Critical Release Notice

Publication number: 297-2401-203
Publication release: Standard 03.04

The content of this customer NTP supports the SN06 (DMS) software release.

Bookmarks used in this NTP highlight the changes between the baseline NTP and the current release. The bookmarks provided are color-coded to identify release-specific content changes. NTP volumes that do not contain bookmarks indicate that the baseline NTP remains unchanged and is valid for the current release.

Bookmark Color Legend

Black: Applies to new or modified content for the baseline NTP that is valid through the current release.

Red: Applies to new or modified content for NA017 that is valid through the current release.

Blue: Applies to new or modified content for NA018 (SN05 DMS) that is valid through the current release.

Green: Applies to new or modified content for SN06 (DMS) that is valid through the current release.

Attention!
Adobe® Acrobat® Reader™ 5.0 is required to view bookmarks in color.

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Updates were made to description of subfield L1FLAGS in section “PRI Trunk Datafill”, “Datafilling Table TRKSGRP”, according to CR Q01112597.

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297-2401-203

DMS-100 Family

National ISDN Primary Rate Interface (PRI) NI-2

Service Implementation Guide

NA017 Standard 02.02 July 2002

NORTEL NETWORKS™

DMS-100 Family

National ISDN Primary Rate Interface (PRI) NI-2

Service Implementation Guide

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Contents

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Version 02.02 represents minor editorial changes to the NA017 National ISDN Primary Rate Interface (PRI) NI-2 Service Implementation Guide (SIG).

Note that there was no version of this document released for NA016. NA016 material is incorporated in this version.

May 25, 2001

Version 01.02 represents minor editorial changes to the NA015 National ISDN Primary Rate Interface (PRI) NI-2 Service Implementation Guide (SIG).

May 21, 2001

Version 01.01 represents the initial standard version of the NA015 National ISDN Primary Rate Interface (PRI) NI-2 Service Implementation Guide (SIG).

About this guide

When to use this guide

This guide is an overview of the software release NA015 for the DMS-100 National Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) product.

This guide is divided into the following parts:

- Part I: Introduction
- Part II: Planning and Engineering
- Part III: Provisioning
- Part IV: Call Routing
- Part V: Facility Related Features
- Part VI: ISP Data Related Features
- Part VII: Private Branch Exchange (PBX) Related Features
- Part VIII: Maintenance

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release

information in *DMS-10 and DMS-100 Family Product Documentation Directory*, 297-8991-001.

This document is written for DMS-100 Family offices. More than one version of this document may exist. To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in DMS-I0 and DMS-100 Family Product Documentation Directory, 297-8991-001.

References in this document

Because the Nortel products comprise an extensive amount of existing documentation, it is not possible to reproduce all the operational, maintenance, engineering, and descriptive information already available in the library. Therefore,, this document contains references to existing Nortel documentation to direct the reader to comprehensive information describing products as applicable.

Documentation numbering conventions

Nortel's DMS documentation is frequently referred to as Northern Telecom publications (NTP). The NTPs follow a specific numbering system, such as

XXX-YYYY-ZZZ

The division number, XXX, indicates the common family of product functionality.

The layer number, YYYY, indicates the product computing module (CM) load (PCL) in the specified switching family. Within the documentation structure, the document layer number depends on the PCL number for the specific software load.

The key number, ZZZ, indicates the type of NTP, according to the specified area for the switch or group number. Group numbers range from 000-899.

The following table lists NTP layer numbers and their corresponding PCLs or product names.

Table 1 Document layer number table (Sheet 1 of 3)

Document layer number	PCL or product	PCL name or product name
8001	LEC/LECB	U.S. stand-alone DMS-100/200
8011	CDN/CDNB	Canadian stand-alone DMS-100/200
8021	LET/LETB	U.S. DMS-100/200 TOPS Combination

Table 1 Document layer number table (Sheet 2 of 3)

Document layer number	PCL or product	PCL name or product name
8041	UK/EUR	European DMS-100
8051	ABSM	Advanced Business Services (ABSM=Australia, China, and Cala)
8061	ABSL	Advanced Business Services (ABSK=IDC only)
8071	ATVB	Canadian stand-alone DMS-100/200 AUTOVON
8081	LATB	North American DMS200
8091	LWW	DMS-100 Wireless
8101	STPBASE	Signaling Transfer Point Base
8111	STPMDR7	Signaling Transfer Point MDR7
8121	STPSEAS STP	Signaling Engineering and Administration System
8201	RLCM/OPM	Remote Line Concentrating Module/Outside Plant Module
8211	OPAC	Outside Plant Access Cabinet
8213	OPAC	International Outside Plant Access Cabinet
8221	RSC	Remote Switching Center
8231	SCM-100S	Subscriber Carrier Module-100S
8241	SCM-100U	Subscriber Carrier Module-100 Urban
8251	SCM-100A	Subscriber Carrier Module-100 Access
8253	SCM-100A	Subscriber Carrier Module-100 Access (MVI-20)
8261	RSCS	Model A Remote Switching Center-SONET Model A (DS1)
8263	SCM-100A	Subscriber Carrier Module-100 Access Maintenance Manual
8271	RSCS Model A	Remote Switching Center-SONET Model A (PCM30)

Table 1 Document layer number table (Sheet 3 of 3)

Document layer number	PCL or product	PCL name or product name
8281	RSCS Model B	Remote Switching Center-SONET Model B (DSI)
8291	RSCS Model B	Remote Switching Center-SONET Model B (PCM30)
8301	SCM-100SR	Subscriber Carrier Module-100S Remote
8311	Host XPM	Host Extended Peripheral Module
8321	XPM	Extended Peripheral Module (DSI)
8331	XPM	Extended Peripheral Module (PCM30)
8341	TOPS	Traffic Operator Position System Message Switch
8411	USTOPS	Traffic Operator Position System (Stand-alone U.S.)
8421	CDMTOPS	Traffic Operator Position System (Stand-alone Canadian)
8501	SCP	Service Control Point
8601	DMSGL002	DMS Global
8991	PCL common misc.	PCL common and maintenance

Table 2 lists NTP types and their associated key numbers.

Table 2 Document key number table (Sheet 1 of 2)

NTP type	Key number
Translations Guide	350
Alarm and Performance Monitoring Procedures	543
Trouble Locating and Clearing Procedures	544
Recovery Procedures	545
Routine Maintenance Procedures	546
Card Replacement Procedures	547
XPM Maintenance Manual (remotes only, layers 8201-8331)	550

Table 2 Document key number table (Sheet 2 of 2)

NTP type	Key number
Feature Description Manual	801
Peripheral Module Software Release Document	599
Hardware Description Manual (PCL common/misc. only, layer 8991)	805
Service Order Reference Manual	808
Operational Measurements Reference Manual (all PCLs and XPM)	814
XPM Translations Reference Manual	815
Automatic Message Accounting Bulletin	830
Log Reports Reference Manual	840
Office Parameters Reference Manual	855
Software-to-Data Cross Reference	856

In addition to NTPs, Nortel provides System Engineering Bulletins (SEB) and System Engineering Alerts (SEA) that contain information on engineering the ISDN call processing functions. These documents present performance engineering rules, existing or new, in a simplified, user-oriented format. The information in these documents is product specific, PCL specific, or both.

The *DMS-10 and DMS-100 Family Product Documentation Directory, 297-8991-001*, is an excellent source listing of current NTPs for the DMS Family of switches.

What precautionary messages mean

The types of precautionary messages used in Nortel documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of precautionary message types follow:

ATTENTION Information needed to perform a task.

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-I/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-I/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER Possibility of personal injury

DANGER

Risk of electrocution

Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage line. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING Possibility of equipment damage

WARNING

Damage to the backplane connector pins

Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION Possibility of service interruption or degradation.

CAUTION

Possible loss of service

Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates the information that follows is a command:

```
>BSY
```

Commands and fixed parameters

Commands and fixed parameters are entered at a MAP terminal are shown in uppercase letters:

```
>BSY CTRL
```

Variables

Variables are shown in lowercase letters:

```
>BSY CTRL  ctrl no
```

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

At the current location

1 To manually busy the CTRL on the inactive plane, type

>BSY CTRL ctrl_no

and press the Enter key

where

ctrl_no is the number of the CTRL (0 or 1)

```
Example of a MAP response:
FP 3 Busy CTRL 0: Command request has
been submitted.
FP 3 Busy CTRL 0: Command passed.
```

Audience

This guide is intended for all audiences. However, information in some sections may be pertinent to specific audiences. For example, operating company management and sales agents may want to focus on the Overview, Applications, and Terminals sections. Operating company engineering,

installation, and support personnel may want to focus on the technical sections of the document.

Important notice

The ISDN technology requires development of additional skills to implement, operate, and maintain the DMS switch. This guide is designed to offer the user a quick and comprehensive overview of implementing ISDN. The guide is not a replacement for developing the appropriate level of knowledge within your company. Nortel offers a comprehensive set of documentation and training courses for ISDN on the DMS switch. The following training courses are available through Nortel's training center.

Table 3 Training courses

Course number	Title
0170	Introduction to ISDN Computer-Based Training (CBT)
3400	Introduction to DMS SuperNode Translations (CBT)
0386	ISDN Basic Rate Interface Maintenance and Testing
0471	ISDN Engineering and Provisioning
0472	ISDN Translations
0476	ISDN Customer Premise Equipment (CPE)
0491	ISDN Advanced Testing and Protocols
7002	ISDN PRI Translations

A key part of ISDN includes customer premise equipment (CPE). There is a lot of very good CPE publicly available; however, some CPE may not be compatible with the DMS switch. Verify that the CPE you purchase is National ISDN compliant.

Part I
Introduction

Part I: “Introduction” contains the chapter, “ISDN PRI overview.”

1 ISDN PRI Overview

Introduction to ISDN

Integrated services digital network (ISDN) is a standard, all digital technology. ISDN allows for simultaneous, integrated voice and data capability over two-wire digital loops and four-wire digital trunks. These loops and trunks can access circuit-switched voice and data networks and network services databases.

For effective deployment, ISDN providers conform to National ISDN. National ISDN refers to the set of ISDN standards that apply to North America. The International Telephone and Telegraph Consultative Committee (CCITT), now known as the International Telecommunications Union (ITU), is a United Nations organization that coordinates and standardizes international telecommunications. ITU led the original effort that produced the initial, basic guidelines for implementing ISDN.

National ISDN commitments address the following three major areas:

- ISDN user equipment, such as computers, data terminals, and telephones, and the services used by this equipment.
- Standard operating company procedures and systems for the operation, administration, and maintenance of ISDN services and equipment.
- Standard communications among ISDN capable switches to extend ISDN services throughout the public-switched network.

These standards enable the operating companies to market a practical ISDN service, and the subscribers to be sure of stable terminals and services.

National ISDN gives switch and customer premises equipment (CPE) manufacturers a standard ISDN technology base for future product development. Network providers can install ISDN in their multi-vendor networks and market a portfolio of ISDN services nationwide. National ISDN gives users access to a predefined set of ISDN features from virtually any operating company switch. There is also a selection of CPE and software from many different suppliers that best matches their individual needs.

Although National ISDN standardizes the basic elements of ISDN, there is still room for innovation and value-added services. Network providers can invent a new ISDN service, or a computer manufacturer can enhance its ISDN products. Over time, many of these enhanced services make their way into the standard feature set. For example, Nortel installs more than 200 centrex services on the standard ISDN line, using only those procedures and protocols defined by National ISDN. This approach allows for a standard technology platform with incentives and opportunities to add value.

The real ISDN revolution is that ISDN is available all across North America with a set of standardized services. This ISDN standardization frees subscribers from the premium cost of proprietary solutions.

National ISDN has energized the ISDN industry, stimulating demand for ISDN services and promoting the supply of ISDN hardware and software. Previously, the lack of ISDN telephones, data terminals, and compatible software had a damping effect on the deployment of ISDN throughout the telecommunications industry. Telephone operating companies were reluctant to market ISDN without a wide choice of terminals and a standard feature set. Hardware and software manufacturers were reluctant to develop products until ISDN was more widely marketed. National ISDN continues to drive widespread ISDN installation and development.

There are two types of ISDN interfaces offered in North America: primary rate interface (PRI) and basic rate interface (BRI). This documentation only addresses ISDN PRI.

ISDN PRI overview

PRI carries nB+D channels over a digital DS-1 facility (n=1-479, typically 23). PRI is used to link private networking facilities, such as private branch exchange (PBX), local area network (LAN) facilities, and host computers with standardized architecture. This architecture acts as the bridge between private switching equipment and the public network. The following gives a brief overview of the Nortel ISDN PRI product.

ISDN PRI background

National ISDN PRI was not defined until NI-2 (ten years after the initial PRI development). During that period, individual companies developed and used proprietary versions of PRI. Some examples are Nortel's NTNAPRI and AT&T's U449PRI and U459PRI. Because different versions of PRI existed, it required CPE to support several different variants of PRI. To overcome interoperability problems, companies such as Northern Telecom and AT&T developed protocol variants to enable their equipment to communicate with other PRI variants. These variants were more useful but supported only a basic call.

Northern Telecom North American Primary Rate Interface (NTNAPRI) is defined by the NIS-A211-1 Interface Specification.

Nortel's NI-2 compliant PRI is called National ISDN (NIPRI) and is defined by the NIS-A233-1 Interface Specification. NI-2 PRI is an industry effort to standardize PRI features and protocol. A standard interface has the advantage of more CPE manufacturers being able to invest in research and development required to build a reliable interface. NI-2 PRI is the industry's attempt to standardize PRI at a minimum feature level. Nortel's NA009 release of NIPRI creates a full featured PRI.

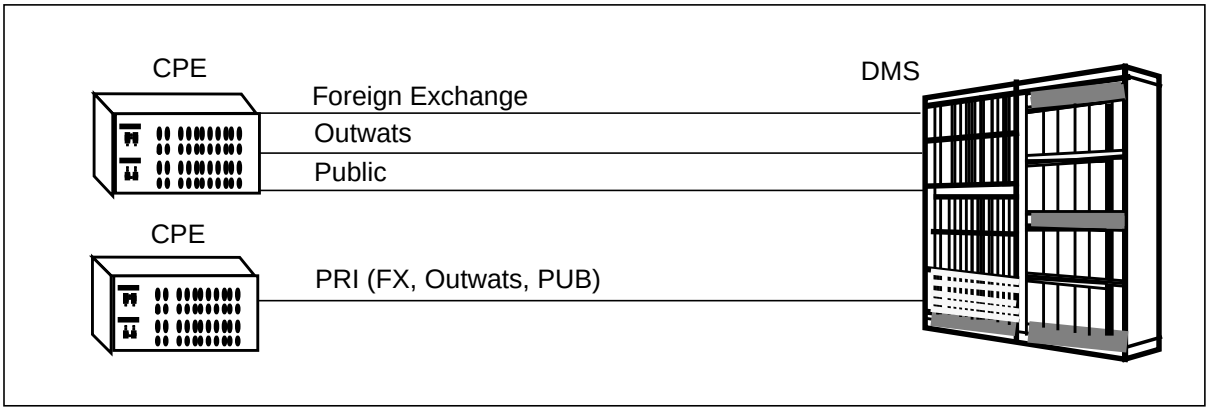
ISDN PRI description

ISDN PRI is a trunking technology used as an interface between the switching center and CPE. PRI offers advantages over other trunking technologies in use, as listed below.

- An efficient use of facilities. Call-by-call on ISA integrated services access allows a group of trunks to serve multiple services such as WATS, FX, and TIE.
- Features such as calling number and name display.
- Faster call setup time, especially with multirate (DWS) vs. Bonding.
- Higer band width nX64k.

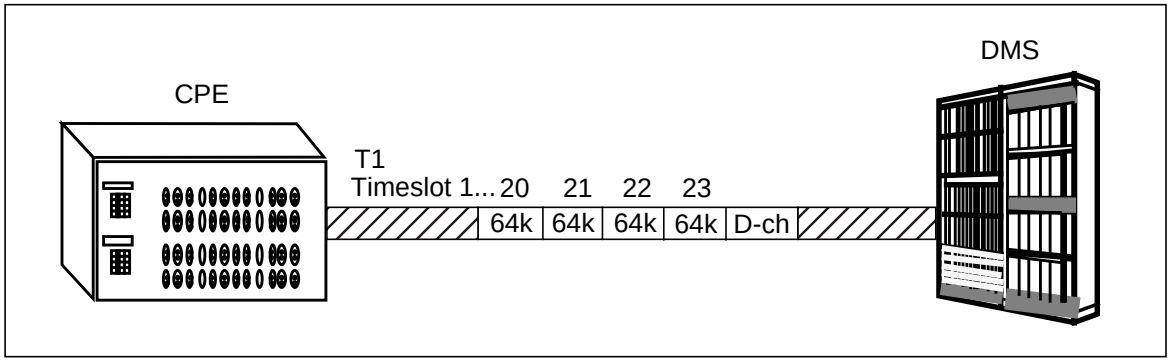
The following figure shows an example of Service Consolidation using an intergrated services access (ISA) configuration vs. Dedicated Facilities.

Figure 1-1 PRI integrated services access (ISA/call-by-call vs. Dedicted Facilities)



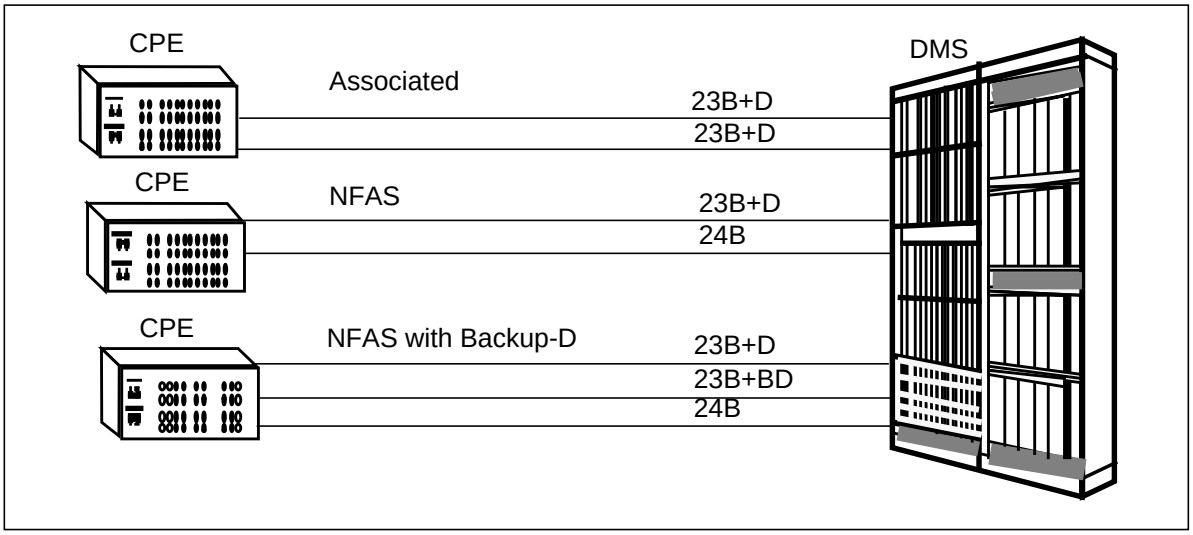
PRI uses out-of-band signaling similar to SS7, referring to its use of a separate channel (D-channel) for call control, and leaving the remaining channels for 64k clear traffic. The physical interface is a DS-1 carrier. The following figure illustrates PRI out-of-band messaging.

Figure 1-2 PRI out-of-band messaging



Two configurations for PRI, facility associated and non-facility associated (NFAS), are also referred to as 23B+D and NFAS, respectively. With facility associated PRI, a D-channel controls each DS1 span individually. With NFAS, one D-channel controls multiple spans. The concept is called nB+D. One D-channel can control as many as 20 DS-1 spans or 479 B-channels. With NFAS, there is also an option for a backup D-channel. The following figure shows examples of PRI configurations.

Figure 1-3 PRI configurations

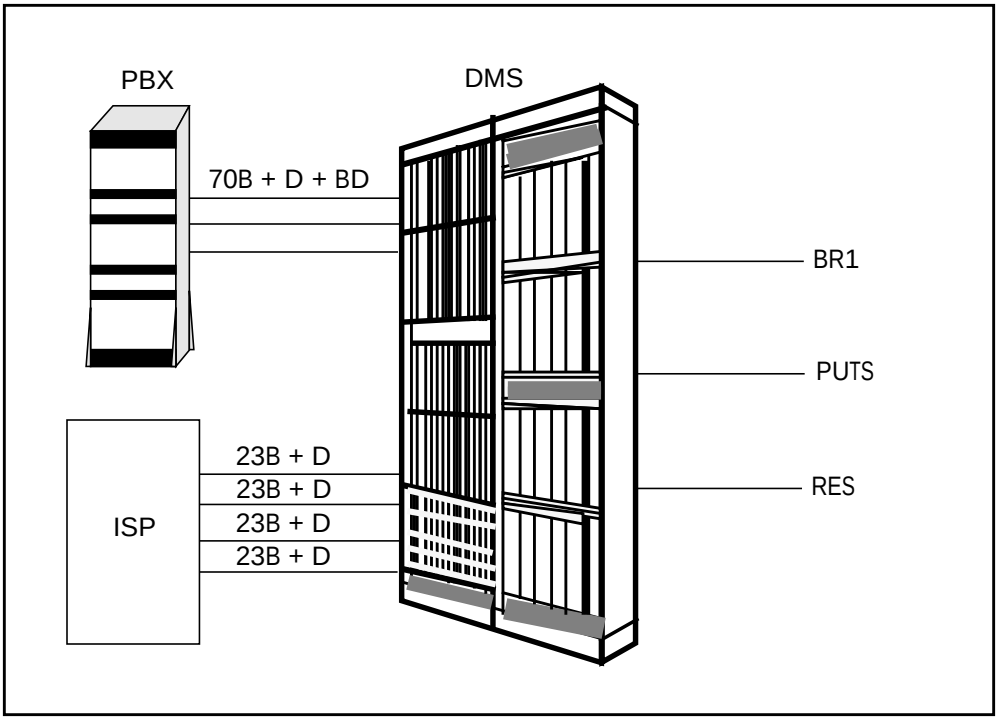


Applications

Applications fall into one of two categories; the traditional private branch exchange (PBX), or the customer premises equipment (CPE) designed for data for LAN connection and Internet access. All applications have similar datafill. The difference in application is based on the features that are required. A PBX

can be set up for all voice and data features, while routers can be set up for only data and facility features.

Figure 1-4 Application Drawing



Part II
Planning and Engineering

Part II: “Planning and Engineering” contains the chapter “Engineering and Provisioning.”

2 Engineering and Provisioning

This chapter describes ISDN PRI provisioning guidelines.

