk translations Vol. 1, 1-82
 LOOPA trunk groups Vol. 1, 2-287
 LP4W trunk groups Vol. 1, 2-294
 LPBK trunk groups Vol. 1, 2-320
 MAINT trunk groups Vol. 1, 2-332
 MTR trunk groups Vol. 1, 2-349
 Network Management Vol. 3, 1-244
 Network Management - Enhanced
 Vol. 3, 1-280
 New Software Delivery Data Transfer Con-
 trol Mechanism Vol. 2, 2-27
 NFA trunk groups Vol. 1, 2-364
 NU trunk groups Vol. 1, 2-373
 OC trunk groups Vol. 1, 2-384
 OI trunk groups Vol. 1, 2-396
 OP trunk groups Vol. 1, 2-405
 OPR trunk groups Vol. 1, 2-420
 OS trunk groups Vol. 1, 2-440
 P2 trunk groups Vol. 1, 2-450
 Preserve EADAS Data Over SW Applica-
 tion Vol. 3, 1-347
 PRI trunk groups Vol. 1, 2-464
 PRIVLN trunk groups Vol. 1, 2-495
 PX trunk groups Vol. 1, 2-503
 Random Conditional Routing Vol. 3, 1-358
 RC trunk groups Vol. 1, 2-524
 RONI trunk groups Vol. 1, 2-532
 ROTL trunk groups Vol. 1, 2-541

-
- SAID Enhanced Signaling Protocol
Vol. 3, 5-126
- SC trunk groups Vol. 1, 2-549
- servord enhancement for sle Vol. 3, 1-389
- SOCKET trunk groups Vol. 1, 2-564
- SPC trunk groups Vol. 1, 2-573
- T101 trunk groups Vol. 1, 2-598
- T105 trunk groups Vol. 1, 2-606
- T2 trunk groups Vol. 1, 2-582
- Talk Battery Alarm Vol. 3, 1-396
- TD trunk groups Vol. 1, 2-614
- TDDO trunk groups Vol. 1, 2-624
- Ten Digit GTT for CLASS Features
Vol. 3, 1-404
- TI trunk groups Vol. 1, 2-633
- TL trunk groups Vol. 1, 2-648
- TO grunk groups Vol. 1, 2-656
- TOPS trunk groups Vol. 1, 2-668
- TOPSARU trunk groups Vol. 1, 2-708
- TOPSVL trunk groups Vol. 1, 2-719
- TPS101 trunk groups Vol. 1, 2-726
- Traffic Separation Measurements System
(TSMS) Vol. 3, 1-407
- Trunk to line translations Vol. 1, 1-145
- Trunk to treatment translations Vol. 1, 1-166
- Trunk to trunk translations Vol. 1, 1-196
- TTL2 trunk groups Vol. 1, 2-736
- VR trunk groups Vol. 1, 2-744
- X75 trunk groups Vol. 1, 2-754
- ZI trunk groups Vol. 1, 2-765
- Translations database Vol. 3, 3-10
- translations table flow
Application processor base and file proces-
sor Vol. 2, 3-29
- TRIGGRP, table
datafilling Vol. 1, 2-188, Vol. 1, 2-256,
Vol. 1, 2-587, Vol. 1, 2-638
- TRKGRP (group type IBNTO), table
datafilling Vol. 2, 3-358, Vol. 2, 3-462
- TRKGRP (group type OC), table
datafilling Vol. 3, 1-72
- TRKGRP (group type OP), table
datafilling Vol. 3, 1-377
- TRKGRP (OC), table
datafilling Vol. 3, 1-109, Vol. 3, 1-165
- TRKGRP (SC), table
datafilling Vol. 3, 1-148
- TRKGRP, table
datafilling Vol. 1, 1-102, Vol. 1, 1-152,
Vol. 1, 1-191, Vol. 1, 1-203, Vol. 1, 2-8,
Vol. 1, 2-20, Vol. 1, 2-28, Vol. 1, 2-36,
Vol. 1, 2-47, Vol. 1, 2-67, Vol. 1, 2-74,
Vol. 1, 2-82, Vol. 1, 2-103, Vol. 1, 2-111,
Vol. 1, 2-120, Vol. 1, 2-130, Vol. 1, 2-141,
Vol. 1, 2-149, Vol. 1, 2-157, Vol. 1, 2-173,
Vol. 1, 2-194, Vol. 1, 2-208, Vol. 1, 2-218,
Vol. 1, 2-233, Vol. 1, 2-240, Vol. 1, 2-247,
Vol. 1, 2-257, Vol. 1, 2-271, Vol. 1, 2-280,
Vol. 1, 2-291, Vol. 1, 2-315, Vol. 1, 2-325,
Vol. 1, 2-343, Vol. 1, 2-354, Vol. 1, 2-368,
Vol. 1, 2-377, Vol. 1, 2-388, Vol. 1, 2-400,
Vol. 1, 2-411, Vol. 1, 2-430, Vol. 1, 2-444,
Vol. 1, 2-457, Vol. 1, 2-473, Vol. 1, 2-498,
Vol. 1, 2-511, Vol. 1, 2-528, Vol. 1, 2-536,
Vol. 1, 2-545, Vol. 1, 2-553, Vol. 1, 2-569,
Vol. 1, 2-578, Vol. 1, 2-588, Vol. 1, 2-602,
Vol. 1, 2-610, Vol. 1, 2-618, Vol. 1, 2-628,
Vol. 1, 2-639, Vol. 1, 2-652, Vol. 1, 2-662,
Vol. 1, 2-678, Vol. 1, 2-712, Vol. 1, 2-723,
Vol. 1, 2-731, Vol. 1, 2-740, Vol. 1, 2-749,
Vol. 1, 2-759, Vol. 1, 2-769, Vol. 3, 5-56,
Vol. 3, 5-148
- TRKMEM, table
datafilling Vol. 1, 1-104, Vol. 1, 1-154,
Vol. 1, 1-193, Vol. 1, 1-204, Vol. 1, 2-16,
Vol. 1, 2-23, Vol. 1, 2-30, Vol. 1, 2-40,
Vol. 1, 2-57, Vol. 1, 2-69, Vol. 1, 2-77,
Vol. 1, 2-88, Vol. 1, 2-105, Vol. 1, 2-113,
Vol. 1, 2-124, Vol. 1, 2-135, Vol. 1, 2-144,
Vol. 1, 2-151, Vol. 1, 2-159, Vol. 1, 2-175,
Vol. 1, 2-178, Vol. 1, 2-197, Vol. 1, 2-210,
Vol. 1, 2-213, Vol. 1, 2-228, Vol. 1, 2-236,
Vol. 1, 2-242, Vol. 1, 2-250, Vol. 1, 2-264,
Vol. 1, 2-273, Vol. 1, 2-285, Vol. 1, 2-293,
Vol. 1, 2-318, Vol. 1, 2-329, Vol. 1, 2-348,
Vol. 1, 2-362, Vol. 1, 2-371, Vol. 1, 2-381,
Vol. 1, 2-394, Vol. 1, 2-404, Vol. 1, 2-418,
Vol. 1, 2-438, Vol. 1, 2-448, Vol. 1, 2-463,
Vol. 1, 2-483, Vol. 1, 2-484, Vol. 1, 2-501,
Vol. 1, 2-521, Vol. 1, 2-522, Vol. 1, 2-531,
Vol. 1, 2-539, Vol. 1, 2-548, Vol. 1, 2-562,
Vol. 1, 2-571, Vol. 1, 2-580, Vol. 1, 2-595,
Vol. 1, 2-596, Vol. 1, 2-605, Vol. 1, 2-613,
Vol. 1, 2-623, Vol. 1, 2-631, Vol. 1, 2-646,
-