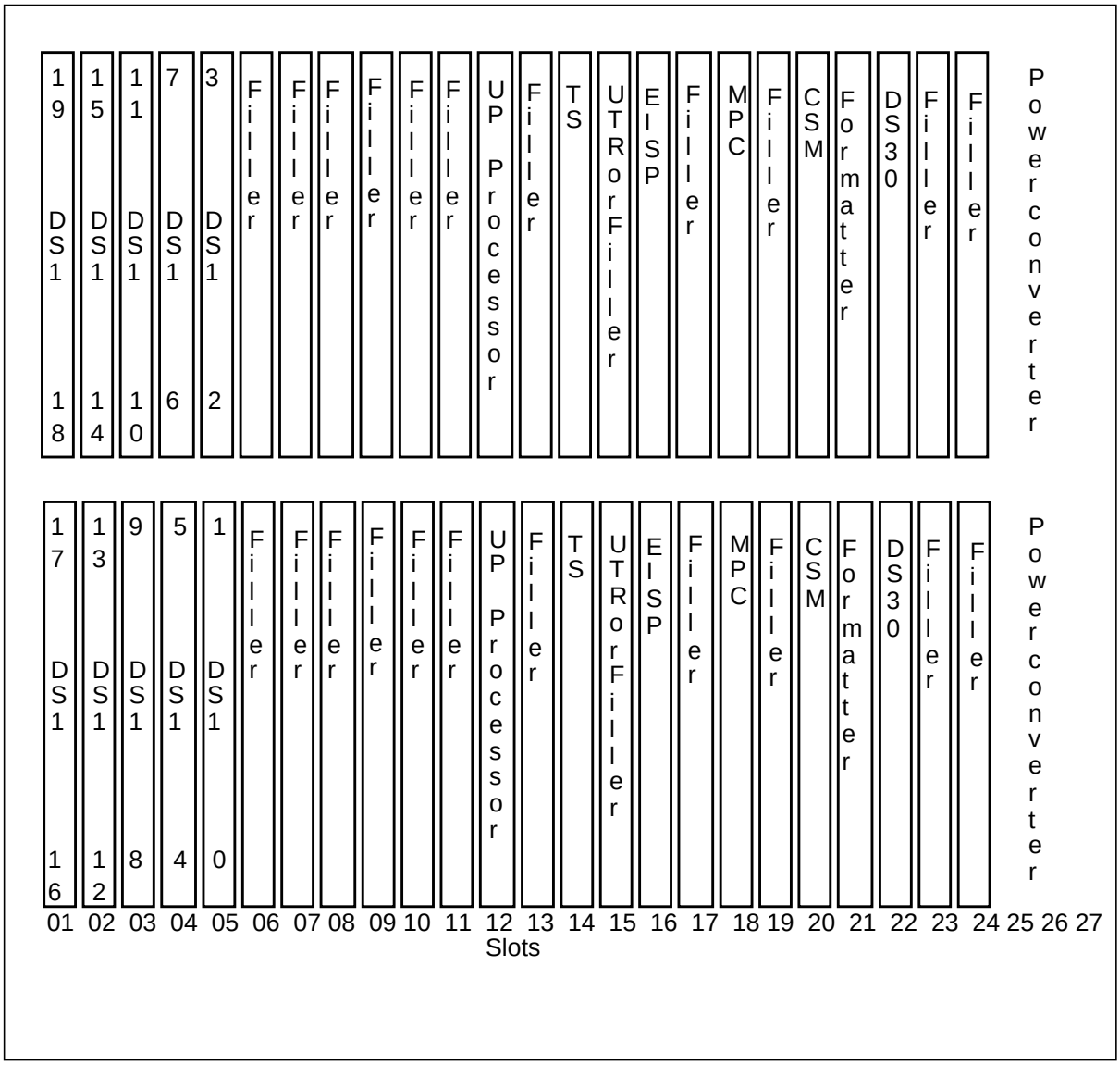
Hardware

The DMS-100 uses the extended peripheral module (XPM) and spectrum peripheral module (SPM) to serve ISDN PRI. If the common peripheral is only equipped to serve trunks, it is called an ISDN digital trunk controller (DTCI). If the module is equipped for both lines and trunks, it is called a line trunk controller ISDN (LTCI). The SPM is a trunk-only peripheral module with data link controller (DLC) circuit packs available for ISDN. The DLC for SPM corresponds to the enhanced ISDN signaling preprocessor (EISP) for an XPM and handles the D-channel messaging. Both units support per-trunk signaling (PTS) trunks with the ABTRK software exec loaded on the Table LTCINV (XPM) or Table MNNODE (SPM).

DTCI

The XMS-based peripheral module product life upgrade strategy (XPM-PLUS) series 3 dual unit node ISDN digital trunk controller (DTCI) is an extended peripheral module integrated digital trunk carrier in which power and control for the 20 spans is performed from either of the two shelves. Unit 1 is the upper shelf. The following figure shows peripheral DS1s at the far left, control and common cards in the center, and the C-side interface to the far right. DS1 numbering starts at span zero (0) located in unit 0, slot 5, port 0 to span 19, in unit 1, slot 1, port 1.

Figure 2-1 XPM-PLUS dual unit node DTCI



The following table shows the XMS-based peripheral module (XPM) circuit card list.

Table 2-1 XPM card list (Sheet 1 of 2)

Slot	Card code	Name	Purpose
1-5	NT6X50AB	DS1	Peripheral side interface
Others	NT0X50AA	Filler plate	Cosmetic
Note: Card codes are the latest version to date when this document was written.			

Table 2-1 XPM card list (Sheet 2 of 2)

Slot	Card code	Name	Purpose
12	NTSX05AA	UP	Processor
14	NT6X44AA	TS	Time switch
15	NT6X92BB	UTR	Universal tone receiver
16	NTBX01AB	EISP	Enhanced signaling processor D-channel
18	NT6X69AC	MPC	Message protocol and tone generator
20	NT6X42AA	CSM	Manages the speech link to ENET
21	NT6X41AA	Formatter	Converts parallel bit stream to/from DS30 bit stream for ENET messaging
22	NT6X40FA	DS30	C-side interface 30 channels
25-27	NT2X70AE	Power Supply	Supplies power to unit

Note: Card codes are the latest version to date when this document was written.

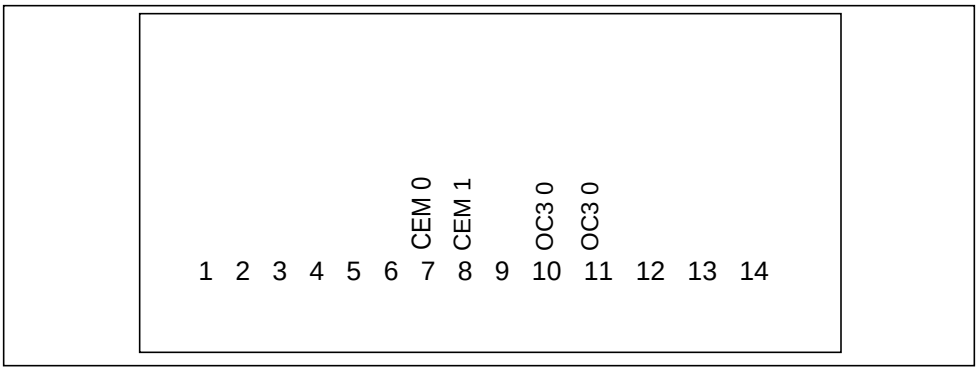
Software

Use the peripheral module (PM) release document for specific software with the PRAB and ABTRK execs. An example follows in the customer datafill table flow section in this chapter.

Spectrum peripheral module

The SPM is Nortel Networks' advanced peripheral platform. The SPM is similar to an XPM, but differs in that it connects to the ENET with higher capacity DS512 fibers and supports 84 DS1s through a fiber OC3 interface. An XPM has 20 copper DS1s as well as spares on a card and switches activity between entire units. The following figure shows the placement of cards. The CEM cards must be in slots 7 and 8. The OC3 cards must be in slots 10 and 11. The DLC and DSP cards can be placed in any of the other slots including shelf 1.

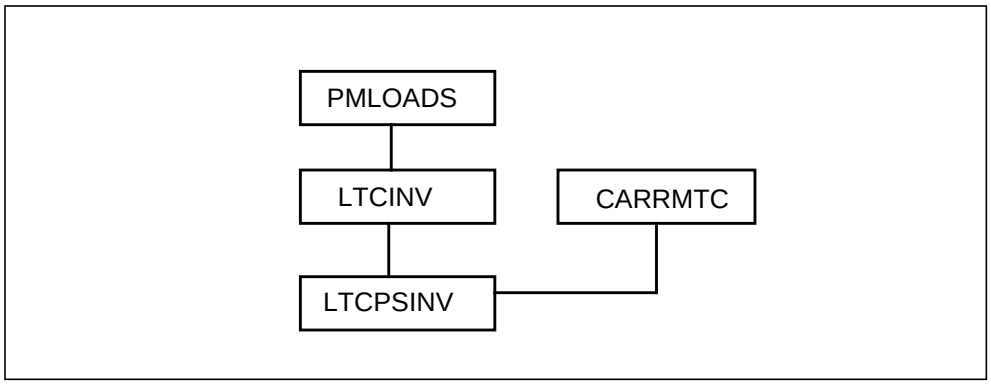
Figure 2-2 Placement of CEM and OC3 cards



Hardware datafill

There is hardware datafill for both the XPM and SPM. The following figure shows the hardware tables that require datafill for an XPM.

Figure 2-3 Hardware tables requiring datafill for an XPM

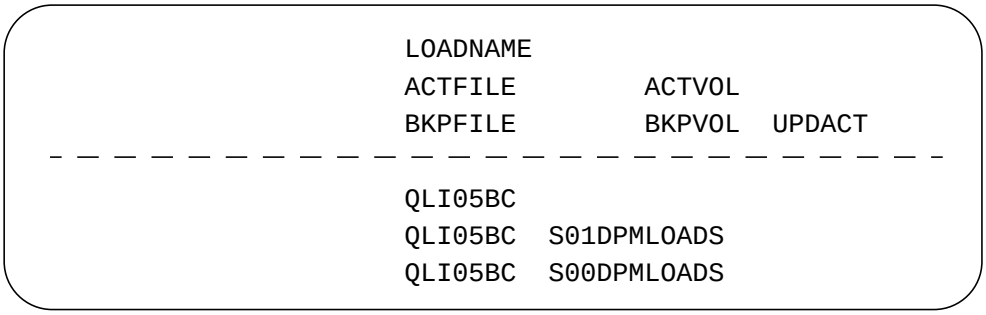


Tables PMLOADS, CARRMTC, LTCINV, and LTCPSINV define the hardware. The tables must be filled in the order listed. Each table is described in the following sections.

Table PMLOADS

Table peripheral module loads (PMLOADS) defines the location of the load for the PM, as shown in the following figure.

Figure 2-4 Example of Table PMLOADS



The following table shows a description of the fields and settings in Table PMLOADS.

Table 2-2 Description of Table PMLOADS

Field name	Description	Setting
LOADNAME	Load Name	Name found in Table LTCINV.
ACTFILE	Active File	Will search for this file first.
ACTVOL	Active Volume	
BKPFILE	Backup File	The DMS switch searches for this if Active is not found.
BKPVOL	Backup Volume	
UPDACT	Automatic Update	Y (Yes). Load file is eligible for patching .

Table CARRMTC

Table CARRMTC defines the characteristics of the carrier. Alarm and Operational Measurement (OM) thresholds are also set here. The majority of PRI links are set up, as shown in our example, with the following:

- Extended superframe format (ESF) as the frame format
- Binary 8 zero substitution (B8ZS) as the line coding

In the following figure, the values used are determined from experience. All outside plant and network paths must be set up for 64k. The 56k option exists but is rare.

Figure 2-5 Example of Table CARRMTC

```
CSPMTYPE    TMPLTNM  RTSML  RTSOL                                    ATTR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    DTCI           64K   255 255  DS1 NT6X50AB MU_LAW ESF B8ZS CRC NILDL
                                  N 250 1000 50 50 150 1000 3 6 864 100
                                  17 511 4 255

   DTCI            DWS    255 255  DS1 NT6X50AB MU_LAW ESF B8ZS CRC NILDL
                                  N 250 1000 50 50 150 1000 3 6 864 100
                                  17 511 4 255
```

The following table shows a description of the fields and settings in Table CARRMTC.

Table 2-3 Description of Table CARRMTC

Field name	Description	Setting
CSPMTYPE	Carrier Peripheral Module Type	CSPMTYPE - Enter DTCI or LTC.
TMPLTNM	Template Name - Template name of peripheral module. This name is used in the CARRIDX subfield in Table LTCPSINV.	TMPLTNM - 64KESF or DWS for dialable wideband service.
RTSML	Route Maintenance Limit	RTSML - 255
RTSOL	Route Out-Of-Service Limit	RTSOL - 255
ATTR	DS-1 selector (SELECTOR)	SELECTOR - DS1
	Card name (CARD)	CARD - NT6X50AB
	Voice Law (VOICELAW)	VOICELAW - MU_LAW
	Frame Format (FF)	FF - ESF
	Line Coding Scheme (ZLG)	ZLG - B8ZS
	Bit Error Rate Base (BERB)	BERB - CRC
	Data Link (DLK)	DLK - NILDL
	Inhibit Alarm Transmit (IAT)	IAT - N
	Local Carrier Alarm Stop Threshold (LCGAST)	LCGAST - 250
		LCGACL - 1000
	Local Carrier Group Alarm Clear Threshold	RCGAST - 50
		RCGACL - 50

Table LTCINV

Table LTCINV defines the DTCI software load, executive programs, network links, and hardware cards present.

Figure 2-6 Example of Table LTCINV

```
LTCNAME
   ADNUM  FRTYPE FRNO SHPOS  FLOOR  ROW FRPOS  EQPEC     LOAD
                                                        EXECTAB
                                                        CSLNKTAB
                                                        OPTCARD
   TONESET   PECS6X45
                     E2LOAD
                                                        OPTATTR
 PEC6X40                           EXTINFO
-------------------------------------------------------------------
   DTCI 2
      7       LTE   0    51       1   D    0  6X02AA  ELI05BC
                                (ABTRK DTCEX)(PRAB DTCEX)$
 (0 12 1 0) (0 12 1 1) (0 12 1 2) (0 12 1 3) (0 12 1 4) (0 12 1 5)
 (0 12 1 6) (0 12 1 7) (0 12 1 8) (0 12 1 9) (0 12 1 10) (0 12 1 11)
 (0 12 1 12) (0 12 1 13) (0 12 1 14) (0 12 1 15) $
                                      (DCTAX78)(UTR15)(MSG6X69)(ISP16)$
 NORTHAM       SX05AA    SX05AA

                                                                    $
 6X40FA                                  N
```

The following table shows a description of the fields and settings in Table LTCINV.

Table 2-4 Description of Table LTCINV (Sheet 1 of 2)

Field name	Description	Setting
LTCNAME	Line Trunk Controller Name - This field is used to describe the peripheral module type (XPMTYPE) and peripheral number (XPMNO).	XPMTYPE - Enter DTCI or LTC. XPMNO - Enter a value of 0 to 255.
FRTYPE	Frame Type	FRTYPE - Enter DTE or SME.
LOAD	Load Name	LOAD - Enter the load name from the PMLOADS Table.

Table 2-4 Description of Table LTCINV (Sheet 2 of 2)

Field name	Description	Setting
EXETAB	Terminal Type (TRMTYPE) Executive Program (EXEC)	TRMTYPE - PRAB for PRI trunk EXEC - Enter DTCEX
OPTCARD	Optional Cards - The messaging card (MSG6X69) and the ISP signaling card (ISP16) are required for PRI operation.	OPTCARD - MSG6X69 and ISP16 DTCAX78 for dialable wideband

Table LTCPSINV

Table LTCPSINV assigns the DTCIs DS1 ports and references Table CARRMTC.

Datafill example

The following shows an example of Table LTCPSINV datafill.

Figure 2-7 Example of Table LTCPSINV

```
    LTCNAME                                  PSLNKTAB
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

    DTCI  2
       N (0 DS1PRA  DWS N 0 NIL) (1 DS1PRA DWS N 0 NIL)
       (2 DS1 DEFAULT N) (3 DS1PRA 64K N 0 NIL)
       (4 DS1PRA DEFAULT N 0 NIL) (5 DS1PRA 64K N 0 NIL)
       (6 DS1PRA 64K N 0 NIL) (7 DS1PRA 64K N 2 NIL)
       (8 DS1PRA 64K N 3 NIL) (9 DS1PRA 64K N 4 NIL)
       (10 DS1PRA 64K N 5 NIL) (11 DS1PRA 64K N 1 NIL)
       (12 DS1PRA 64K N 2 NIL) (13 DS1PRA 64K N 8 NIL)
       (14 DS1PRA 64K N 9 NIL) (15 DS1PRA 64K N 10 NIL)
       (16 DS1PRA 64K N 0 NIL) (17 DS1PRA 64K N 0 NIL)
       (18 DS1PRA 64K N 0 NIL) (19 DS1PRA 64K N 0 NIL) $
```

The following table shows a description of the fields and settings in Table LTCPSINV.

Table 2-5 Description of Table LTCPSINV

Field name	Description	Setting
LTCNAME	Line Trunk Controller Name - This describes the peripheral module type and number.	XPMTYPE - DTCI or LTC XPMNO - 0 to 255
PSLNKTAB	P-side table	
	P-side link (PSLINK)	Port number
	P-side data (PSDATA)	DS1PRA
	Carrier index (CARRIDX)	64k
	Action (ACTION)	N (do not remove the carrier from service if the maintenance thresholds are exceeded.)
	Interface Identifier (IID)	0 to 31
	Line Equipment (LINE_EQ)	NIL

Notice the following Interface Identifier (IID) conventions:

- IID 0 Span with primary D-channel
- IID 1 Span with backup D-channel
- IID 2 Spans with 24 B-channels in consecutive order

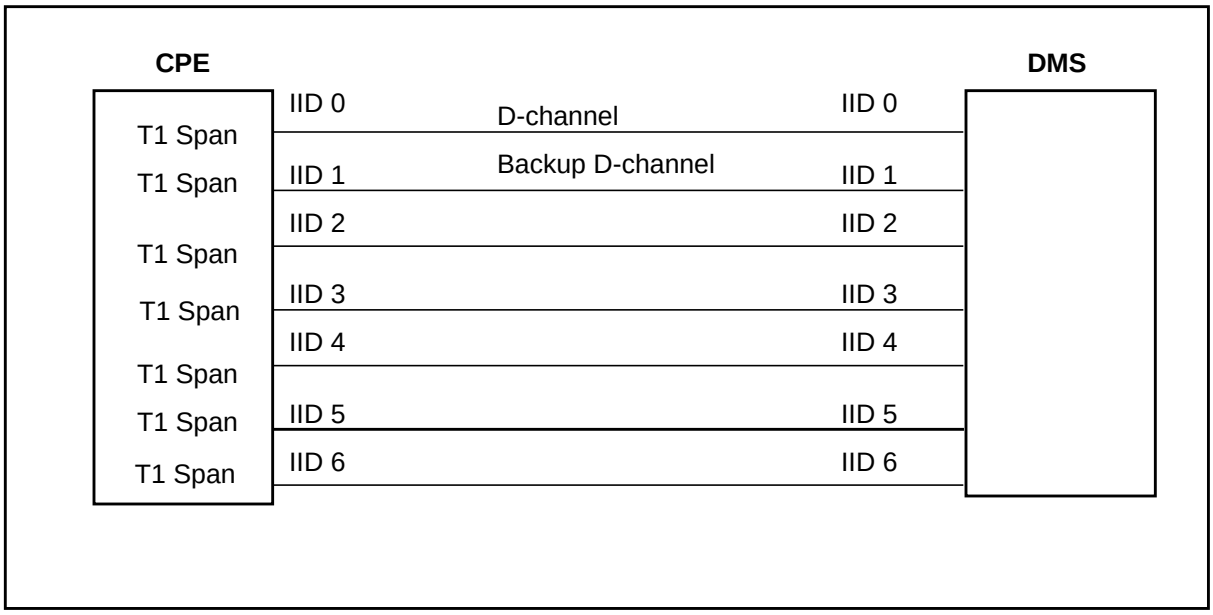
If the backup D-channel is not used, do not use IID 1.

If the PRI trunkgroup is only one span (i.e., 23B+D) the IID is not used.

Keep spans, IIDs, D-channels, and B-channels in ascending order.

The following figure illustrates the importance of the IID. The IID specifies the span on which a channel is located. For example, the CPE wants to establish a call on channel 5 (time slot 5) on span 3. The CPE sends a setup message requesting channel 5 on interface 3 (IID 3). When the DMS switch receives a call, it receives the call on channel 5 (time slot 5) on the span specified as IID 3. If the DMS switch datafills this span as IID 2 instead of IID 3, the call does not have a path. The IID datafill values must match on both sides of the link.

Figure 2-8 Description of the interface identifier (IID)



The following figure shows the hardware datafill tables for an SPM.

Figure 2-9 Hardware tables requiring datafill for an SPM

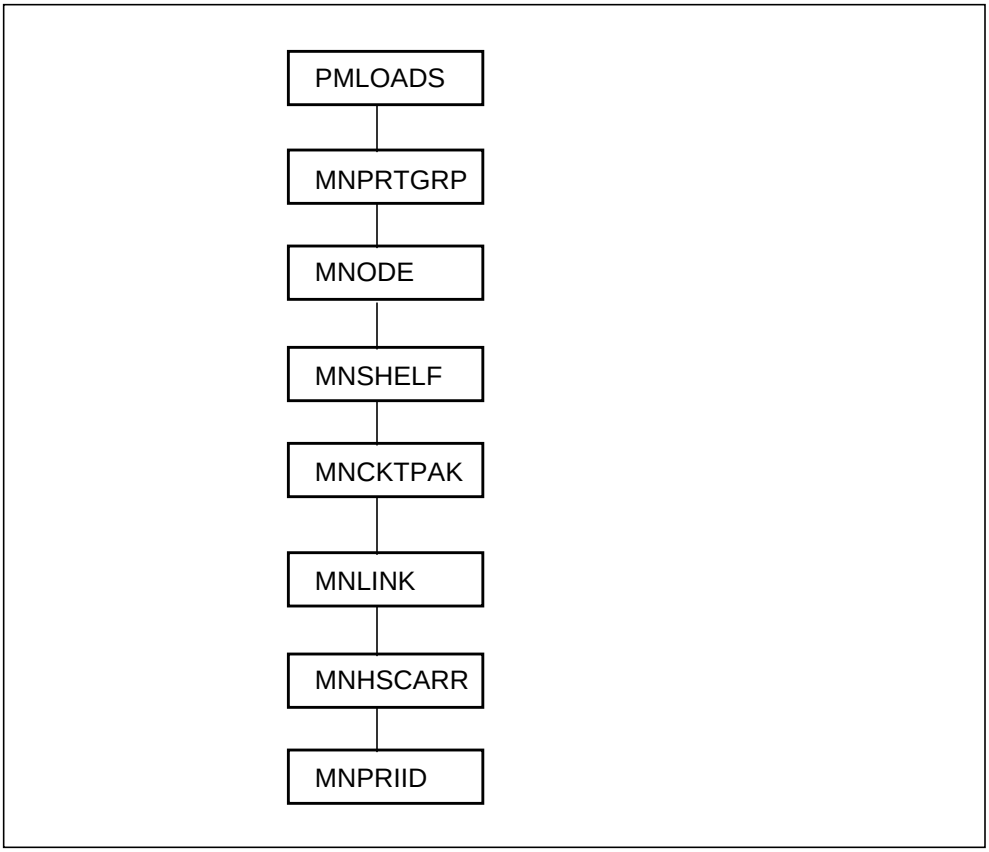


Table MNPRTGRP

Table MNPRTGRP (management network protection group) is one of six DMS SPM configuration tables. Each tuple in this table identifies a protection group for a set of circuit cards.

The following shows sample datafill for Table MNPRTGRP.

Figure 2-10 Example of Table MNPRTGRP

```
 GRPKEY                                                          GRPINFO
-------------------------------------------------------------------------
 SPM 0    DSP_GRP   1    DSP_GRP        NRVTV          (NOSPARE MJ RPT)$
 SPM 0    VSP_GRP   1    VSP_GRP        NRVTV          (NOSPARE MJ RPT)$
 SPM 0    OC3_GRP   1    OC3_GRP        NRVTV          (NOSPARE MJ RPT)$
 SPM 0    STS3L_GRP 1    STS3L_GRP      1PLUS1 NRVTV    UNI_DIR
 SPM 0    DLC_GRP   1    DLC_GRP        NRVTV          (NOSPARE MJ RPT)$
```

The following table describes field names, subfield names, and valid data ranges for Table MNPRTGRP.

Table 2-6 Description of Table MNPRTGRP

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY			Group Key. The subfields are NODETYPE, NODEID, GRPTYPE, and GRPID.
	NODETYPE	SPM	Node Type. Enter SPM.
	NODEID	0-63	Node Identifier. Enter the SPM node identifier. The default is 0.
	GRPTYPE	OC3_GRP, DSP_GRP, VSP_GRP, STS3L_GRP, DLC_GRP	Group Type. Enter the protection group type as follows: • OC3_GRP (protection group for OC3 circuit pack) • DSP_GRP (protection group for DSP circuit pack) • STS3L_GRP (protection group for STS3 line carrier) • DLC_GRP (protection group for Data Link Controller circuit pack)
	GRPID	1-28	Group Identifier. Enter the protection group identifier. The default value is 1.
GRPINFO	SELECTOR	VSP_GRP, OC3_GRP, DLC_GRP, DSP_GRP	Group Information. This protection group information area is refined for each group type: VSP_GRP, OC3_GRP, DLC_GRP, DSP_GRP, or STS3L_GRP. Refer to the following refinements.
	APSCFG	1 PLUS 1	Protection Switch Configuration
	SWCHMODE	NRVTV	
	ALRMCTRL	$	Alarm Control $ Default
	SWCHDIR	UNI_DIR	Protection Switch Direction

Table MNNODE

Table MNNODE (management network node) includes the node identifier and the node location.

The following shows sample datafill for Table MNNODE.

Figure 2-11 Example of Table MNNODE

```
NODEKEY      ALIAS    NODEINFO
-------------------------------------------------------------------------
SPM       0    $ DMSCP 1 SNYC LOOP 15 (COT  60) (DTMF 60) (ECAN 60)
(TONESYN 60) (MF 60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA
CR RPT) (MANBNA MJ RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT)
(TONESLOW MN RPT) (MFLOW MN RPT) $(ABTRK SPMEX)(PRAB SPMEX)$
```

The following table describes field names, subfield names, and valid data ranges for Table MNNODE.

Table 2-7 Field descriptions for Table MNNODE

Field	Subfield or refinement	Entry	Explanation and action
NODEKEY		See subfields	Node Key. Subfields are NODETYPE and NODEID.
	NODETYPE	SPM	Node Type. Enter SPM.
	NODEID	0 to 63	Node Identifier. Enter the SPM node identifier. The default value is 0.
ALIAS		1 to 12 alphanumeric characters	Alias. Enter an alias for the node.
CLASS		DMSCP	Class. DMSCP (DMS call processing). Assign SPMs deployed as DMS call processing peripherals to this class. For all software releases before SP12, the ONP automatically converts SPMs to this class.

Conditional datafill when CLASS=DMSCP

The following table lists conditional datafill when you enter DMSCP in field CLASS.

Table 2-8 Field descriptions when CLASS=DMSCP (Sheet 1 of 5)

Field	Subfield or refinement	Entry	Explanation and action
FLOOR		0 to 99	FLOOR. Enter the floor where the node is located.
CLKMODE		SYNC	CLOCK MODE. Enter SYNC.

Table 2-8 Field descriptions when CLASS=DMSCP (Sheet 2 of 5)

Field	Subfield or refinement	Entry	Explanation and action
CLKREF		INTERNAL or LOOP	Clock Reference. Enter a clock synchronization reference from the following list: • INTERNAL (The clock synchronizes to the DMS message switch. This is the default value.) • LOOP (The clock synchronizes to the local OC3 network.) ***Note:*** At initial program loading (IPL), field CLKREF is datafilled with the default value INTERNAL. When an SPM is datafilled in Table SYNCLK as a sync source, table control prevents a change from INTERNAL to LOOP. An attempt to make such a change from INTERNAL to LOOP results in the following message: "SPM is datafilled in Table SYNCLK as a SYNC SOURCE." When SPM OC3 line timing is not employed and an SPM node is connected to an OC3 SONET network, enter LOOP into field CLKREF to ensure correct OC3 network timing.
LEDTIMER		0 to 1440	Led Time-Out Period. Enter the LED timeout period in minutes. When the SPM detects no critical faults during the timeout period, the alarm LEDs turn off in order to extend their life. Enter 0 (zero) when the LEDs are to stay on at all times. The default value is 15.
RSRUTLIM		See subfields	Resource Utilization. This field consists of a vector of up to five entries in subfields RESTYPE and THRESHLD. Each entry sets a low water mark use threshold, as a percent, for a resource type. When the use exceeds the threshold, alarms or logs generate. Enter $ to select default values.
	RESTYPE	COT, DTMF, ECAN, TONESYN, MF	Resource Type. Enter a resources type from the following list: • COT (continuity test) • DTMF (dual-tone multi-frequency) • ECAN (echo cancellation) • TONESYN (tone synthesizer) • MF (multi-frequency signaling)

Table 2-8 Field descriptions when CLASS=DMSCP (Sheet 3 of 5)

Field	Subfield or refinement	Entry	Explanation and action
	THRESHLD	10 to 100	Utilization Threshold. Enter the low water threshold as a percent of total resource. The default values are 60% for COT, DTMF, ECAN, TONESYN, and MF.
ALRMCTRL		See subfields	Alarm Control Information. This field consists of a vector of up to ten entries in subfields ALARM and ATTR. Each entry controls a particular alarm. Enter $ to select the system default values.
	ALARM	SYSB, MANB, ISTB, SYSBNA, MANBNA, COTLOW, DTMFLOW, ECANLOW, TONSLOW, MFLOW	Alarm Name. Enter an alarm name from the following list: • SYSB (system busy). This alarm generates when the node is in system busy state. The default alarm severity is CR. The default action is RPT. • MANB (manual busy). This alarm generates when the node is in manual busy state. The default alarm severity is MJ. The default action is RPT. • ISTB (in-service-trouble). This alarm generates when the node is in-service and it is experiencing non-service-affecting faults. The default alarm severity is MN. The default action is RPT. • SYSBNA (system busy and not accessible). This alarm generates when the node is in SYSB state and a network (for example, ENET or MS) error has caused it to be isolated. The default alarm severity is CR. The default action is RPT. • MANBNA (manual busy and not accessible). This alarm generates when the node is in MANB state, and a network (for example, ENET or MS) error has caused it to be isolated. The default alarm severity is MJ. The default action is RPT.

Table 2-8 Field descriptions when CLASS=DMSCP (Sheet 4 of 5)

Field	Subfield or refinement	Entry	Explanation and action
			• TONSLOW (low water mark threshold for TONESYN has been crossed). This alarm generates when use of the TONESYN resources exceeds the threshold previously set, meaning that TONESYN resource is in short supply. The default alarm severity is MN. The default action is RPT.
	ATTR	See subfields	Alarm Attributes. This field consists of subfields SEVERITY and ACTION.
	SEVERITY	NA, MN, MJ, CR	Severity. The severity of the alarm defines its relative importance. Enter a severity from the following list: • NA (no alarm) • MN (minor alarm) • MJ (major alarm) • CR (critical alarm)
	ACTION	NRPT, RPT	Action. This subfield indicates the action to be taken when a fault is detected. Enter an action from the following list: • NRPT (no report generated) • RPT (report generated)
EXECTAB		See subfields	Executables Table. This field is a vector of up to eight entries (one for each terminal type) in subfields EXEC and TRMTYPE. Each entry defines an executable lineup to be downloaded for a particular terminal type. If a node supports ISUP trunks only (no PTS trunks), enter $ in the subfields. If a node supports PTS, and/or PRI trunks, datafill subfields EXEC and TRMTYPE.

Table 2-8 Field descriptions when CLASS=DMSCP (Sheet 5 of 5)

Field	Subfield or refinement	Entry	Explanation and action
	TRMTYPE	ABTRK, PRAB	Terminal Type. Enter one of the following values for PTS trunks: • ABTRK (standard PTS trunk configuration) • PRAB (Primary Rate Access B channels)
	EXEC	SPMEX	EXEC LINEUP NAME. Enter the following values for SPM nodes supporting PTS trunks: • SPMEX (For DT, DP, PRI or MF signaling, all 12 trunk types use ABTRK with SPMEX.)

Table MNSHELF

An SPM consists of two shelves. Each tuple in Table MNSHELF (management network shelf) identifies a shelf on a particular node. The data maintained in this table includes the shelf identifier and physical shelf location.

The following shows sample datafill for Table MNSHELF.

Figure 2-12 Example of Table MNSHELF

```
SHLFKEY   FRTYPE    FRNO       ROW   FRPOS      SHPOS       FRPEC      SHPEC
-------------------------------------------------------------------------
SPM 0 0    SPME       3         A      13          6    NTLX91AA   NTLX51AA
SPM 0 1    SPME       3         A      13         21    NTLX91AA   NTLX51AA
SPM 1 0    SPME       2         B      12          6    NTLX91BA   NTLX51BA
SPM 1 1    SPME       2         B      12         21    NTLX91BA   NTLX51BA
SPM 2 0    SMGE       4         C      14          6    NTLX91BA   NTLX51BA
SPM 2 1    SMGE       4         C      14         21    NTLX91BA   NTLX51BA
SPM 3 0    SPME       5         D      15          6    NTLX91AA   NTLX51BA
SPM 3 1    SPME       5         D      15         21    NTLX91AA   NTLX51BA
```

The following table describes field names, subfield names, and valid data ranges for Table MNSHELF.

Table 2-9 Example of Table MNSHELF (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SHLFKEY		See subfields	Shelf Key. Subfields are NODETYPE, NODEID, and SHELFID.
	NODETYPE	SPM	Node Type. Enter SPM.
	NODEID	0 - 63	Node Identifier. Enter the SPM node identifier. The default is 0. ***Note:*** If the SPM identified in NODETYPE and NODEID has not been added to Table MNNODE, the message “Failed to find the specified SPM" displays.
	SHELFID	0 or 1	Shelf Identifier. Enter the shelf identifier. The lower shelf is shelf 0; the upper shelf is shelf 1. The default is 0.
FRTYPE		SPME, SMGE	Frame Type. Enter SPME or SMGE. • SMGE (Successive Media Gateway Equipment) frametype required for SMG4KD (Succession Media Gateway 4000 Distributed Access) class SPM indicated as the intended functionality of the SPM's datafill. • SPME (SPM equipment) frametype required for DMSCP (DMS call processing) and IW (interworking) class. SPM indicated as the intended functionality of the SPM's datafill.
FRNO		0-511	Frame Number. Enter the frame number.
ROW		A-H, J-N, P-Z, AA-HH, JJ-NN, PP-ZZ	Row. Enter the row where the frame is located.
FRPOS		0 - 99	Frame Position. Enter the frame position.

Table 2-9 Example of Table MNSHELF (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SHPOS		0 - 77	Shelf Position. Enter the shelf position in inches. The recommended positions are 6, 21, 43, and 59. ***Note:*** In each SPM frame, there are a maximum of two SPMs—upper and lower SPM. Each SPM has a maximum of two shelves—bottom and upper shelf. The frame mounting positions of each shelf are “6" for lower SPM bottom shelf; “21" for lower SPM upper shelf; “43" for upper SPM lower shelf, and “59" for upper SPM upper shelf. The shelf position is specified in terms of the count of shelf mounting holes from the bottom of the frame.
FRPEC		NTLX91AA, NTLX50AA, NTLX91BA	Frame PEC. Enter the frame product engineering code (PEC). • NTLX91AA Frame PEC required when installing a new DMSCP class SPM. • NTLX50AA is no longer used for new SPM deployment. It is still valid for SPMs deployed before this software release. • NTLX91BA Frame PEC is required when you install a new IW and SMG4KDA class SPM.
SHPEC		NTLX51AA, NTLX53AA, NTLX51BA	Shelf PEC. Enter the shelf PEC. Valid values are: • NTLX51AA (two high-speed slots, double-height shelf, the default). This is the shelf PEC required for DMSCP- class SPMs. • NTLX53AA (two high-speed slots, single-height shelf). This is no longer used. • NTLX51BA (four high-speed slots, double-height shelf). This is the shelf PEC required for IW- and SMG4KDA-class SPMs.

Table MNCKTPAK

In Table MNCKTPAK (management network circuit pack), each tuple identifies 1 of 15 circuit packs on a shelf. The data maintained in this table includes the circuit pack type, product engineering code (PEC), load name, and slot number.

The following shows sample datafill for Table MNCKTPAK.

Figure 2-13 Example of Table MNCKTPAK

```
CPKKEY                                                          CPKINFO
           PEC RELEASE           LOAD
-------------------------------------------------------------------------

SPM 10 0 9 OC3 0 WORKING 1 (SYSB CR RPT) (MANB MJ RPT)
          (ISTB MN RPT) (PROTFAIL NA RPT) $
           TLX71AA       01    OC315AA

SPM 10 0 10 OC3 1 SPARE 1 (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT)
           (PROTFAIL NA RPT) $
            NTLX71AA       01    OC315AA

SPM 10 0  7 CEM 0 (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT)
           (SYSBNA CR RPT)(MANBNA MJ RPT) (HLDOVR MJ RPT)
           (HLDOVR24 MJ RPT) (VCXO70 MN RPT) (VCXO90 MJ RPT)
           (CLKOOS MJ RPT) $
            NTLX63AA       01    CEM15AA

SPM 10 0  8 CEM 1 (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT)
           (SYSBNA CR RPT) (MANBNA MJ RPT) (HLDOVR MJ RPT)
           (HLDOVR24 MJ RPT)(VCXO70 MN RPT) (VCXO90 MJ RPT)
           (CLKOOS MJ RPT) $
            NTLX63AA       01    CEM15AA

SPM 10 0  3 DSP 3 1 WORKING (DTMF 24) (TONESYN 128) $ (SYSB CR RPT)
           (MANB MJ RPT) (ISTB MN RPT) (PROTFAIL NA RPT) $
            NTLX65AA       01    DSP15AA
SPM 10 0  5 DLC 0 WORKING 1 (STSB CR RPT) (MANB MTRTP)
           (ISTB MN RPT) (PROTFAIL NA RPT) $
            NTLX72BA       01    DLC15AA
SPM 10 0  6 DLC 1 SPARE
            NTLX72BA       01    DLC15AA
```

The following table describes field names, subfield names, and valid data ranges for Table MNCKTPAK.

Table 2-10 Description of Table MNCKTPAK

Field	Subfield or refinement	Entry	Explanation and action
CPKKEY		See subfields	Circuit Pack Key. The subfields are NODETYPE, NODEID, SHELFID, and SLOTNUM.
	NODETYPE	SPM	Node Type. Enter SPM.
	NODEID	0-63	Node Identifier. Enter the SPM node identifier. The default is 0.
	SHELFID	0-1	Shelf Identifier. Enter the shelf identifier. The default is 0.
	SLOTNUM	1-14	Slot Number. Enter the slot number of the circuit pack. The default is 1. ***Note:*** Slots 7 and 8 on shelf 0 are used for CEM circuit packs. Slots 9 and 10 on shelf 0 are used for OC3 circuit packs.
CPKINFO		See subfields	Circuit Pack Information. This is a generic area that is refined for each circuit pack type.
	CPKTYPE	CEM, OC3, DSP, DLC	Circuit Pack Type. Enter the circuit pack type, then datafill the refinements.

CPKTYPE = CEM

When CPKTYPE equals CEM (common equipment module), the datafill is shown in the following table.

Table 2-11 Description of Table MNCKTPAK CPKTYPE = CEM

Field	Subfield or refinement	Entry	Explanation and action
CPKTYPE		CEM	Common Equipment Module. The subfields are UNITNO and ALARMCTRL.
	UNITNO	0-1	Unit Number. Enter the CEM unit number. There are a maximum of two CEMs per SPM. Unit number 0 is assigned to the CEM residing on shelf 0 slot 7. Unit number 1 is assigned to the CEM residing on shelf 0 slot 8.

Table 2-11 Description of Table MNCKTPAK CPKTYPE = CEM

Field	Subfield or refinement	Entry	Explanation and action
	ALRMCTRL	See subfields	Alarm Control. $ Default.
PEC		NTLX63AA, NTLX82AA	Product Engineering Code. This field indicates the product engineering code (PEC) of the circuit pack. Select an entry as follows: • NTLX63AA for CEM circuit pack • NTLX82AA for enhanced-CEM circuit packs • NTLX82BA for enhanced-CEM circuit packs
RELEASE		01-99 or 01-ZZ	Release. The default is 01.
LOAD		Up to 8 alphanumeric characters	Default load in PMLOADS.

CPKTYPE = OC3

If CPKTYPE equals OC3 (Optical Carrier 3), the datafill is shown in the following table.

Table 2-12 Description of Table MNCKTPAK CPKTYPE =OC3 (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CPKTYPE		OC3	Optical Carrier 3. The subfields are UNITNO, OC3GRPID, WKRSPR, and ALARMCTRL.
	UNITNO	0-1	Unit Number. Enter the OC3 unit number. There is a maximum of two OC3s per SPM. Assign unit number 0 to the OC3 residing on shelf 0, slot 9. Assign unit number 1 to the OC3 residing on shelf 0, slot 10.
	OC3GRPID	1-28	OC3 Group Identifier. Default is 1.

Table 2-12 Description of Table MNCKTPAK CPKTYPE =OC3 (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	WRKSPR	WORKING, SPARE	Working, Spare. Enter the OC3 protection role designation as follows: • WORKING indicates the circuit pack is designated to provide service. Slot 9. • SPARE indicates the circuit pack is designated to standby and take over the service if the WORKING circuit pack fails. Slot 10.
	ALRMCTRL	See subfields	Alarm Control Information. $ Default.
PEC		NTLX71AA, NTLX71BA	Product Engineering Code (PEC) of the circuit pack: • NTLX71AA for OC3 circuit pack • NTLX71BA for OC3 circuit pack
RELEASE		01-99 or 01-ZZ	Release. The default is 01.
LOAD		Up to 8 alphanumeric characters	Default software load for the circuit pack.

CPKTYPE = DSP

If CPKTYPE equals DSP (digital signal processor), the datafill is shown in the following table.

Table 2-13 Description of Table MNCKTPAK CPKTYPE = DSP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CPKTYPE		DSP	Digital Signal Processor. The subfields are UNITNO, DSPGRPID, and RSRINFO.
	UNITNO	0-27	Unit Number. Enter the DSP unit number. The default is 0.
	DSPGRPID	1-28	DSP Group Identifier in Table MNPRTGRP The default is 1.
	RSRINFO	See subfields	Resource Info. .

Table 2-13 Description of Table MNCKTPAK CPKTYPE = DSP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	WRKSPR	SPARE or WORKING	DSP RESOURCE CONFIGURATION. One DSP will be working. All others will be SPARE. Resources are defined only on the working DSP.
	RSRTYPE	COT, DTMF, TONESYN, STA, ABBIT, MF	Resource Type. This field specifies the SPM service resources that require threshold control. Valid resources are • COT • DTMF • TONESYN • STA • ABBIT • MF
	NUM	0 - 736 (0 - 28 for ABBIT)	Number of Resource. Enter the total number of resources datafilled on the DSP circuit pack. ***Note:*** If field RSRTYPE is datafilled with ABBIT, the range for field NUM is 0 to 28.
	ALRMCTRL	See subfields	Alarm Control Information. To accept the system defaults, enter $.
PEC		NTLX65AA, NTLX65BA	Product Engineering Code (PEC) of the circuit pack. • NTLX65AA for DSP circuit pack. • NTLX65BA for DSP circuit packs.
RELEASE		01-99 or 01-ZZ	Release. This field indicates the 01 release of the circuit pack. The default is 01.
LOAD		Up to 8 alphanumeric characters	This field indicates the default software load for the circuit pack in Table PMLOADS.

CPKTYPE = DLC

If CPKTYPE equals DLC (data link controller), the datafill is shown in the following table.

Field	Subfield or refinement	Entry	Explanation and action
CPKTYPE		DLC	Data Link Controller. The subfields are UNITNO, DLCGRPID, WKRSPR, and ALARMCTRL.
	UNITNO	0-27	Unit Number. Enter the DLC unit number. The default is 0.
	DLCGRPID	1-28	DLC Group Identifier. Enter the DLC protection group identifier in Table MNPRTGRP.
	WRKSPR	WORKING, SPARE	WORKING, SPARE. Enter the protection role designation as follows: • WORKING indicates the circuit pack is designated to provide service. • SPARE indicates the circuit pack is designated to standby and take over the service if the WORKING circuit pack fails. ***Note:*** There is a maximum of two DLCs for each SPM. Datafill one DLC as WORKING and datafill the other one as SPARE.
	ALRMCTRL	See subfields	Alarm Control Information. To accept the default values, enter $.
PEC		NTLX72AA	Product Engineering Code (PEC) of the circuit pack. • NTLX72AA for DLC circuit pack. • NTLX72BA for DLC circuit pack.
RELEASE		01-99 or 01-ZZ	Release. The default is 01.
LOAD		Up to 8 alphanumeric characters	This field indicates the default software load for the circuit pack in Table PMLOADS.

Table MNLINK

The data maintained in Table MNLINK (management network link) includes the link identifier and end-points of the link. Each tuple in the table identifies the C-side host link set for an SPM. The term *host link* refers to the DS-512

fiber link between the common equipment module (CEM) and the enhanced network (ENET) card.