Vol. 1, 2-655, Vol. 1, 2-664, Vol. 1, 2-666,
Vol. 1, 2-707, Vol. 1, 2-715, Vol. 1, 2-724,
Vol. 1, 2-735, Vol. 1, 2-743, Vol. 1, 2-751,
Vol. 1, 2-764, Vol. 1, 2-772, Vol. 3, 5-62,
Vol. 3, 5-149

TRKSGRP, table

datafilling Vol. 1, 1-103, Vol. 1, 1-153,
Vol. 1, 1-192, Vol. 1, 1-204, Vol. 1, 2-15,
Vol. 1, 2-22, Vol. 1, 2-29, Vol. 1, 2-39,
Vol. 1, 2-55, Vol. 1, 2-68, Vol. 1, 2-76,
Vol. 1, 2-87, Vol. 1, 2-104, Vol. 1, 2-112,
Vol. 1, 2-123, Vol. 1, 2-134, Vol. 1, 2-142,
Vol. 1, 2-150, Vol. 1, 2-158, Vol. 1, 2-174,
Vol. 1, 2-195, Vol. 1, 2-209, Vol. 1, 2-221,
Vol. 1, 2-235, Vol. 1, 2-241, Vol. 1, 2-249,
Vol. 1, 2-263, Vol. 1, 2-272, Vol. 1, 2-284,
Vol. 1, 2-292, Vol. 1, 2-317, Vol. 1, 2-327,
Vol. 1, 2-347, Vol. 1, 2-361, Vol. 1, 2-369,
Vol. 1, 2-378, Vol. 1, 2-393, Vol. 1, 2-403,
Vol. 1, 2-417, Vol. 1, 2-437, Vol. 1, 2-447,
Vol. 1, 2-462, Vol. 1, 2-475, Vol. 1, 2-500,
Vol. 1, 2-520, Vol. 1, 2-530, Vol. 1, 2-538,
Vol. 1, 2-547, Vol. 1, 2-561, Vol. 1, 2-570,
Vol. 1, 2-579, Vol. 1, 2-594, Vol. 1, 2-604,
Vol. 1, 2-611, Vol. 1, 2-622, Vol. 1, 2-630,
Vol. 1, 2-645, Vol. 1, 2-653, Vol. 1, 2-664,
Vol. 1, 2-706, Vol. 1, 2-713, Vol. 1, 2-724,
Vol. 1, 2-734, Vol. 1, 2-742, Vol. 1, 2-750,
Vol. 1, 2-760, Vol. 1, 2-771, Vol. 3, 1-73,
Vol. 3, 1-278, Vol. 3, 5-58, Vol. 3, 5-149

U

understanding

10-digit translations Vol. 1, 1-1

trunks translations Vol. 1, 2-1

Using the table editor to modify datafill

Vol. 3, 3-12

V

VFGDATA, table

datafilling Vol. 2, 3-184, Vol. 2, 3-322,
Vol. 2, 3-336, Vol. 2, 3-440

VIRTGRPS, table

datafilling Vol. 2, 3-183, Vol. 2, 3-194,
Vol. 2, 3-203, Vol. 2, 3-321, Vol. 2, 3-335,

Vol. 2, 3-359, Vol. 2, 3-438, Vol. 2, 3-463,
Vol. 2, 3-541, Vol. 2, 3-552

W

What is translations Vol. 3, 3-10

X

X75INFO, table

datafilling Vol. 1, 2-763

Z

ZONEORDR, table

datafilling Vol. 2, 3-346, Vol. 2, 3-450

DMS-100 Family

North American DMS-100

Translations Guide Volume 2 of 20

Common Datafill and Miscellaneous Services Part 2 of 3

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