Datafill new link information in Table MNLINK before putting new ENET cards or SPM modules on line. Before making changes to Table MNLINK, set the ENET cards which are connected to the SPM node specified in field NODEID to the offline (OFFL) state.

Datafill example

Each CEM module has four fiber-optic cable pairs. Each pair must be entered as a vector in field CSLNKSET. The following is an example of a link split over two shelves.

CEM 0		**ENET PLANE 0**		
CEM unit	**CEM link ID**	**ENET shelf**	**ENET slot**	**ENET link**
0	1	0	14	0
0	2	0	14	1
0	3	1	15	2
0	4	1	15	3
CEM 1		ENET PLANE 1		
CEM unit	CEM link ID	ENET shelf	ENET slot	ENET link
1	1	0	14	0
1	2	0	14	1
1	3	1	15	2
1	4	1	15	3

The following table showa an example of the connection of SPM host links to the ENET plane.

Shelf ID	**Slot**	**CEM unit**	**Host link ID**	**ENET plane**
0	7	0	1	0
0	7	0	2	0
0	7	0	3	0

Shelf ID	Slot	CEM unit	Host link ID	ENET plane
0	7	0	4	0
0	8	1	1	1
0	8	1	2	1
0	8	1	3	1
0	8	1	4	1

The following figure shows sample datafill for Table MNLINK.

Figure 2-14 Example of datafill in Table MNLINK

```
    LKSETKEY                                          CSLNKSET
-------------------------------------------------------------
  SPM  0 (1 0 14  0) (2 0 14  1) (3 1 15 2) (4 1 15 3)$
```

The following table describes field names, subfield names, and valid data ranges for Table MNLINK.

Field	Subfield or refinement	Entry	Explanation and action
LKSETKEY		See subfields	Linkset Key. This field consists of subfields NODETYPE and NODEID. This is the key field to Table MNLINK.
	NODETYPE	SPM	Node Type. Enter SPM.
	NODEID	0-63	Node Identifier. Enter the SPM node identifier. The default value is 0 (zero).

Field	Subfield or refinement	Entry	Explanation and action
CSLNKSET		See subfields	C-side Host Link Set. This is a vector consisting of 4 entries. Each entry defines a paired connection between one of the two SPM CEMs and the ENET. The subfields are LKPAIRID, ENSHELF, ENSLOT, and ENLINK. ***Note:*** There are four optical-fiber cables for each CEM. Enter four entries for each CSLINKSET vector. See the following table.
	LKPAIRID	1-4	Link Pair Identity. Enter the identity of the host link pair at the SPM end. The default value is 1.
	ENSHELF	0-3	ENET Shelf. Enter the ENET shelf where the link pair terminates. The default value is 0.
	ENSLOT	9-32	ENET Slot. Enter the ENET crosspoint (XPT) card slot where the link terminates. The default value is 32.
	ENLINK	0-18	ENET Link. Enter the ENET port (link) on the XPT card where the link terminates. The default value is 0.

Table MNHSCARR

Table MNHSCARR configures the P-side of the OC3 circuit pack. This is a syncronous optical network (SONET) OC3 (optical carrier with 3 STS1s) interface. SONET is a layered frame structure with overhead at each layer. PRI uses a DS1 facility. In SONET, the DS1 is represented by a DS1P tuple. This DS1P has either a VT15P or a DS3P parent carrier, depending on if this will terminate as a copper T1 or a COAX T3 facility. In either case, 28 of these DS1Ps and VT15P/DS3P encompass an STS1. The STS1 has overhead and is the switchable entity in the SONET transport network. Since we have an OC3, we have 3 STS1Ps. In addition, there are two carriers, OC3S and STS3L, for each card that control link maintenance and overhead for the physical fiber link. The sample datafill shows hierarchial structure. Note that all 84 DS1P tuples are not listed, nor are 56 other VT15P tuples. Also, the datafill

description assumes defaults for alarm control and parameters. See the full data schema document to investigate these further.

The following figure shows a small sample of datafill for Table MNHSCARR.

Figure 2-15 Example of datafill in Table MNHSCARR

```
                              CARRKEY CCNTO
                                                                  CARRINFO
-------------------------------------------------------------------------------
SPM_0_OC3S_1_WORKING                        177
  OC3S SPM 0 0 9 (LBC 150 125 CR) (OPT 85 95 CR) (OPR 85 95 CR) $
  (SEFS 17 7 MN) (CV 4430 1772 MN) (ES 864 346 MN)
  (SES 4 2 MN) $ (LOS CR RPT) (LOF CR RPT) $

SPM_0_OC3S_1_SPARE                          178
  OC3S SPM 0 0 10 (LBC 150 125 CR) (OPT 85 95 CR) (OPR 85 95 CR) $
  (SEFS 17 7 MN) (CV 4430 1772 MN) (ES 864 346 MN)
  (SES 4 2 MN) $ (LOS CR RPT) (LOF CR RPT) $

SPM_0_STS3L_1_WORKING                       175
  STS3L SPM_0_OC3S_1_WORKING 4 7 HSCARR 1 (SFBERX MN RPT) (SDBERX MN RPT) $
  (CV 4430 1772 MN) (ES 864 346 MN) (SES 4 2 MN) (UAS 10 10 MN) $
  (AIS MN NRPT) (RFI MN NRPT) $

SPM_0_STS3L_2_SPARE                         176
  STS3L SPM_0_OC3S_1_SPARE 4 7 HSCARR 1 (SFBERX MN RPT) (SDBERX MN RPT) $
  (CV 4430 1772 MN) (ES 864 346 MN) (SES 4 2 MN) (UAS 10 10 MN) $
  (AIS MN NRPT) (RFI MN NRPT) $

SPM_0_STS1_1                                172
  STS1P SPM_0_STS3L_1_WORKING 1 VT SPM_0_STS1_1_PATH
  (CV 125 15 MN) (ES 100 12 MN) (SES 7 3 MN) (UAS 10 10 MN)
  (CVFE 125 15 MN) (ESFE 100 12 MN) (SESFE 7 3 MN)
  (UASFE 10 10 MN) $ (LOP MN NRPT) (AIS MN NRPT) (RFI MN NRPT)
  (PLM MN RPT) $
SPM_0_STS1_2                                173
  STS1P SPM_0_STS3L_1_WORKING 2 ASYNC_DS3 SPM_0_STS1_2_PATH
  (CV 125 15 MN) (ES 100 12 MN) (SES 7 3 MN) (UAS 10 10 MN)
  (CVFE 125 15 MN) (ESFE 100 12 MN) (SESFE 7 3 MN)
  (UASFE 10 10 MN) $ (LOP MN NRPT) (AIS MN NRPT) (RFI MN NRPT)
  (PLM MN RPT) $

SPM_0_STS1_3                                174
  STS1P SPM_0_STS3L_1_WORKING 3 UNEQ SPM_0_STS1_3_PATH
  (CV 125 15 MN) (ES 100 12 MN) (SES 7 3 MN) (UAS 10 10 MN)
  (CVFE 125 15 MN) (ESFE 100 12 MN) (SESFE 7 3 MN)
  (UASFE 10 10 MN) $ (LOP MN NRPT) (AIS MN NRPT) (RFI MN NRPT)
  (PLM MN RPT) $

SPM_0_STS1_2_DS3                            170
  DS3P SPM_0_STS1_2 M23 (CV 3820 382 MN) (ES 250 25 MN)
  (SES 40 4 MN) (UAS 10 10 MN) $ (AIS MN NRPT) (LOF MJ RPT)
  (RAI MN NRPT) $

SPM_4_STS1_1_ASYNC_1                         1
  DS1P SPM_4_STS1_1_VT_1_1  OFF  VT15P  ESF  (CV 132960 13296 MN)
  (ES 648 65 MN) (SES 100 10 MN) (CSS 4 1 MN) (UAS 10 10 MN) $ (AIS MN NRPT)
   (LOF MN RPT) (RAI MN NRPT)  $
SPM_4_STS1_1_VT_1_1                          85
  VT15P SPM_4_STS1_1 1 1 ASYNC_DS1 (CV 132960 13296 MN)
    (ES 648 65 MN) (SES 100 10 MN) (UAS 10 10 MN) $ (LOP MN RPT) (AIS MN NRPT)
     (RFI MN NRPT) ( PLM MN RPT) $

SPM_0_STS1_2_ASYNC_1                         29
  DS1P SPM_0_DS3P_2 OFF DS3P 1 ESF (CV 132960 13296 MN)
  ES 648 65 MN) (SES 100 10 MN) (CSS 4 1 MN) (UAS 10 10 MN) $ (AIS MN NRPT)
  LOF MN RPT) (RAI) MN NRPT) $
```

The following table describes field names, subfield names, and valid data ranges for Table MNHSCARR.

Table 2-14 Field descriptions for Table MNHSCARR (Sheet 1 of 6)

Field	Subfield or refinement	Entry	Explanation and action
CARRKEY		See subfield	Carrier Key. This field consists of subfield CARRNAME.
	CARRNAME	Up to 38 alphanumeric characters	Carrier Name. Enter the name assigned to the carrier.
CCTNO		1-180	Circuit Number. The curcuit number is arbitrary. An SPM can use between 1-180. For troubleshooting purposes, numbers 1-84 should be reserved for the DS1P tuples. This will ensure your logical carrier number matches your physical port assignment in Table MNPRIIID and also matches the physical carrier number. Recommendations are as follows: • OC3S 177-178 • STS3L 175-176 • STS1P 172-174 • DS3P 169-171. • VT1SP 85-168 • DS1P 1-84
CARRINFO		See subfield	Carrier Information. This field consists of subfield CARRTYPE and its refinements.

Table 2-14 Field descriptions for Table MNHSCARR (Sheet 2 of 6)

Field	Subfield or refinement	Entry	Explanation and action
	CARRTYPE	OC3S, STS3L, STS1P, DS3P, VT15P, DS1P	Carrier Type. Enter the carrier type and datafill the refinements according to the following list: • OC3 section termination datafill. • STS3 line termination datafill. • STS3 concatenated path termination datafill. • STS1 path termination datafill. • DS3 path termination datafill. • V 1.5 path termination datafill. • DS1 path termination datafill. • DSIL path carrier datafill.
CARRTYPE= OC3S	PHYLINK	See refinements	Physical Link. This is the location of the OC-3 circuit pack on the optical fiber/link termination. This field consists of refinements NODETYPE, NODEID, SHELFID, and SLOTNUM.
	NODETYPE	SPM	Node Type. Enter the type of node, which is SPM.
	NODEID	0-63	Node Identifier.
	SHELFID	0 or 1	Shelf Identifier for the shelf that contains the circuit pack.
	SLOTNUM	1-14	Slot Identifier of the circuit pack. Slots 7-8 are reserved for the CEM card, slots 9-10 for the OC3 cards.
	OC3PP	See refinements	OC3 Carrier Physical Medium LayerParameter Attributes. $ Default.
	OC3PM	See refinements	Performance Measurements. $ Default.
	OC3FAIL	See refinements	Defect or Failure Attributes for OC3 Section Carrier. $ Default.
CARRTYPE= STS3L	PCRRNAME	Up to 38 alphanumeric characters	Parent Carrier Name. Enter the OC3S parent carrier name.

Table 2-14 Field descriptions for Table MNHSCARR (Sheet 3 of 6)

Field	Subfield or refinement	Entry	Explanation and action
	SFBERLIM	3-5	Signal Failure Bit-Error-Ratio Threshold. Signal failure is declared when the threshold is crossed. Interpret the field as 1 x 10E-SFBERLIM. For example, the value 3 corresponds to 1 x 10E-3 and the value 5 corresponds to 1 x 10E-5. The default value is 4.
	SDBERLIM	5-9	Signal Degradation Bit-Error-Ratio Threshold. Signal degradation is declared when the threshold is crossed. Interpret the field as 1 x 10E-SDBERLIM. For example, the value 5 corresponds to 1 x 10E-5 and the value 9 corresponds to 1 x 10E-9. The default value is 7.
	CARRCLAS	HSCARR	Carrier Class. Enter HSCARR (high-speed carrier).
	STS3GRID	1-28	STS3 Group Identification of the STS3 line protection group in Table MNPRTGRP. The default value is 1.
	GENFLT	See refinements	General Fault Attributes. $ Default.
	STS3PM	See refinements	STS3 Performance Measurement. $ Default.
	STS3FAIL	See refinements	Failure Attributes. $ Default.
	STS1FAIL	See refinements	Failure Attributes. $ Default.
CARRTYPE= STS1P	PCRRNAME	Up to 38 alphanumeric characters	Parent Carrier Name ***Note:*** An STS1 is hosted by an STS3L carrier, which is resident on a working OC3 circuit pack.
	STS1POS	1-3	STS1 Payload Position. This field indicates the position of the STS1 in the payload. The default value is 1.

Table 2-14 Field descriptions for Table MNHSCARR (Sheet 4 of 6)

Field	Subfield or refinement	Entry	Explanation and action
	STS1PALD	UNEQ, VT, ASYNC_DS3	STS1 Payload Type. This field indicates the type of payload the STS1 is carrying. The default is VT. Valid values are as follows: • UNEQ (payload is unequipped). • VT (VT-structured payload, the default value). • ASYNC_DS3 (asynchronous DS3).
	STS1PTRC	Up to 62 alphanumeric characters	STS1 Path Trace Message.
	STS1PM	See refinements	STS1 Performance Measure Attributes.
	STS1FAIL	See refinements	STS1 Failure Attributes.
CARRTYPE= DS3P	PCRRNAME	Up to 38 alphanumeric characters	Parent Carrier Name. Enter the STS1P parent carrier name. ***Note:*** A DS3P carrier can only host off a STS1P carrier with asynchronous DS3 (ASYNC_DS3) payload.
	DS3APP	See refinements	Application Carried by the DS3 Path. Its subfield is APPTYPE.
	APPTYPE	M23	Application Type. The only valid value is M23, which is the M23 application. Refine the M23 application.
	M23DS3PM	See refinements	Performance Measurements for DS3 Path Carrier. $ Default.
	DS3FAIL	See refinements	DS3 Failure Attributes. $ Default.
CARRTYPE= VT15P	PCARRNAME	Up to 38 alphanumeric characters	Parent Carrier Name. Enter the parent carrier name.
	VTGRPID	1-7	VT Group Identification. Enter the group identification. The default is 1.
	VTID	1-4	VT1.5 Identification. Enter the VT1.5 identification within the VT group. The default is 1.

Table 2-14 Field descriptions for Table MNHSCARR (Sheet 5 of 6)

Field	Subfield or refinement	Entry	Explanation and action
	VT15PALD	ASYNC_DS1, BYSYNC_DS1	VT1.5 Payload Type. Enter the STS1 payload type as follows: • ASYNC_DS1 (asynchronous DS1 payload) • BYSYNC_DS1 (byte-synchronous DS-1 payload, the default value)
	VT15PM	See refinements	VT1.5 Performance Measure Attributes. $ Default.
	VT15FAIL	See refinements	VT1.5 Failure Attributes. $ Default.
CARRTYPE = DS1P	PCRRNAME	1 to 38 alphanumeric characters	Parent Carrier Name. Enter the VT15P or DS3P parent carrier name.
	DS1ZCS	OFF/ON	Zero Code Suppression (ZCS). This field indicates if the zero code suppression is enabled or disabled for DS1p carrier. Its values depend on the Frame format option. • For Frame format SF, the values are: ON - Zero code suppression is enabled. OFF - Zero code suppression is disabled. • For Frame format ESF, only the OFF value is supported ***Note:*** If the DS1 carries channelized data services that require 64k clear-channel transmission, use the OFF value. This avoids undesirable ZCS modification of the bitstream. .
	DS1POS	See refinements	DS1 Position. This field indicates the position of the DS1P carrier in the payload. Its one subfield is PCARRTYP.

Table 2-14 Field descriptions for Table MNHSCARR (Sheet 6 of 6)

Field	Subfield or refinement	Entry	Explanation and action
	PCARRTYP	DS3P or VT15P	Parent Carrier Type. Valid values are • DS3P (DS3 path carrier). Refine DS3P by entering PALDPOS, which is the DS1P carrier in the DS3 payload. Valid values are 1-28. • VT15P (VT1.5 path carrier with asynchronous DS1 payload)
	PALDPOS	1-28	Payload Position. Enter the position of the DS1P carrier in the DS3 payload.
	FRAMEFMT	ESF or SF	Frame Format. This field indicates the frame format used by the DS1P carrier. Valid values are • ESF (extended superframe) • SF (superframe) Enter refinements for ESF and SF as described here.
	ESFDS1PM	See refinements	Extended Superframe DS1 Performance Measurement. $ Default.

Table MNPRIIID

Table MNPRIIID provisions the PRI interface ID for each DS1 carrier in Table MNHSCARR. This table is used only for SPM. This value is used in the Q931 channel information element for NFAS PRI groups discussed in the beginning of this section.

The following table lists datafill for Table MNPRIIID.

Table 2-15 Field descriptions for Table MNPRIIID

Field	Subfield or refinement	Entry	Explanation and action
NODETYPE		SPM	Peripheral type is always SPM.
NODEID		0-63	The SPM number.
CCTNO		1-84	DS1 Circuit Number.
INTID		0-127	PRI interface ID. Defaut 0.

The following example shows sample datafill for Table MNPRIIID. Span 1 (SPM 0 1) is a 23B+D associated signaling PRI. Spans 2 & 3 (SPM 0 2, 3) are a 46B+D+BD NFAS PRI group.

Figure 2-16 MAP display example for Table MNPRIIID

```
Nodetype NODENO CCTNO INTID
-------------------------
SPM        0      1     0
SPM        0      2     0
SPM        0      3     1
```

Capacity

Consider the data in the table below when provisioning PMs to avoid overloading. Limit trunk groups using non-facility associated signaling to ten T1 spans for each D-channel. If call durations are longer, add more spans. If call durations are short and rapid, decrease the number of spans.

Table 2-16 XPM capacity

Peripheral module DTCI (with M1 PBX)	Maximum capacity
SPM capacity	80,000 calls per hour
XPM PLUS UP (XMS-based extended peripheral module product life upgrade strategy unified processor)	35,000 calls per hour

Physical connections

Use the channel service unit (CSU) as a demarcation point only. The service provider is typically responsible up to and including the CSU, leaving the subscriber responsible beyond that point. Depending on the CSU type and manufacturer, conversion capabilities of different extended frame formats (ESF), superframes (SF), D4, monitor connections, and loop-backs can exist.

Use 24 AWG wire with transmit pairs and receive pairs in separate shields, usually in separate sheaths. Connect drain wires on one end only. The actual connection can be wire-wrap, DB-15, RJ-48, or Bantam jacks. The RJ-48

connectors are becoming more popular. PRI pin-outs are shown in the table below.

Table 2-17 PRI pin-outs

Signal	Pin RJ-48	Pin DB-15	Network	CPE
R1	1	11	Rx Net->CSU	Tx CSU->DTE
T1	2	3	Rx Net->CSU	Tx CSU->DTE
R	4	9	Tx CSU->NET	Rx DTE->CSU
T	5	1	Tx CSU->NET	Rx DTE->CSU

Part III
Provisioning

Part III: “Provisioning” contains the chapter “PRI Trunk Datafill.”

3 PRI Trunk Datafill

PRI Base Service ordering codes

Functional group ordering codes: NI000011, NI000012, NI000022

Functionality ordering codes: not applicable

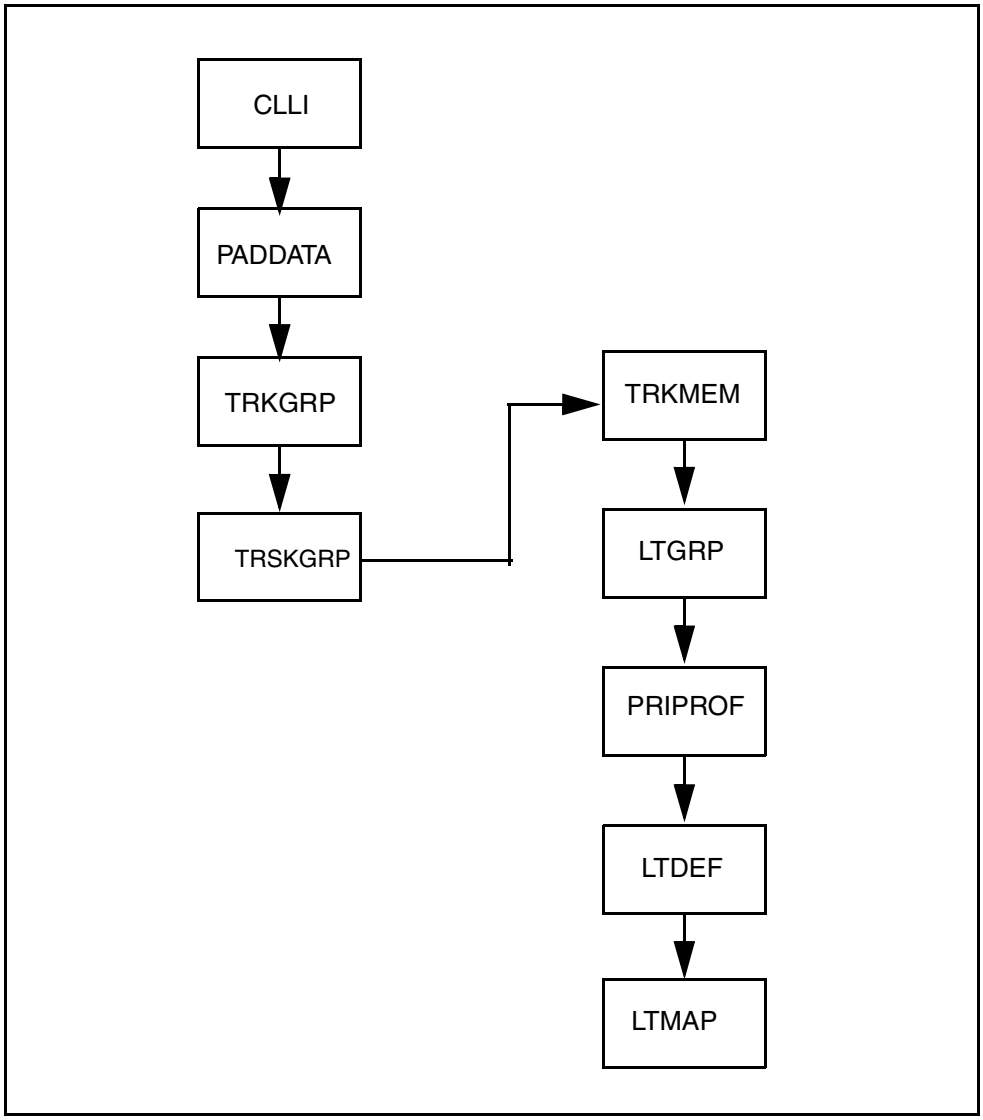
Release applicability

BCS36 and up.

Translations table flow

The PRI Base Service translation process is shown in the following flowchart. Most of the Base Service tables are information tables and do not affect the PRI translation process.

Figure 3-1 Table flow for PRI Base Service



Datafilling Table CLLI

Table CLLI is datafilled to define trunk groups.

Table 3-1 Datafilling Table CLLI

Field	Entry	Description
CLLI	Alphanumeric (up to 16 characters)	Common Language Location Identifier.
ADNUM	Trunk group number (indexes the TRK OM)	Administration Trunk Group Number.
TRKGRSIZ	Number of trunk group members 0 to 499	Trunk Group Size.
ADMININF	User text 32 characters maximum	Administration Information.

Datafill example for Table CLLI

The following example shows sample datafill for Table CLLI. This example illustrates a 47B+D configuration.

Figure 3-2 MAP display example for Table LTDATA

```
CLLI      ADNUM      TRKGRSIZ                ADMININF
_____________________________________________________

NAPBX 172            47    PRA_TRUNK_TO_SL1_PBX
```

Datafilling Table TRKGRP

Table TRKGRP defines the trunk group type as well as the B-channel selection sequence, the LTID of the trunk group, and the billing directory number (DN).

Table 3-2 Datafilling Table TRKGRP (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY		CLLI	Group Key. This field consists of subfield CLLI.
ADNUM	CLLI	Alphanumeric (up to 16 characters)	CLLI from Table CLLI.
GRPINFO		See subfields	Group Information.

Table 3-2 Datafilling Table TRKGRP (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	GRPTYP	PRA, IBNT2	Group Type. Define the trunk type by entering one of the following values: • PRA for primary rate interface. • IBNT2 for MDC PRI.
	TRAFSNO	Numeric (0-127)	Traffic Separation Number.
	PADGRP	Index to Table PADGRP	NPDGP for No Pad Group (no pad group necessary for PRI).
	NCCLS	NCRT, NCBN, NCID, NCIM, NCIT, NCLT, NCOF, NCON, NCOT, NCTC, or NOSC	Operational Measurement (OM) No Circuit Class. • NCRT for no circuit (OM register OFZNCRT) (default). • NCBN for no circuit business network (OM register OFZNCBN). • NCID for no circuit inward dial (OM register OFZNCID). • NCIM for no circuit intermachine (OM register OFZNCIM). • NCIT for no circuit intertoll (OM register OFZNMCIT). • NCLT for no circuit local tandem (OM register OFZNCLT). • NCOF for no circuit offnet trunk (OM register OFZNCOF). • NCON for no circuit onnet trunk (OM register OFZNCON). • NCOT for no circuit other trunk (OM register OFZNCOT). • NCTC for no circuit toll completing (OM register OFZNCTC). • NOSC for no service circuit (OM register OFZNOSC).

Table 3-2 Datafilling Table TRKGRP (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	SELSEQ	ASEQ, DSEQ, MIDL, LIDL, CWCTH, or CCWCTH	B-channel Selection Sequence. To change the field SELSEQ value after the trunk group has been datafilled, you must delete the trunk group and then add it again. • ASEQ - ascending sequence. • CCWCTH - counter-clockwise circular trunk hunting. • CWCTH - clockwise circular trunk hunting. • DSEQ - desending sequence. • LIDL - least idle. • MIDL - most idle.
	BILLDN	Numeric (up to 11 digits) or N	Billing Director Number. • Enter the DN (up to 11 digits) to which all calls are billed, regardless of the calling party number. • Enter N when the calling number is a billing DN.
	LTID	$	Logical Terminal Identifier. Enter a $ to satisfy the table editor. This will be filled automatically when Table LTMAP is datafilled.

Datafill example for Table TRKGRP

The following example shows sample datafill for Table TRKGRP.

Figure 3-3 MAP display example for Table TRKGRP

```
GRPKEY                                        GRPINFO
_____________________________________________________

NAPBX
                    PRA 0 PRAC NCRT ASEQ N (ISDN 1008)$
```

Datafilling Table TRKSGRP

Table TRKSGRP defines the D-channel for the trunk group.

Table 3-3 Datafilling Table TRKSGRP (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
SGRPKEY		CLLI, SGRP	Subgroup Key.
	CLLI	Alphanumeric (1 to 16 characters)	Common Language Location Identifier.
	SGRP	0	Subgroup.
CARDCODE		DS1SIG	Card Code.
SGRPVAR		See subfields	Subgroup Variable Refinements.
	SIGDATA	ISDN	Subgroup Variable.
	PSPDSEIZ	Numeric (2-30)	Permanent Signal or Partial Dial on Seizure Timing.
	PARTDIAL	Numeric (2-30)	Partial Dial Timing.
	VERSION	87Q931	Protocol Version.
	CRLENGTH	1 or 2	Call Reference Length.
	BCHNEG	N	B-channel Negotiation.
	BCHGLARE	STAND or YEILD	B-channel Glare. • STAND - the switch takes a B-Channel in contention. • YIELD - the swich gives up a B-Channel in contention. • Use STAND when IFCLASS is a NETWORK. Use YIELD when IFCLASS is a USER.
	IFCLALSS	NETWORK, USER	Interface Class. Default is NETWORK.
	CONFIG	PPT_PT	Configuration. Enter PT_PT for Point-to-Point.

Table 3-3 Datafilling Table TRKSGRP (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	LOCATION	LOCALEO, USER, or PVTNET	Location indicator for abnormal released calls. • LOCALEO for local end office (public network) (default). • USER for public network. • PVNET for private network.
	SAT	Y or N	Satellite. (Default is N).
	ECSTAT	INTERNAL, INNOTONE, EXTERNAL, or UNEQ	Echo Canceller Status. • INTERNAL for internal processing and enabling by call processing. • INNOTONE for internal with inbound no tone. • EXTERNAL for external with no call processing involved. • UNEQ for unequipped (default).
	TRKGRDTM	Numeric (1 - 255)	Trunk Guard Timing.
	L1FLAGS	Y or N	Layer 1 flags. L1FLAGS is only valid on TDM/XPMs. If the far-end equipment is a Nortel product, L1FLAGS should be datafilled with N. If the far-end equipment is not manufactured by Nortel, datafill L1FLAGS with Y. Y means means that the D-channel idle code is 7E. N means that the idle code can be 7E or other value, such as 7F. See NTPs NIS-A211-1 and NIS-A233-1 for more information about the idle codes.
	PARMNAME	Index to Table ISDNPARM	Default ISDNNM set to BLK if not subscribed.
	DCHNL	PMTYPE	D-channel.
	PMTYPE	DTCI, LTC, or SPM	Peripheral Module Type.
	DTCINO, LTCNO, or SPMNO	Numeric (0 - 511)	Peripheral Number.
	DTCICKTNO LTCCKTNO, or SPMCKTNO	Numeric (0 - 24)	DS1 circuit number.

Table 3-3 Datafilling Table TRKSGRP (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	DTCICKTTS, LTCCKTTS, or SPMCKTTS	Numeric (1 - 24)	D-channel Time Slot Number.
	DCHRATE	64K	D-channel Rate. 64K default.
	HDLCTYPE	HDLC	High Level Data Link Type.

Datafill example for Table TRKSGRP

The following example shows sample datafill for Table TRKSGRP.

Figure 3-4 MAP display example for Table TRKSGRP

```
SGRPKEY      CARDCODE
                                                    SGRPVAR
_____________________________________________________________

SL1NTPRI  0  DS1SIG
ISDN 2 2 87Q931 1 N STAND NETWORK PTT_PT USER N UNEQ
30 N ISDNNM DTCI 0 0 24 64K  HDLC
                        $
```

Datafilling Table TRKMEM

Table TRKMEM contains an entry for each B-channel in the trunk group, defining the PM number, circuit number, and time slot number.

The following table shows the ISDN PRI datafill for Table TRKMEM.

Table 3-4 Datafilling Table TRKMEM (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CLLI		Alphanumeric (1-16 characters)	Common Language Location Identifier.
EXTRKNM		Numeric (1-479)	External Trunk Number.
SGRP		0 (zero)	Subgroup.
MEMVAR		See subfields	Member Variables.
	PMTYPE	DTCI, LTC, or SPM	Peripheral Module Type.

Table 3-4 Datafilling Table TRKMEM (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	DTCINO, LTCNO, or SPMNO	Numeric (0-511)	Peripheral Number.
	DTCICKTNO LTCCKTNO, or SPMCKTNO	Numeric (0-24)	DS1 Circuit Number.
	DTCICKTTS, LTCCKTTS, or SPMCKTTS	Numeric (1-24)	B-channel Time Slot Number.

Datafill example for Table TRKMEM

The following example shows sample datafill for Table TRKMEM.

Figure 3-5 MAP display example for Table TRKMEM

```
CLLI    EXTRKNM   SGRP                          MEMVAR
_____________________________________________________

NAPBX 1     0                    DTCI    2 0 1
```

Datafilling Table LTGRP

The following table shows the PRI datafill for Table LTGRP. Only those fields that apply directly to PRI Base Service are shown.

Table 3-5 Datafilling Table LTGRP

Field	Subfield or refinement	Entry	Explanation and action
GROUP		ISDN	Group Name.
GROUPNO		Numeric (0 - 31)	Group Number.
OPTIONS		SAPI16	Options. Enter a $ to end the tuple.

Datafill example for Table LTGRP

The following example shows sample datafill for Table LTGRP.

Figure 3-6 MAP display example for Table LTGRP

```
GROUP    GROUPNO     OPTIONS
_____________________________________________________

ISDN           0           (SAPI16)$
```

Datafilling Table LTDEF

Table LTDEF identifies access privileges.

Table 3-6 Datafilling Table LTDEF (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTKEY		LTGRP, LTNUM	Logical Terminal Key.
	LTGRP	ISDN	Logical Terminal Group.
	LTNUM	Numeric (1-1022)	Logical Terminal Number.
LTAP		B	Logical Terminal Access Privilege.
CLASSREF		See subfields	Class Reference.
	LTCLASS	PRA	Logical Terminal Class. Enter PRA.
	NUMBCHNL	Numeric (1-479)	Number of B-channels.
	VARIANT	N449PRI, NIPRI, NTNAPRI, U449PRI, or U459PRI	Protocol Variant. • Enter N449PRI when connecting to ATT SYS85 equipment • Enter NIPRI when connecting to National ISDN-2 PRI compliant equipment • Enter NTNAPRI when connecting switching nodes manufactured by Nortel. • Enter U449PRI when connecting to an AT&T 4ESS switch. • Enter U459PRI when connecting to an AT&T 5ESS switch.
	ISSUE	VI, NI2V1	Variant Issue. Enter NI2V1 for NIPRI variant only.

Table 3-6 Datafilling Table LTDEF (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	PROFNAME	Alphanumeric (1-8 characters)	Profile name. NIL SL1PROFL if connected to MI PBX.
	OPTION	NOPMD, NOVOICE, NOVBD, NOCMD, PGRPID, ONPLNC, SZGRDTM, or $	Option. Enter one of the following values: • NOPMD to prevent packet-mode calls. (This is the default). • NOVOICE to prevent calls with a speech BC from originating or terminating on the PRI interface. • MPVBD to prevent voice-band data calls. • NOCMD to prevent circuit-mode data calls. • PGRPID if the LTID is a member of a Serving PRI group as defined in table SVPRIGRP • ONPLNC to allow digits for non-AIN translations. See section “ONPLNC option“ on page 5-6 for more information. • SZGRDTM to specify the minimum amount of time the DMS will wait after a call completion before seizing that same trunk for another call. The default value, without this option, is 750 ms. This option is valid for PRI IBNT2 and PRA250 Trunk Types (as datafilled in table TRKSGRP • $ to end the tuple.

Datafill example for Table LTDEF

The following example shows sample datafill for Table LTDEF.

Figure 3-7 MAP display example for Table LTDEF

```
LTKEY      LTAP
                                                    CLASSREF
_____________________________________________________________

ISDN 1008     B
PRA 23 NTNAPRI   V1   NIL (NOPMD ) $
```

Datafilling Table LTMAP

Table LTMAP associates the LTID assigned to the trunk group in Table LTDEF with trunk group CLLI. Only those fields that apply directly to PRI Base Service are shown below.

Table 3-7 Datafilling Table LTMAP

Field	Subfield or refinement	Entry	Explanation and action
LTKEY		LTGRP, LTNUM	Logical Terminal Key.
	LTGRP	ISDN	Logical Terminal Group. Enter ISDN.
	LTNUM	Numeric (1-1022)	Logical Terminal Number. Enter a numeric value.
	MAPTYPE	CLLI	Trunk Group CLLI name.
	OPTION	TEI 0	Terminal Endpoint Identifier

Datafill example for Table LTMAP

The following example shows sample datafill for Table LTMAP.

Figure 3-8 MAP display example for Table LTMAP

```
LTKEY
_____________________________________________________

ISDN 1008     CLLI NAPBX (TEI 0)$
```

Datafilling Table LTCALLS

Table LTCALLS specifies routing for incoming calls. Routing is done seperately for each type of service subscribed.

Table 3-8 Description of Table LTCALLS (Sheet 1 of 3)

Field	Subfield	Entry	Description
LTID		See subfields	Logical Terminal Identifier. This field consists of subfields LTGRP, LTNUM, and CALLTYPE.
	LTGRP	Alphameric (up to 8 characters)	Logical Terminal Group. Enter the logical terminal group name from Table LTGRP.

Table 3-8 Description of Table LTCALLS (Sheet 2 of 3)

Field	Subfield	Entry	Description
	LTNUM	1–1022	Logical Terminal Number. Enter the logical terminal number within the group.
	Call type	FX, HM, INWATS, PUB, PVT, SCOCS, TIE, WATS,	Call type. Enter the call type associated with the LTID. • FX (foreign exchange). • HM (hotel/motel). This provides detailed billing information for hotels. • INWATS (Inward Wide Area Telecommunications Service). • PUB (public). • PVT (private). • SCOCS (Selective Class of Call Screening) SIDXLA option is manditory. This provides detailed billing information. • TIE (tie line). • WATS (Wide Area Telecommunications Service).
XLARTE	XLARTE	RTEREF, XLAIBN, XLALEC	Translations Route. • RTEREF when all calls go to a specific route. • XLAIBN for integrated business network (IBN) translations. • XLALEC for public local exchange carrier translations.
	LINEATTR	0–31,999	Line Attributes Index.
	CUSTGRP	Alphanumeric	Customer Group name.
	SUBGRP	0–7	Subgroup number.
	NCOS	0–511	Network Class of Service.

Table 3-8 Description of Table LTCALLS (Sheet 3 of 3)

Field	Subfield	Entry	Description
OPTIONS		EA, INCLID, LPIC, SIDXLA	Options. This field consists of subfield logical terminal option (LTCOPT). LTOPT - SIDXLA for SID routing. (see routing section) EA - Equal Access. INCLID - Calling Line ID. LPIC - Lata PIC.

Datafill example for Table LTCALLS.

The following example shows sample datafill for Table LTCALLS.

Figure 3-9 Example of Table LTCALLS

```
          LTID                          XLARTSEL
                                                    OPTIONS
- — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — -
ISDN  1008 PUB                         XLALEC  300
                                                    (EA  MCI222 Y)$
ISDN  1008 INWATS  XLAIBN  300          ISDN2 0   0
                                                      (INCLID SUPPRESS)$
ISDN  1008 WATS  XLAIBN  300           ISDN2 0   0$
ISDN  1008 FX   XLAIBN  300         PBXGROUP 0   0
                                              (SIDXLA    PRIFX Y Y N)$
ISDN  1008 TIE              RTEREF    IBNRTE  1007
                                                                     $
```

Part IV
Call Routing

Part IV: “Call Routing” contains the chapters:

- PRI Call Routing
- PRI Simplified Translations
- PRI Non-Simplified Translations

4 PRI Call Routing

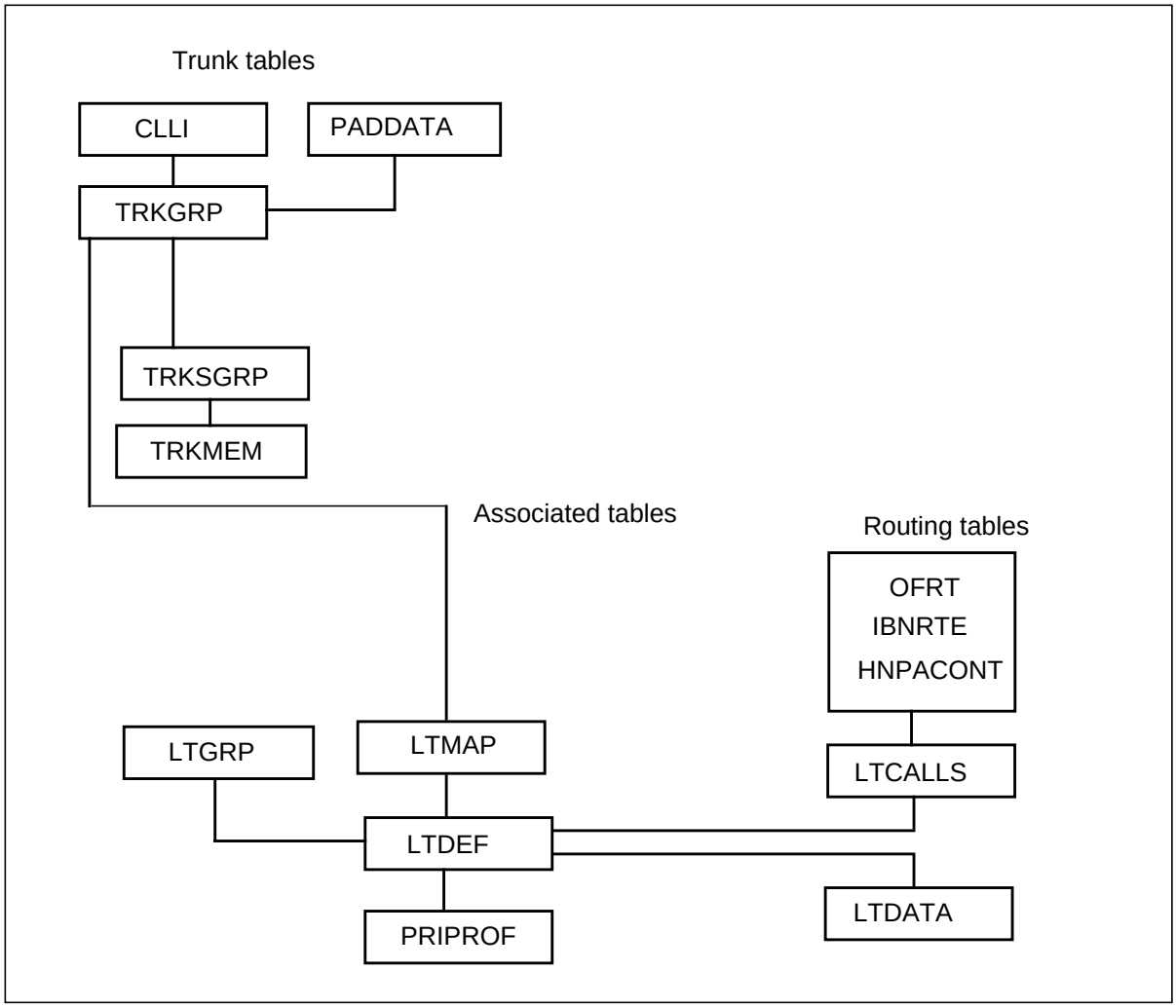
This chapter describes the routing datafill required to provide ISDN PRI.

Datafilling routing tables

The tables in each category are discussed in the order in which they are datafilled. Only those fields that are specific to PRI are discussed. For a complete description of other fields, refer to Translations Guide, 297-8021-350. NIPRI call routing can be provisioned differently. When the office is Advanced Intelligent Network (AIN), the simplified translations can be used. When the office is not AIN, the non-simplified translations should be used. Because some tables may or may not be used, basic routing is discussed with some optional table information, followed by detailed simplified and non-simplified sections.

The figure below shows the relationship of the PRI data tables.

Figure 4-1 PRI datafill table flow



Note: Trunk tables assign the PRI trunk group to specific hardware port locations. Associated tables assign and link services to the trunk group. Routing tables describe how calls will be routed to the appropriate destination.

Datafilling tables for specific features and services

The following section describes table datafill for specific ISDN PRI features and services.

Call-by-call translations

All PRI trunk groups have similar datafill processes. The first step is to build the trunk group and then build standard routes. The application determines the features and the enhancements to routing. In the illustrations in this document,

Nortel uses an M1 PBX as the application. The other applications use a subset of these translations.

Call routing translations

All incoming and outgoing ISDN PRI calls use the same basic translations. PRI call routing uses some additional tables, such as LTCALLS and LTOPT. The call-by-call (also referred to as Integrated Services Access (ISA) feature uses messaging on the D-channel to custom route each call based on call type (public, private, TIE, and WATS). If the DMS switch does not use the call-by-call feature, all incoming and outgoing calls default to public calls.

Use Table LTCALLS as the primary table to route incoming calls based on call type. For outgoing calls, use the ISA selector to define the call type. Use the ISA selector in the following Tables: OFRT, HNPACONT-RTEREF, and IBNRTE.

Various TRAVER examples in this document demonstrate routing. The figure below shows an example of standard routing.

Figure 4-2 Standard routing

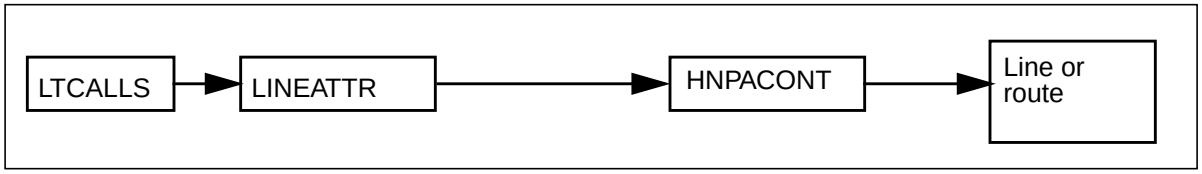


Table HNPACONT:RTEREF sets the outgoing route. Notice that Tables OFRT and IBNRTE datafill exactly as RTEREF and are in use for private routing. The figure below shows an example of Table HNPACONT:RTEREF.

Figure 4-3 Example of Table HNPACONT:RTEREF

```
  RTE
  RTELIST
-------------------------------------------------
   902 (  ISA N N N PRI14    PUB NONE   N N 0)$
   905 (  ISA N N N PRI14     FX    0  E164 0)$
   906 (  ISA N N N PRI14     FX    0   PVT 0)$
   907 (  ISA N N N PRI14    TIE    0  E164 0)$
   908 (  ISA N N N PRI14    TIE    0   PVT 0)$
   909 (  ISA N N N PRI14 INWATS    0  E164 0)$
   910 (  ISA N N N PRI14 INWATS    0   PVT 0)$
  1005               (  VFG N N N   ERIC    33)$
```

The following table provides a description of the fields and settings in Table HNPACONT:RTEREF.

Table 4-1 Description of Table HNPACONT:RTEREF (Sheet 1 of 2)

Field	Description	Settings
RTE	IBN route reference Index	RTE - Enter the route reference number assigned to the route list.
RTELIST	IBN route selector	IBNRTSEL - VFG route selector. ISA for ISA route selector.
	Off-hook Queuing	OHQ - N (Enter Y when off hook queuing is required.)
	Callback Queuing	CBQ - N (Enter Y when call back queuing is required.)
	Expensive route	EXP - N (Enter Y when an expensive route warning tone is to be applied.)
	Virtual Facility Group	VFG - Name of the VFG in Table ISAXLA. This subfield is only applicable when the VFG route selector is entered.
	Common Language Location Identifier	CLLI - Enter the CLLI of the PRI trunk group to which the translation has to route. This subfield is only applicable when the ISA route selector is entered.
	Call Type (CALLTYPE),	CALLTYPE - PUB for public network calls CALLTYPE - OW For OutWats CALLTYPE - INWATS for INWATS CALLTYPE - TIE for Tie Line trunks CALLTYPE - FX for foreign exchange calls
	Transit Network Selection	TNS - (Enter N when no TNS is required. When the TNS is determined from the calls originator, enter C.)
	Number Identification	NPOS - N (Enter N when calling number identification is required for ONI or ANI-failure calls from SC/TOPS trunks. Enter Y when no calling number identification is required.)
	Operator Access Type	OATYPE - NONE (Enter the type of operator access that is required on this call. Options: None, OP and OM.)
	WATS Zone Number	ZONE- OUTWATS Zone Number.
	Facility Number	FACNUM - Enter the facility number to be included in the NSF information element. This is also called a SID.

Table 4-1 Description of Table HNPACONT:RTEREF (Sheet 2 of 2)

Field	Description	Settings
	Numbering Plan Indicator	NPI - PVT for private numbering plan or E164 for the E.164 numbering plan.
	Digit Manipulation Index	DMI - Enter the index into Table DIGMAN used to convert the dialed digits to a new set of digits which are then retranslated to route the call to the desired destination.

Tables HNPACONT, HNPACODE, and RTEREF review the dialed digits, index the route, and then send the call to completion. The following figure shows an example of Table HNPACONT.

Figure 4-4 Example of Table HNPACONT

```
STS NORTREFS NOAMBIGC  RTEREF HNPACODE  ATTRIB  RTEMAP
- — — — — — — — — — — — — — — — — — — — — — — — — -
902      911       2    ( 51)    ( 1)    ( 0)    ( 0)
```

The follwoing figure shows an example of Table HNPACONT:HNPACODE.

Figure 4-5 Example of Table HNPACONT:HNPACODE

```
 FROMDIGS        TODIGS
                   CDRRTMT
- — — — — — — — — — — — — — — — — — — — — — — — — — -

      800           800
                  HRTE   902
      801           809
                  HRTE    1005
```

The following table shows a description of the fields and settings in Table HNPACONT:HNPACODE.

Table 4-2 Description of Table HNPACONT:HNPACODE

Field	Description	Settings
FROMDIG	From Digits	FROMDIG - Enter a string if the leading three digits represent an office code within the home numbering plan area (HNPA). This number represents either a single code or the first in a block of consecutive codes that have the same input data.
TODIGS	To Digits	TODIGS - If field FROMDIGS represents a single code, enter the same single code as in the field FROMDIGS. If field FROMDIGS represents the first number of a block of consecutive numbers, enter the last number of the block.
CDRRTMT	Code Type, Route Reference, and Treatment - This field consists of subfield code type (CD).	CD - LRTE (Enter LRTE for Local Route.) RR - Enter the route reference index of the route list in subtable HNPACONT: RTEREF (at the same position service numbering plan area as this subtable) to which the translation proceeds.

Table LINEATTR sets the attributes of the line. This location is where you define the pretranslator and the HNPACONT index. The figure below shows an example of Table LINEATTR.

Figure 4-6 Example of Table LINEATTR

```
LNATTIDX LCC CHGCLSS COST SCRNCL LTG STS PRTNM LCANAME ZEROMPOS TRAFSNO
 MRSA    SFC LATANM MDI  IXNAME DGCLNAME FANIDIGS
         RESINF
                           OPTIONS
- — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — -
   300   PBX  NONE NT NSCR   0 902 PBX  NLCA  NONE  0
 NIL NILSFC NILLATA 0 NIL     NIL   00
          N
                              $
```

The table below provides a description of the fields and settings in Table LINEATTR.

Table 4-3 Description of Table LINEATTR (Sheet 1 of 4)

Field	Subfield	Entry	Description
LNATTIDX		Numeric (0–31,999)	Line Attribute Index. Enter the index into Table LINEATTR.
LCC		Alphanumeric (up to 8 characters) or NLCC	Line Class Code (LCC). Enter the LCC assigned to the line attribute index. The LCC of an existing tuple cannot be changed. If there is no LCC, enter NLCC.
CHGCLSS		CAM0, CAM1, CAM2, CAM3, CSD0, DAT0, DAT1, DAT2, DAT3, DIHS, DLHS, DLLS, INW0, LAM0, LCDR, MBG, NONE, RCFW, SPCL, TRMB, TWX0, WAT0	Charge Class. Enter the charge class assigned to the line attribute index. Otherwise, enter NONE. ***Note:*** With Bellcore CDE format, the entry is NONE except in offices with the Overseas Operator Center (OOC): AMA Modernization feature.
COST		HI, LO, NT	Class of Service Tone. Enter Class of service tone; NT for No Tone, HI for high tone, and LO for low tone.
SCRNCL		Alphanumeric (up to 4 characters) or NSCR	Class of Service Screening. Enter NSCR if screening by class of service is not required. If screening by class of service is required, enter the name of the class of service subtable assigned to the line attribute index.
LTG		Numeric (0–9,998)	Line Treatment Group. Enter the line treatment group number assigned to the line attribute index. The line treatment group number discriminates between customer lines assigned to the same line class code but with different routing or screening patterns.

Table 4-3 Description of Table LINEATTR (Sheet 2 of 4)

Field	Subfield	Entry	Description
STS		Numeric (up to 3 digits)	Serving Translation Scheme (STS). Enter the serving Numbering Plan Area (NPA) assigned to the line attribute index. The STS of an existing tuple cannot be changed.
PRTNM		Alphanumeric (up to 4 characters) 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. If standard pretranslation is not required, enter NPRT.
LCANAME		Alphanumeric (1 to 8 characters) or NLCA	Local Calling Area Screening Subtable Name. Enter the name of the local calling area subtable assigned to the line attribute index if screening of local central office codes is required. If screening of local NNX codes is not required, enter NLCA.
ZEROMPOS		Alphanumeric (up to 10 characters) or NONE	Zero Minus Position. Enter the position in the position table to which operator (0-) calls are routed if a line attribute is configured for operator (0-) and special toll (0) dialing. Otherwise, enter NONE.
TRAFSNO		Numeric (0–127)	Traffic Separation Number. Enter 0 if a traffic separation number is not required. Otherwise, enter the source and destination traffic separation number (1-127) assigned to the line attribute index.
MRSA		Alphanumeric (up to 8 characters) or NIL	Message Rate Service Area. Enter NIL if Multiunit Message Rate (MUMR) services billing records are not required. If MUMR billing records are required for calls to numbers resulting in a type of call of NP (no prefix), enter a Message Rate Service Area (MRSA) name as datafilled in table MRSANAME field MRSA.

Table 4-3 Description of Table LINEATTR (Sheet 3 of 4)

Field	Subfield	Entry	Description
SFC		Alphanumeric (up to 6 characters) or NILSFC	International Subscriber Feature Class. Enter NILSFC when the switching unit does not have an international load.
LATANM		Alphanumeric (up to 8 characters)	Local Access and Transport Area Name. Enter the name of the local access and transport area assigned to the line attribute index.
MDI		Numeric (0–1,023)	Metering Data Index. Enter 0 when the switching unit does not have an international load.
IXNAME		See subfields	International Translations System Start. This field consists of subfields XLASYS and XLANAME.
	XLASYS	AC, AM, CT, DN, FA, FT, OFC, NSC, PX, NIL	International Translations System. When the switching unit has an international load, enter the head table name where translation starts, and datafill refinement XLANAME. For loads that are not international, enter NIL and leave refinement XLANAME blank. For an MDC equipped with the Open Number Translations feature, enter PX to direct the call to the translator name specified in refinement XLANAME. Translation selector NET, network type DOD must be datafilled in Table IBNXLA. If the entry is other than PX or NIL, a DFIL117 log is generated and the call is sent to call not accepted (CNAC) treatment.
	XLANAME	Alphanumeric (1 to 8 characters)	International Translations Name. Enter the index into the head table referenced by field XLASYS.

Table 4-3 Description of Table LINEATTR (Sheet 4 of 4)

Field	Subfield	Entry	Description
DGCLNAME		Alphanumeric (up to 8 characters) or NIL	Digit Analysis Tables entry point. Enter NIL if the switching unit does not have an international load. When the switching unit has an international load, enter a digit analysis name to serve as the entry point into the universal digit analysis Tables DGHEAD and DGCODE. The name entered here must appear in Table DGHEAD field DGNAME.
FANIDIGS		Numeric (00–99)	Flexible ANI Information Digit Pairs. Enter the flexible automatic number identification [FANI] information digit pair assigned to the line attribute index when the switching unit is equipped with the flexible ANI information digit assignment feature. Otherwise, enter 00.
RESINF		See subfields	Residential Enhanced Services Information. This field consists of subfield RESINFO and refinements CUSTGRP, SUBGRP, and NCOS.
	RESINFO	Y, N	RES Information Selector. Enter N when the line attribute is not required to support RES lines. Leave refinements CUSTGRP, SUBGRP, and NCOS blank.

Table LTCALLS sets the routing on a call type and numbering plan. A tuple must exist for every call type, otherwise the DMS switch rejects the call. This allows for different routing based on different call type. The following figure shows an example of Table LTCALLS.

Figure 4-7 Example of Table LTCALLS

```
          LTID                          XLARTSEL
                                                    OPTIONS
- — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — -
ISDN  150 PUB                          XLALEC  300
                                                    (EA  MCI222 Y)$
ISDN  150 INWATS  XLAIBN  300           ISDN2 0   0
                                                 (INCLID SUPPRESS)$
ISDN  150 WATS  XLAIBN  300             ISDN2 0   0$
ISDN  150 FX   XLAIBN  300          PBXGROUP 0   0
                                              (SIDXLA    PRIFX Y Y N)$
ISDN  150 TIE               RTEREF    IBNRTE  1007
                                                                    $
```

The table below provides a description of the fields and settings for Table LTCALLS.

Table 4-4 Description of Table LTCALLS (Sheet 1 of 3)

Field	Subfield	Entry	Description
LTID		See subfields	Logical Terminal Identifier. This field consists of subfields LTGRP, LTNUM, and CALLTYPE.
	LTGRP	Alphameric (up to 8 characters)	Logical Terminal Group. Enter the logical terminal group name.
	LTNUM	1–1022	Logical Terminal Number. Enter the logical terminal number within the group.
	Call Type	FX, INWATS, PUB, TIE, WATS, HM, SCOCS	Call Type. Enter the call type associated with the LTID. The DMS switch can associate more than one type with the same identifier. Select from the following list of call types. • FX (Foreign Exchange) provides a subscriber's location with the equivalent of local service from a distant exchange. • INWATS (Inward Wide Area Telecommunications Service) is a form of long distance service that allows a subscriber to receive calls originating within specified service areas without a charge to the caller. • PUB (Public). A carrier can provide this call type.

Table 4-4 Description of Table LTCALLS (Sheet 2 of 3)

Field	Subfield	Entry	Description
			• TIE (Tie Line) is a type of call that occurs on private lines between PBXs. • WATS (Wide Area Telecommunications Service) is provided by operating companies to permit subscribers to make calls over an access line to telephones in a specific zone. • HM (Hotel/Motel Selective). • SCOCS (Selective Class of Call Screening). SID routing is mandatory. This is an origination only type call.
XLARTE	XLARTE	RTEREF, XLAIBN, XLALEC	Translations Route. Enter one of the following translations routes. • RTEREF if translation is done by a specific table and index, such as OFRT, IBNRTE, and other routing tables. • XLAIBN for Integrated Business Network (IBN) translations. This selection is used only in PBX or centrex offices. • XLALEC for local exchange carrier translations, such as Plain Old Telephone Service (POTS), or in PBX or centrex type offices. If the entry in subfield CALLTYPE is PVT, INWATS, or TIE, the switch requires no other data. The entry of XLARTE - XLAIBN selection allows routing of the outgoing call to be altered such that the LINEATTR selected with the XLAIBN route selector is used for basic call screening only.
	LINEATTR	0–31,999	Line Attributes Index. Enter the index into Table LINEATTR for service-related data. INDEX - The number of the route in the IBNRTE table.
	CUSTGRP	Alphanumeric (up to 16 characters)	Customer Group Name. Enter the customer name associated with an IBN station.

Table 4-4 Description of Table LTCALLS (Sheet 3 of 3)

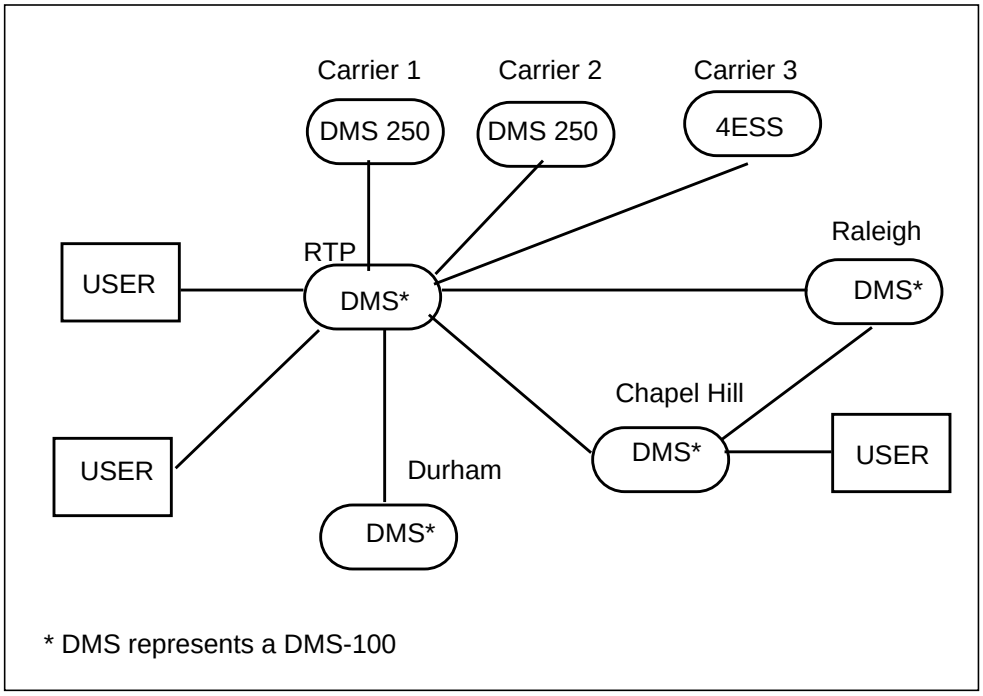
Field	Subfield	Entry	Description
	SUBGRP	0–7	Subgroup number. Enter the subgroup number that further defines the selection of the CUSTGRP.
	NCOS	0–511	Network Class of Service (NCOS). Enter the network class of service that determines the facilities to which the network user has access.
OPTIONS		EA, INCLID, LPIC, SIDXLA	Options - This field consists of subfield logical terminal option (LTCOPT) and refinements router name (RTRNAME), treatment with no service Identifier (TREAT_NO_SID), no call screen (NO_CALL_SCREEN), and route on translations route (ROUTE_ON_XLARTE). LTOPT - SIDXLA (Enter SIDXLA to allow service identifier OUTWATS banded call type.) RTRNAME - Enter the OUTWATS router name built in Table ISAXLA for routing OUTWATS banded service. TREAT_NO_SID - Y - This field determines whether calls without an associated service identifier should be sent to treatment. Enter Y to indicate that the call should be sent to treatment. Enter N to route the call using the numbering plan indicator, network specific facility, and the called digits. NO_CALL_SCREEN - Y - This field allows call screening on the line attribute index to be avoided. Enter Y to indicate that validation is not done on the directory number. Enter N to indicate that call screening is done using the line attribute index defined in field LINEATTR. ROUTE_ON_XLARTE -Y - This field determines whether a call is routed through public or private translations based on the entry in field XLARTE rather than the NPI in the setup message. Enter Y to indicate that the XLARTE overrides the NPI. Enter N to indicate that the NPI determines the type of translation.

Call type significance

The call type is conveyed between switches by the setup protocol message. For PRI, the call type determines the translations that are used to route an incoming

call. There is no global significance to the call type at any certain point. The call type is significant only to the local PRI. Once inside the next exchange, it is discarded and subsequent legs of the same call can have different call types. As an example of call type, most data applications use public-switched networks; therefore, only use the public call type. The figure below shows an example of a public-switched network.

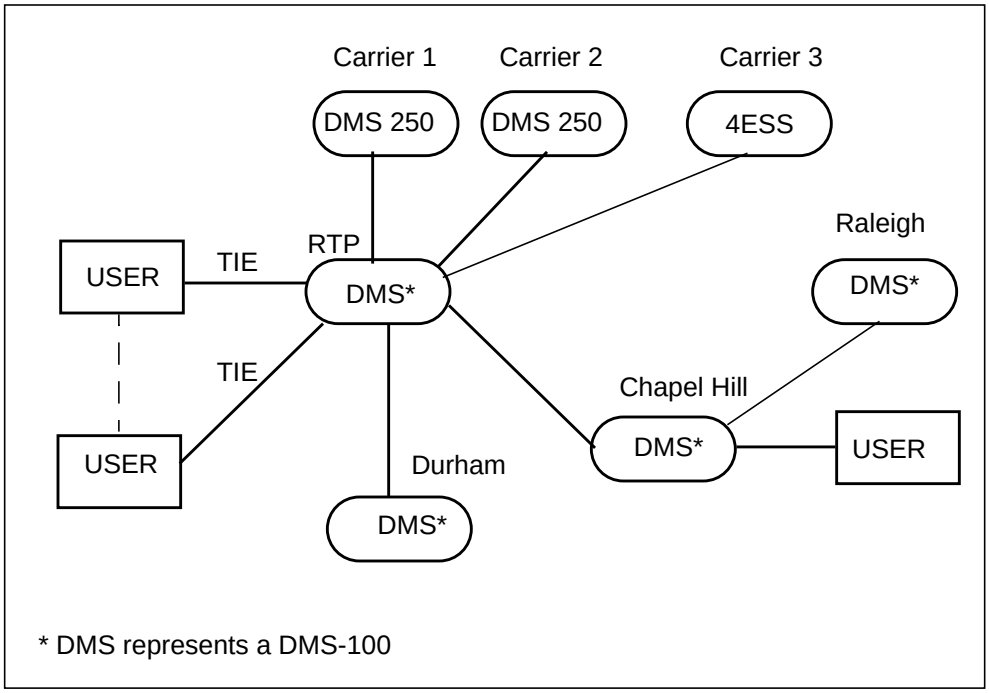
Figure 4-8 Public-switched network



The PUB call type is used for the everyday numbering plan, which usually consists of a 1 + 7 digit local directory number, and 10 CAC + 1 800 dialing to get to the destination.

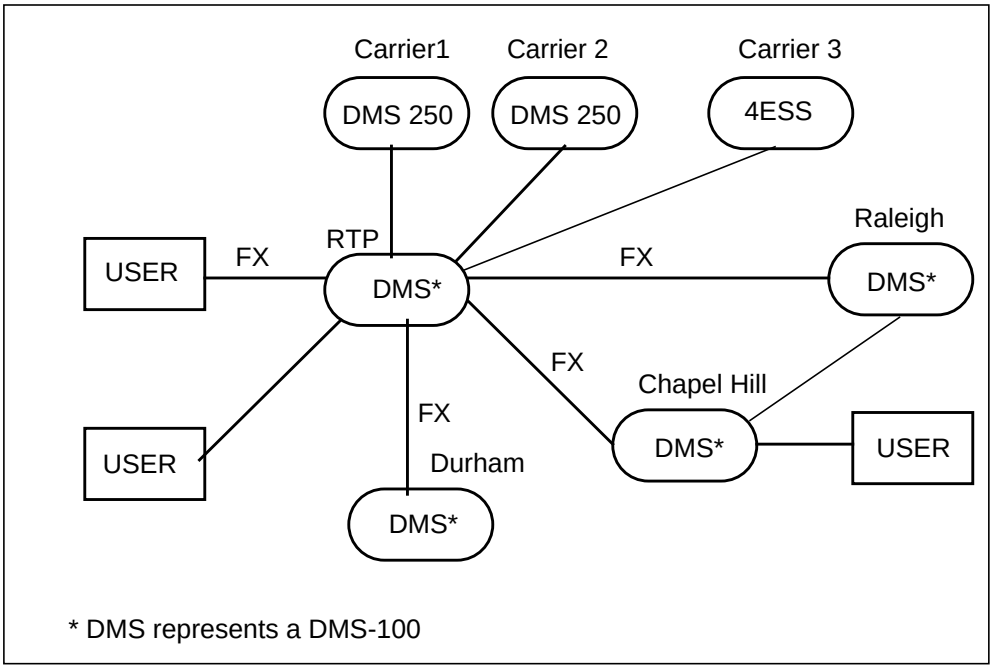
Subscribers who normally connect their equipment with a dedicated line, use the TIE call type to use subscriber-specific features. The private call type replaces the TIE call type. The figure below shows an example of a tie line.

Figure 4-9 Tie line



Use the FX call type to connect foreign exchanges (central offices). In the figure below, RTP is the central office (CO). Raleigh, Chapel Hill, and Durham are COs in adjacent cities. The subscribers subscribe to a foreign exchange so they can make calls and receive calls from any of these cities as local calls (calls with no charges). Before PRI, a dedicated line ran from each CO to the PBX. With PRI, an FX call type uses the same PRI span.

Figure 4-10 Foreign exchange lines



The network specific facilities (NSF) and the numbering plan indicator (NPI) transmit the call type. The following table shows the call-by-call and integrated service access availability by DMS call type.

Table 4-5 Call by call and integrated service access

DMS call type	NTNA (ISA)	NI (call by call)
Private	Yes	No
Public	Yes	Yes
INWATS	Yes	Yes
OUTWATS	Yes	Yes
Tie	Yes	Yes
FX	Yes	Yes
Hotel/Motel	No	Yes
Selective Class of Call Screening	No	Yes

Note: Both NI-1 and NI-2 support the concept of identifying the call type and service separately from the channels available.

Datafilling Table TRKRCSEL

The following table shows the datafill specific to PRI bearer capability routing for Table TRKRCSEL. Only those fields that apply directly to PRI Bearer Capability Routing are shown. For a description of the other fields, refer to the data schema section of this document.

Table 4-6 Datafilling Table TRKRCSEL

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY		Alphabetic	Group Key. Enter the trunk group name defined in Table CLLI.
RCFILTER		See subfields	Routing Characteristics Filter. This field consists of subfields RCSELR and RCSEL. The maximum number of multiples available for this field is the same as the number of different routing characteristics available in the switch.
	RCSELR	BC, OSA, CDB, TNS, SR, PI	Routing Characteristic Selector. Enter the particular routing characteristic the end user wants to turn on or off.
	RCSEL (see note)	ON, OFF	Routing Characteristic Selector. Enter ON to turn on the routing characteristic specified in field RCSELR. When ON is specified, that particular routing characteristic is used for translation.
Note: BC is defaulted on. All others are defaulted off. The default value is applicable to those routing characteristics that are not specified.			

Datafill example for Table TRKRCSEL

The following example shows sample datafill for Table TRKRCSEL.

Figure 4-11 MAP display example for Table TRKRCSEL

```
GRPKEY              RCFILTER
_____________________________________________________________
PRITRK             (BC ON) (CDN OFF) (TNS OFF) (OSA OFF) $
```

Datafilling Table RTECHAR

Table RTECHAR defines an RCNAME by assigning it a set of routing characteristics. For each RCNAME, up to seven sets of routing characteristics can be listed.

The table permits call routing based on the transmission service identified by BCNAMEs.

Table 4-7 Datafilling Table RTECHAR

Field	Subfield or refinement	Entry	Explanation and action
RCKEY		See subfield	Routing Characteristics Key. Datafill subfield RCNAME. You are not prompted for the subfield individually.
	RCNAME	Alphanumeric (1 to 8 characters)	Routing Characteristic Name. Enter a name from Table RCNAME. ***Note:*** The default routing characteristic name cannot be used.
GROUPRC		See subfields	Routing Characteristics Groupings. Datafill subfields RCSEL and BCNAME as one concatenated entry. Separate the two values with a blank. End the entry with a blank and a $. You are not prompted for the subfields individually. Up to seven GROUPRC values can be assigned to each RCKEY. The tuple automatically ends after a seventh value. Enter a $ to end the tuple.
	FIRSTRC	Alphanumeric	First Routing Characteristic Group. This is made up of subfields RCSEL and BCNAME. Only one FIRSTRC can be assigned within a GROUPRC.
	RCSEL	BC, CDN, OSA, PI, SR, or TNS	Routing Characteristic Selector. Enter one of the entries with its respective refinements. BC for Bearer Capability. CDN for Called Number. OSA for Operator System Access. PI SR TNS for Transmit Network Selector.
	BCNAME	Alphanumeric	Bearer Capability (BC) Name. Enter the BC name from Table BCDEF applicable to this set of routing characteristics.

Datafill example for Table RTECHAR

The following example shows sample datafill for Table RTECHAR. The tuple defines RCNAME 64KDATA, which allows routing based on a transmission type of 64kbps data identified by BCNAME 64KDATA.

Figure 4-12 MAP display example for Table RTECHAR

```
    RCKEY
                                                               GROUPRC
------------------------------------------------------------------------
   64KRTE
  (BC 64KDATA (OSA NIL) (CDN NIL) (TNS NIL) $)  $
```

5 PRI Simplified Translations

CAUTION

Possible loss of service

Incorrect translations can result in call failures or automatic message accounting (AMA) losses. To minimize the number of call failures, alter translations only during low-traffic periods.

The AIN response translations simplification feature (AIN000026) reduces the amount of datafill required to support NIPRI translations. This feature is used to convert telephone network selection (TNS), operation system access (OSA) and called party directory number information elements (CDN IEs) into a digit format that can reuse translations already set up for lines and NTNA (NI-1) trunks. This eliminates the need to create separate standard pretranslation (STDPRT) entries for each call type. For an overview of NIPRI translations, see “ISDN NIPRI non-simplified translations.”

PRI Simplified Translations (continued)

The following figure outlines the different tables needed for the NIPRI simplified translations.

Table relationships for NIPRI - with simplification

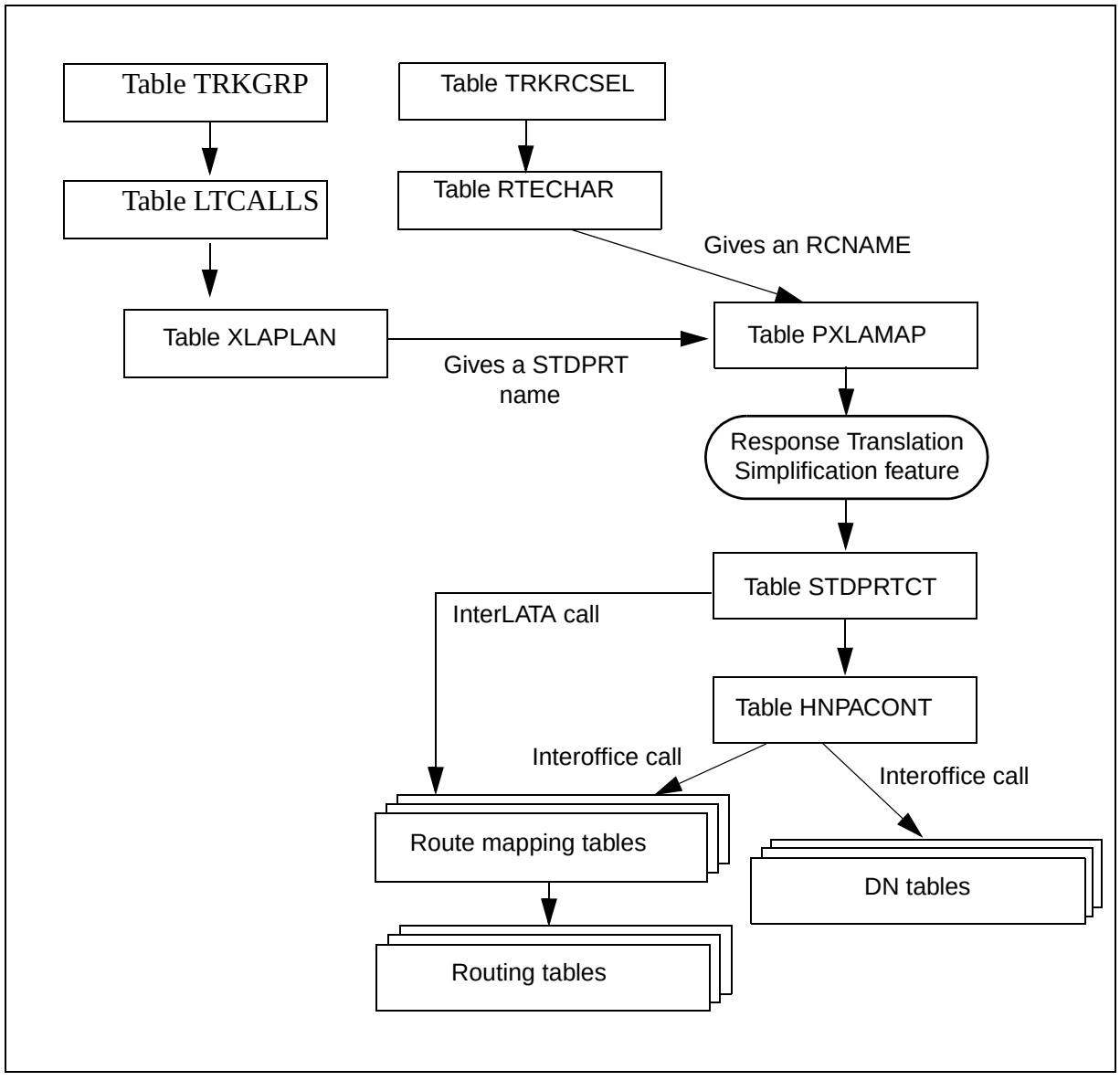


Table PXLAMAP

When the feature SOC AIN00026 is ON, AIN Response Translations Simplification is activated from Table PXLAMAP under either of the following conditions:

- No tuple is present for the NIPRI's pretranslator from Table XLAPLAN and the RCNAME derived from NIPRI's Table RTECHAR.
- A tuple is present for the NIPRI's pretranslator and from Table XLAPLAN and the RCNAME derived from Table RTECHAR, with the PREFIX selector present.

In the case where there is no tuple in PXLAMAP, the feature is invoked to convert the digits into a format that can reuse the datafill contained in the originator's pretranslator.

When response translations simplification is active, Tables RCNAME and RTECHAR translations must be setup as described in the chapter: "NIPRI non-simplified translations".

Different digit streams produced by simplification

For all call types, the conversion rules are based on the following existing dial plan conventions:

- "0" is prefixed for national number operator requested
- "011" is prefixed for international number
- "01" is prefixed for international number operator requested
- "101XXXX" is prefixed for carrier access
- "1" is prefixed for a national number direct dialed
- Combinations of the above are allowed

The following table summarizes the digits used in translation after being converted by the Response Translations Simplification feature.

Digits used in translation after simplification

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits produced by the feature and used in translations	CDN	OSA	TNS
National number, direct dialed	10D	Not present	1+(10)D	NA	NIL	NIL
National Carrier Call	10D	XXXX	101XXXX+1+(10)D	NA	NIL	NA

PRI Simplified Translations (continued)

Digits used in translation after simplification

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits produced by the feature and used in translations	CDN	OSA	TNS
International number	7-15D	Not present	011+(7-15)D	IN	NIL	NIL
No address present, operator requested	Not present	Not present	0-	NIL	PUBP	NIL
Local number, operator requested	7D	Not present	0+(7)D	L	PUBP	NIL
National number, operator requested	10D	Not present	0+(10)D	NA	PUBP	NIL
International number, operator requested	7-15D	Not present	01+(7-15)D	IN	PUBP	NIL
International number	7-15D	XXXX	101XXXX+011+(7-15)D	IN	NIL	NA
No address present, carrier operator requested	Not present	XXXX	101XXXX0- 101XXXX00-	NIL NIL	PUBP PUBA	NA NA
National number, operator requested	10D	XXXX	101XXXX+0+(10)D	NA	PUBP	NA
International number, operator requested	7-15D	XXXX	101XXXX+01+(7-15)D	IN	PUBP	NA
Cut-thru to carrier	Not present	XXXX	101XXXX	NIL	NIL	NA
00- Carrier operator	Not present	Not present	00-	NIL	PUBA	NIL

Legend
IN - International
L - Local
NA - National
NIL - Not present
PUBA - Carrier operator
PUBP - Public operator

For National Direct Dial (where CDN=NA & TNS=UNK & OSA=UNK) and National Carrier Direct Dial (where CDN=NA & TNS=NA & OSA=UNK) calls, the conversion of the 10D number into a format for dialing is based on existing translation datafill in Tables LCASCRCN and HNPACONT. The

resulting digits are in 7D, 1+7D, 10D, or 1+10D format, being consistent with the dialing plan of the originator.

When carrier ID is returned in the response, carrier access digits 101XXXX is prefixed before the converted digits.

The operating telephone company (OTC) carrier is treated as a valid carrier ID and carrier access digits are prefixed.

For the Local Exchange (LEC) carrier (carrier ID = 0110), no carrier access digits are prefixed. In this case, digit conversion is carried out as if no carrier ID were present.

The National Number conversion process is based on the following logic:

1. Table HNPACONT datafill is used to determine when the 10D number should be converted to 7D or 10D. The conversion produces 7D (by removing the NPA) when one of the following conditions are met:
   - Indexing HNPACODE with the 10D called number results in VCT HNPI.
   - Originator's NPA is equal to the NPA of the 10D called number, and the HNPACODE subtable contains no entry for the NPA of the called number.
2. Table LCASCRCN datafill is used to determine when a call is local or toll.
   - When NPA and NXX of the called number are found in LCASCRCN then the call is considered as local.
   - When NPA is not found but the NPA of the originator is equal to the NPA of the called number, a check occurs to see if the called NXX is datafilled in subtable LCASCR. When this event occurs, the call is local. This check handles the case where a 7Dlocal dialing plan exists within an NPA, and the NPA is not datafilled in LCASCRCN.
   - Otherwise, it is toll.
3. Using PFXFOR10 of Table LCASCRCN and the local/toll result from step 2, the called number is modified as follows:

PRI Simplified Translations (continued)

The following table summarizes the digits used in translation after conversion when the triggering agent is a public line and for calltypes where (CDN=NA) or (CDN=NA & TNS=NA).

Translation digits after conversion - triggering agent is a public line

Digits after step 1	Local or Toll	PFX FOR10	Originator's NPA = Called NPA	Result when no Carrier ID is present or Carrier ID=LEC carrier	Result when XXXX Carrier ID is present
7D	Local	Y	Not Applicable	7D	101XXXX+(7)D
7D	Local	N	Not Applicable	7D	101XXXX+(7)D
7D	Toll	Y	Not Applicable	7D	101XXXX+(7)D
7D	Toll	N	Not Applicable	1+7D	101XXXX+1+(7)D
10D	Local	Y	N	1+10D	101XXXX+1+(10)D
10D	Local	Y	Y	7D	101XXXX+7D
10D	Local	N	Not Applicable	10D	101XXXX+(10)D
10D	Toll	Y	Not Applicable	1+10D	101XXXX+1+(10)D
10D	Toll	N	Not Applicable	1+10D	101XXXX+1+(10)D

Digit conversion when six-digit local calling area (LCA) screening is used

For calls that use six-digit local calling area screening, that is, LCANAME 5-8 characters, the digit conversion process is slightly modified. Instead of using table LCASCRCN and the rules associated with PFXFOR10; six-digit screening uses tables HNPACONT, LCAINFO, LCA6SCRN, and DPCTSCRN, to determine whether the NPA and/or prefix digit are required.

Sample datafill for tables LCAINFO, LCA6SCRN, and DPCTSCRN

```
TABLE: LCAINFO
 LCANAME PFXSELEC LOCALOVR   DPCTNAME STRIPNPA
-------------------------------------------
201LCA01     RCPX        N   201DPCT1        N


TABLE: LCA6SCRN
         LCA6KEY TOOFC TENDLOC
-----------------------------
201LCA01 619 675   675       Y


TABLE: DPCTSCRN
DPCTNAME SCRNOPTS
-----------------
201DPCT1 (SEVEND DD MSCA) (PFXPLUS7D DD MSCA) (TEND DD MSCA)
(TEND NP MSCA)  (PFXPLUS10D NP MSCA) $
```

A four step process is used to convert the digits. The steps and flowcharts are shown in the following sections.

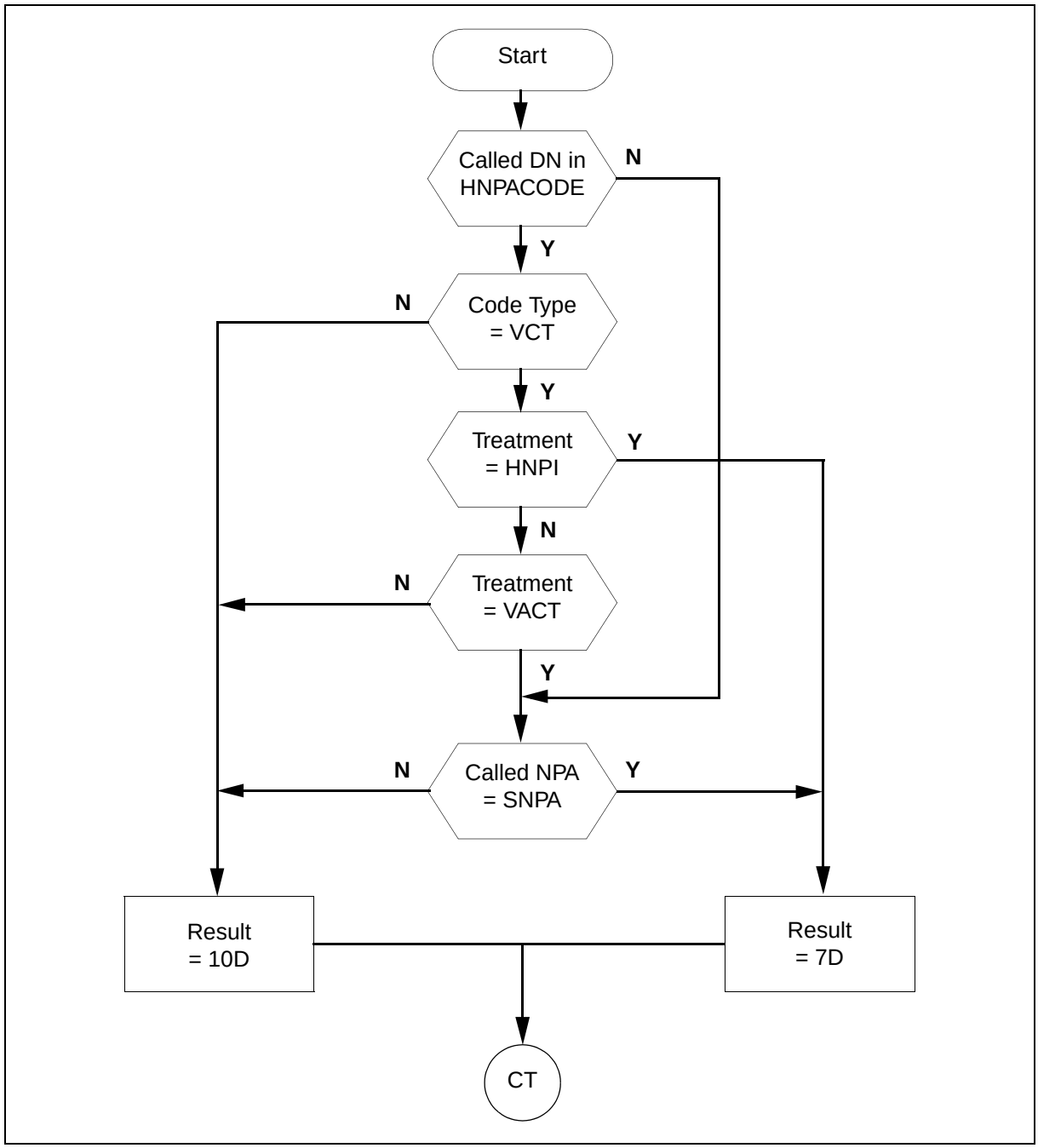
Step 1: Determine if digit conversion should begin with 7 or 10 digits

The HNPACONT.HNPACODE subtable is used to determine if digit conversion should adjust the 10-digit Called Party to 7-digits. If any of the following conditions are met this step will result in 7D (7-digits); otherwise it will be 10D (10-digits):

- Indexing the HNPACODE subtable with the 10-digit Called Party results in VCT HNPI
- Indexing the HNPACODE subtable with the 10-digit Called Party yields no result (tuple not found), and the Called Party NPA is the same as the SNPA used to index table HNPACONT
- Indexing the HNPACODE subtable with the 10-digit Called Party results in VCT VACT, and the Called Party NPA is the same as the SNPA used to index table HNPACONT

PRI Simplified Translations (continued)

Step 1: Determine if digit conversion should begin with 7 or 10 digits

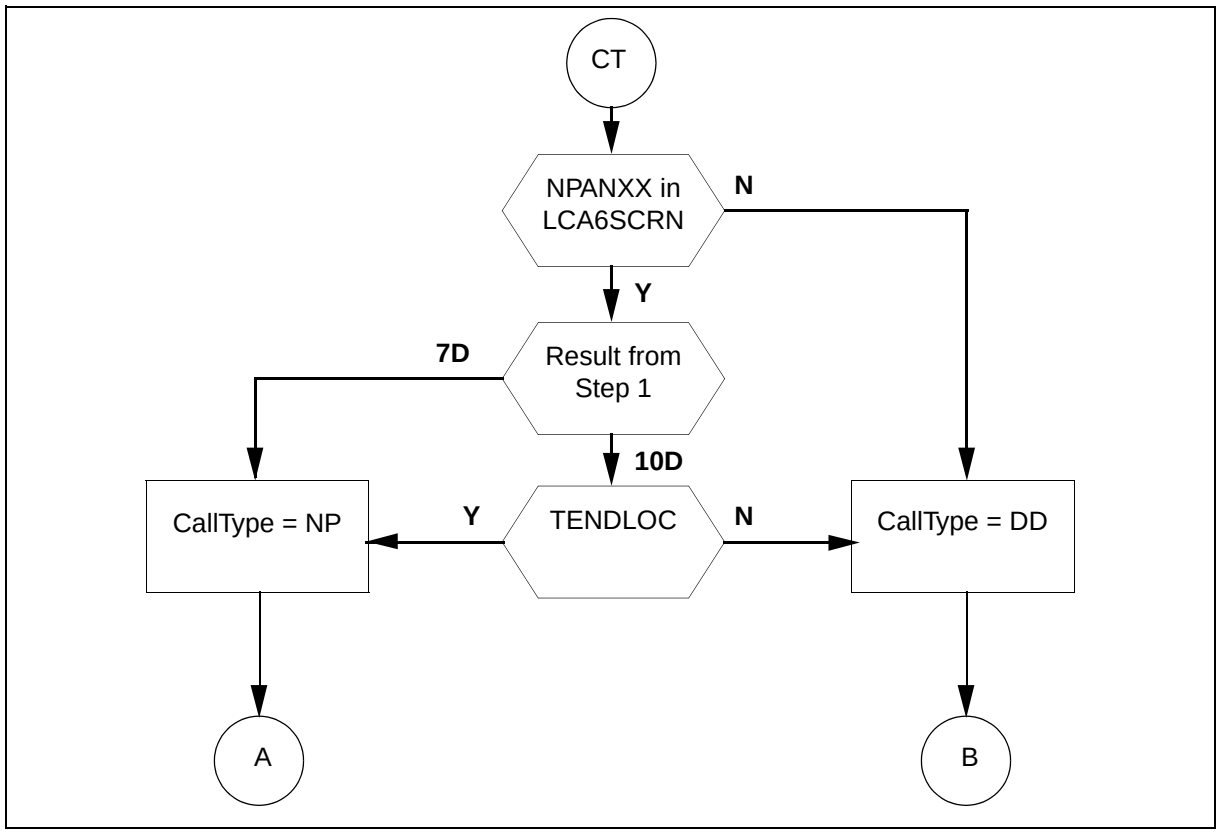


Step 2: Determine if the CallType is local (NP) or toll (DD)

The CallType is determined as follows:

- If the Called Party's NPA-NXX is not datafilled in table LCA6SCRN; then the CallType will be marked as DD
- If the Called Party's NPA-NXX is datafilled in table LCA6SCRN, and the result from Step 1 is 7D; the CallType will be marked as NP
- If the Called Party's NPA-NXX is datafilled in table LCA6SCRN and the result from Step 1 is 10D, the CallType will be marked as NP if the TENDLOC boolean in table LCA6SCRN is set to Y; otherwise the CallType will be marked as DD

Step 2: Determine CallType



Step 3: Determine DialingPattern

Table DPCTSCRN is used to determine which DialingPattern should be used for the digit conversion. The possible DialingPatterns are SEVEND, PFXPLUS7D, TEND, and PFXPLUS10D; and the possible CallTypes are NP or DD (derived from Step 2).

PRI Simplified Translations (continued)

This step cycles through the four potential DialingPatterns, based on an order of precedence (see Table), until a DialingPattern / CallType combination is found that yields a UNDT result in table DPCTSCRN.

> ***Note:*** If a DialingPattern / CallType combination is not datafilled, it is considered UNDT.

The initial DialingPattern (1st Choice) is derived based on the 7D or 10D result from Step 1, and the CallType from Step 2. If this DialingPattern / Calltype combination results in UNDT, then the 1st Choice DialingPattern will be used; otherwise each of the other three choices will be tried in order until one is found that results in UNDT.

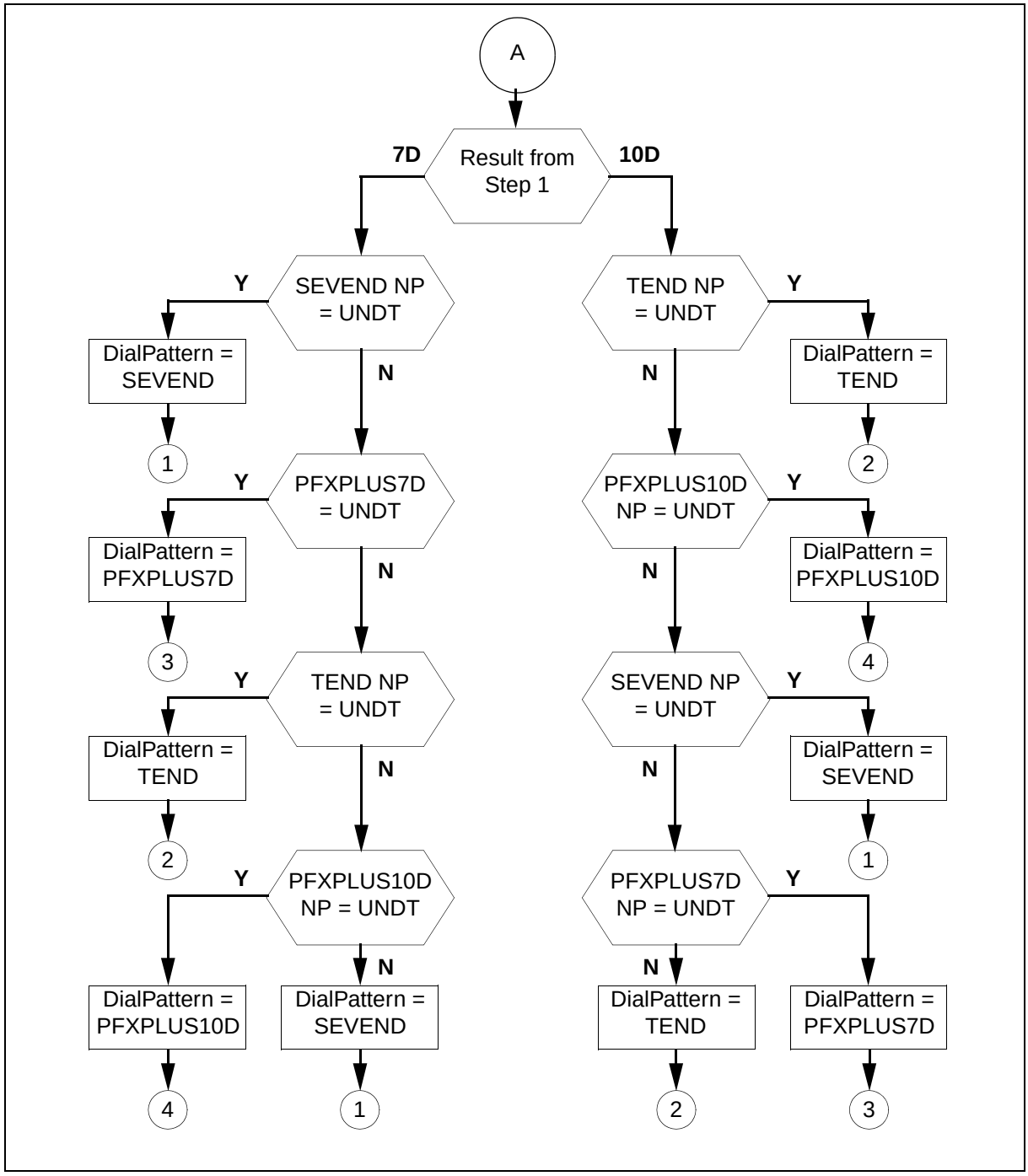
If no DialingPattern / CallType combination results in UNDT, then the last resort Dialing Pattern will be used (which is the same as the 1st choice Dialing Pattern).

Dialing pattern order of precedence

Call-Type	Step 1 Result	1st Choice	2nd Choice	3rd Choice	4th Choice	Last Resort
NP	7D	SEVEND	PFXPLUS7D	TEND	PRXPLUS10D	SEVEND
NP	10D	TEND	PFXPLUS10D	SEVEND	PFXPLUS7D	TEND
DD	7D	PFXPLUS7D	TEND	PFXPLUS10D	SEVEND	PFXPLUS7D
DD	10D	PFXPLUS10D	SEVEND	PFXPLUS7D	TEND	PFXPLUS10D

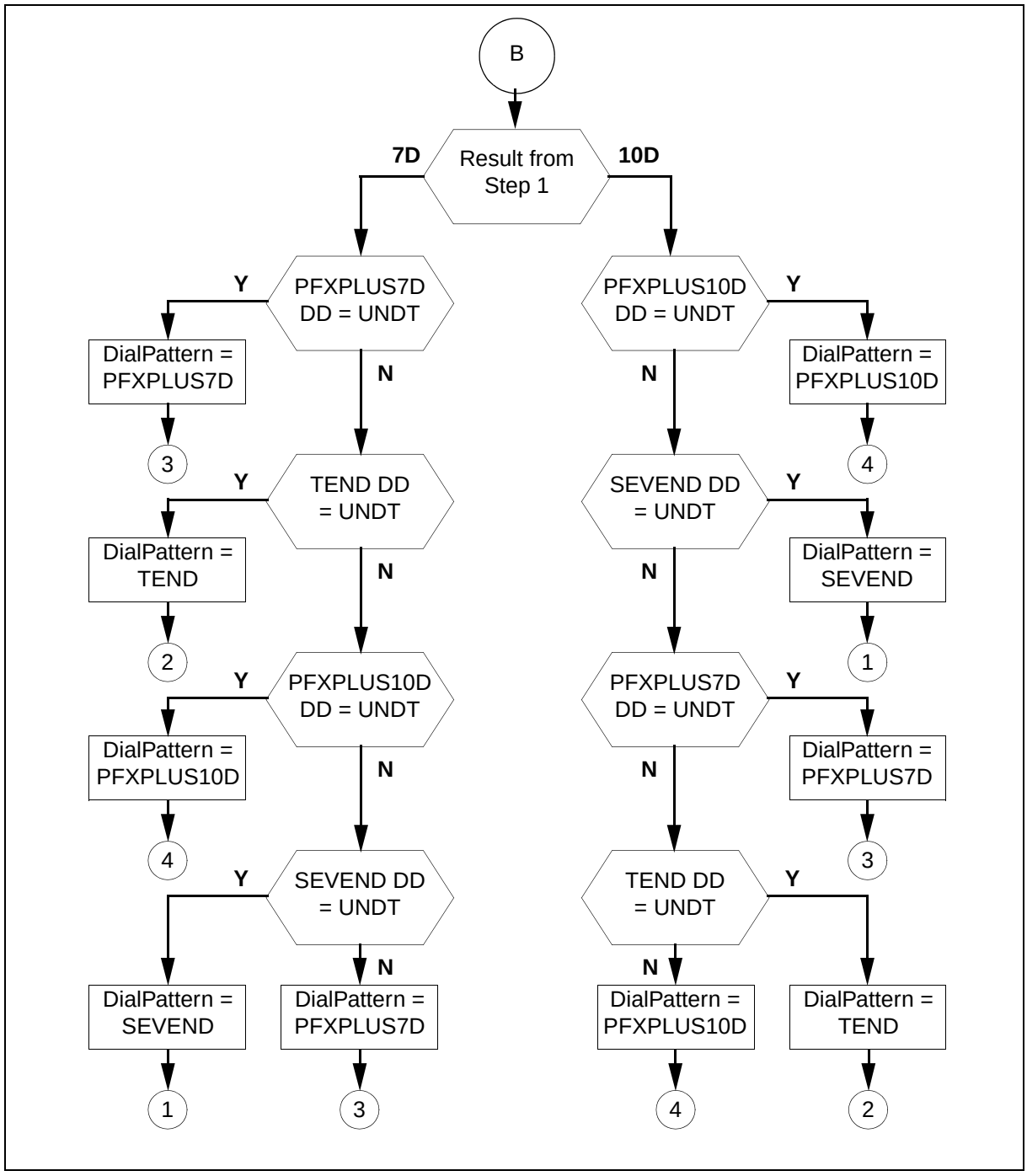
Refer to the figure for Step 3A for the flow chart for CallType NP, and the figure for Step 3B for the flow chart for CallType DD.

Step 3A: CallType NP, determining dialing pattern



PRI Simplified Translations (continued)

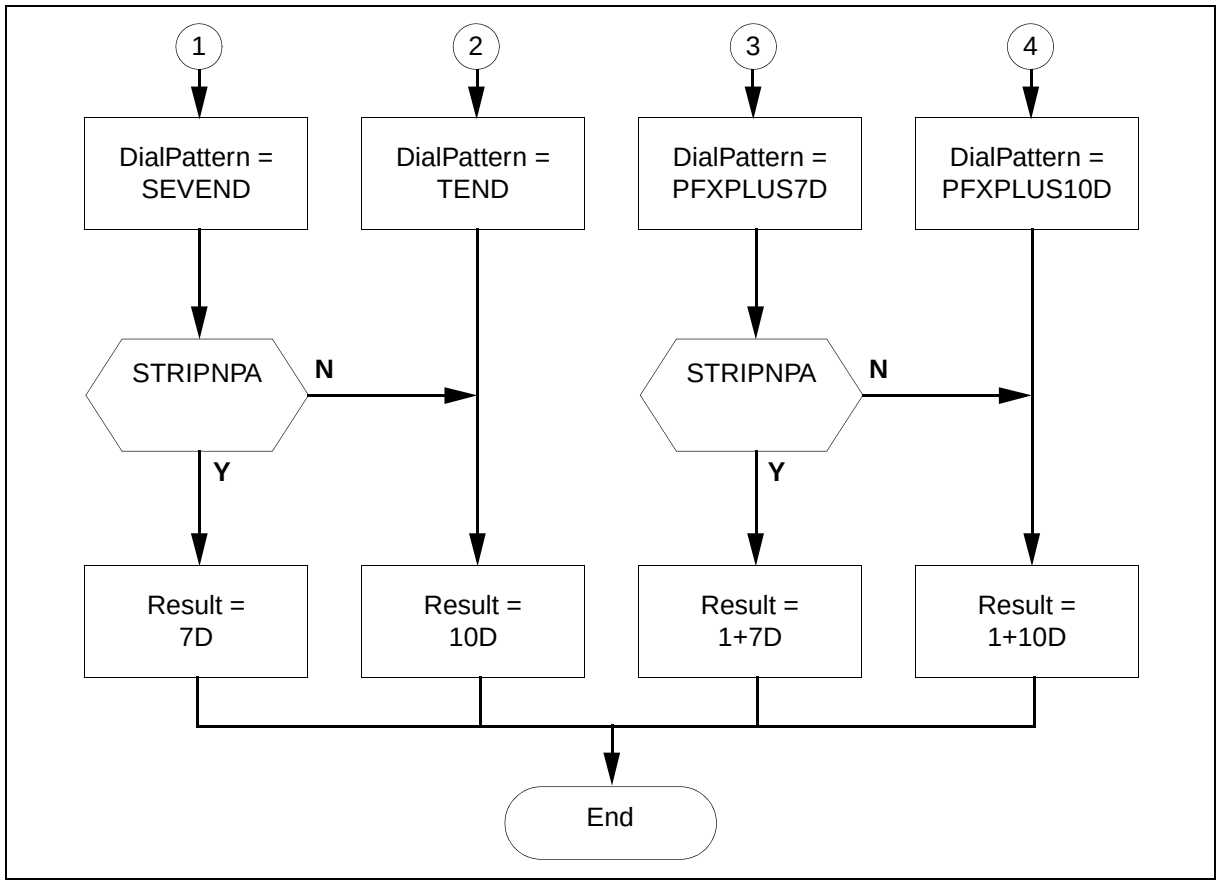
Step 3B: CallType DD, determining dialing pattern



Step 4: Adjust for STRIPNPA

The STRIPNPA bool in table LCAINFO determines if the final result from digit conversion should strip the NPA from the CalledParty. If the result from step 3 is a 7-digit Dialing Pattern (SEVEND or PFXPLUS7D); it is converted back to 10-digits if the STRIPNPA bool is set to N in Table LCAINFO.

Step 4: Adjust for STRIPNPA



ONEPLNC option

Simplified translations do not require the use of Table LTDEF option ONEPLNC. This is due to the simplification feature automatically adding back prefix digits.

Sample TRAVERs for NIPRI trunks with simplification

PRI Simplified Translations (continued)

Additional data required for AIN response processing in TRAVERs

Table RCNAME and Table RTECHAR are datafilled as specified in the recommended datafill to support NIPRI processing in an end office. The following table shows the entries for Table RCNAME.

Table RCNAME

```
TABLE RCNAME
. NACALL
. NACAR
. SUBCALL
. SUBCAR
. INCALL
. INCAR
. INOPER
. INCAROP
. NACAROP
. SUBCAROP
. CAROP
. BOCOP
. CUTTHRU **
. CAROA **

** Denotes additions to AIN response translations
```

The following table shows the entries for Table RTECHAR.

Table RTECHAR

```
TABLE RTECHAR
. NACALL (CDN NA $) $
. NACAR (CDN NA (TNS A) $) $
. SUBCALL (CDN L $) $
. SUBCAR (CDN L (TNS NA) $ $
. INCALL (CDN IN $) $
. INCAR (CDN IN (TNS NA) $) $
. INOPER (CDN IN (OSA PUBP) $) $
. INCAROP (CDN IN (OSA PUBA) (TNS NA) $)
  (CDN IN (OSA PUBP) (TNS NA) $) $ **
. NACAROP (CDN NA (OSA PUBA) (TNS NA) $)
  (CDN NA (OSA PUBP) (TNS NA) $) $ **
. SUBCAROP (CDN L (OSA PUBA) (TNS NA) $)
  (CDN L (OSA PUBP) (TNS NA) $) $ **
. CAROP (OSA PUBA (TNS NA) $) (OSA PUBP (TNS NA) $) $ **
. BOCOP (CDN NA (OSA PUBP) $) (CDN L (OSA PUBP $) (OSA PUBP $) $
. CUTTHRU (TNS NA $) $ **
. CAROA (OSA PUBA $) $ **
** Denotes additions and/or changes to AIN response translations
```

National Call (10 digit CDN)

For this example, either a 10 digit CDN arrives from the NIPRI trunk, or a 1 + 10 digit CDN arrives and the ONEPLNC option is not datafilled in Table LTDEF. When the ONEPLNC option is not datafilled, the leading 1 of a 1 + 10 digit CDN will be stripped off prior to performing translations, so the TRAVER uses only a 10 digit CDN. Note that the simplification results in the leading 1 being added back onto this call.

Sample TRAVER output for a national call (10 digit CDN)

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9184811234 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 . Resulting digits are: 19184811234
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 19 19 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
```

PRI Simplified Translations (continued)

Sample TRAVER output for a national call (10 digit CDN)

```
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
619 Y 201 8 ( 19) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 918 919 FRTD 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D CCS7_T2_LOOPBK0 3 675 N
 . EXIT TABLE RTEREF

EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
619 LPOT ( 17) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
TABLE LATAXLA
```

PRI Simplified Translations (continued)

Sample TRAVER output for a national call (10 digit CDN)

```
L123 918 INTER INTER STD
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA OA 7 P P222 C222 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P222 ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 19 19 EA DD 1 T NA C222 Y OFRT 1000 6 20 Y
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT

 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
```

PRI Simplified Translations (continued)

Sample TRAVER output for a national call (10 digit CDN)

```
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASPC7ATC             9184811234         ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

National carrier call

For this call, the NIPRI signals a 10 digit national CDN and a TNS of 0333.

Sample TRAVER output for a national call without the ONEPLNC option

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9194811234 TNS NA CIC 0333 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . NACAR (CDN NA (TNS NA)$) ( BC 3_1KHZ (CDN NA) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 101033319194811234
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 P P333 C333 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
```

PRI Simplified Translations (continued)

Sample TRAVER output for a national call without the ONEPLNC option

```
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P333 ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 19 19 EA DD 1 T NA C333 Y OFRT 1000 6 20 Y
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
619 Y 201 8 ( 19) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 919 919 FRTD 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D CCS7_T2_LOOPBK0 3 675 N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
619 LPOT ( 17) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
EA:Local override does not apply to this call.
TABLE LATAXLA
L123 919 INTER INTER STD
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 NONE N N Y N N N Y N Y Y N N N N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT 1000 from Pretranslation
```

PRI Simplified Translations (continued)

Sample TRAVER output for a national call without the ONEPLNC option

```
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
1000 N D TASPC7ATC 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 TASPC7ATC             9194811234         ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Simplified Translations (continued)

International call

For NIPRI signalling, the digits 011 are not sent as part of the CDN. Instead, the TON of international is used to signal an international call. Note that simplification will add the digits 011.

PRI Simplified Translations (continued)

Sample TRAVER output for an international call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . INCALL (CDN IN $) ( BC 3_1KHZ (CDN IN)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 01141123456789
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 0114 0114 N DD 3 IN
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE CCTR
41 T 041 6 13 T OFRT 117 Y $
TABLE OFRTMAP
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international call (Continued)

```
 . Tuple not found. Default to old index.
TABLE OFRT
 117 N D AIN_IT 15 D090 N
EXIT TABLE OFRT
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA OA 7 P P222 C222 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P222 ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 011 011 EA DD 3 T IN C222 Y OFRT 1001 6 20 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international call (Continued)

```
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC             41123456789        ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

International carrier call

For NIPRI signaling, the digits 011 are not sent as part of the CDN. Instead, the TON of international and a TNS are used to signal an international carrier

PRI Simplified Translations (continued)

call. Note that simplification will prefix the 101xxxx and 011 digits onto the international number.

Sample TRAVER output for an international carrier call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 TNS NA CIC 0333 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . INCAR (CDN IN (TNS NA)$) ( BC 3_1KHZ (CDN IN) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international carrier call (Continued)

```
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 101033301141123456789
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 P P333 C333 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P333 ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 011 011 EA DD 3 T IN C333 Y OFRT 1001 6 20 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international carrier call (Continued)

```
TABLE CCTR
41 T 041 6 13 T OFRT 117 Y $
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
 117 N D AIN_IT 15 D090 N
EXIT TABLE OFRT
EA:Local override does not apply to this call.
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 NONE N N Y N N N Y N Y Y N N N N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT 1001 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
1001 N D TASBC7ATC 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC             41123456789        ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Sample TRAVER output for an international carrier call (Continued)

International operator

For NIPRI signaling, the digits 01 are not sent as part of the CDN on an international operator call. Instead, the TON of international and the OSA

PRI Simplified Translations (continued)

PUBP are used to signal this call type. Note that simplification will prefix the digits 01 onto the international number.

Sample TRAVER output for an international operator

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . INOPER (OSA PUBP (CDN IN)$) ( BC 3_1KHZ (OSA PUBP) (CDN IN)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 0141123456789
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 014 019 N OA 2 IN
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE CCTR
41 T 041 6 13 T OFRT 117 Y $
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international operator (Continued)

```
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
 117 N D AIN_IT 15 D090 N
EXIT TABLE OFRT
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA OA 7 P P222 C222 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P222 ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 014 019 EA OA 2 T IN C222 Y OFRT 10 5 20 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international operator (Continued)

```
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          41123456789          ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

International carrier operator

For NIPRI signaling, the digits 01 are not sent as part of the CDN for international operator dialing. Instead, the TON of international along with the OSA PUBP and TNS are used to signal an international carrier operator call.

Note that simplification will prefix the 101xxxx and 01 digits onto the international number.

Sample TRAVER output for an international carrier operator

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 TNS NA CIC 0333 +
OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . INCAROP (OSA PUBA (CDN IN) (TNS NA)$) (OSA PUBP (CDN IN) (TNS NA)$) ( BC
3_1KHZ (OSA PUBA) (CDN IN) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international carrier operator (Continued)

```
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 10103330141123456789
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 P P333 C333 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P333 ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 014 019 EA OA 2 T IN C333 Y OFRT 10 5 20 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international carrier operator (Continued)

```
  . SUBTABLE AMAPRT
  . KEY NOT FOUND
  . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international carrier operator (Continued)

```
TUPLE NOT FOUND
TABLE CCTR
41 T 041 6 13 T OFRT 117 Y $
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
 117 N D AIN_IT 15 D090 N
EXIT TABLE OFRT
EA:Local override does not apply to this call.
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 NONE N N Y N N N Y N Y Y N N N N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT   10 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          41123456789          ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Simplified Translations (continued)

Sample TRAVER output for an international carrier operator (Continued)

PRI Simplified Translations (continued)

National carrier operator

For NIPRI, the equivalent of a 101xxxx + 0 + 10 digit call is to send in a 10 digit national CDN, an OSA PUBP, and a TNS. Note that NIPRI does not send in the prefix digit 0 in the CDN, but simplification will add this digit 0 back in.

PRI Simplified Translations (continued)

Sample TRAVER output for national carrier operator

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9184843000 TNS NA CIC 0333 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . NACAROP (OSA PUBA (CDN NA) (TNS NA)$) ( BC 3_1KHZ (OSA PUBA) (CDN NA)
(TNS NA)$) (OSA PUBP (CDN NA) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 101033309184843000
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 P P333 C333 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
```

PRI Simplified Translations (continued)

Sample TRAVER output for national carrier operator (Continued)

```
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P333 ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 09 09 EA OA 1 T NO C333 Y OFRT 10 5 20 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
EA:Local override does not apply to this call.
TABLE LATAXLA
L123 918 INTER INTER STD
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 NONE N N Y N N N Y N Y Y N N N N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT   10 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
```

Sample TRAVER output for national carrier operator (Continued)

```
+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          9184843000         ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Carrier operator

This is the equivalent of (101xxxx + 0-) or (101xxxx + 00-). TRAVERs using either an OSA PUBP or OSA PUBA will be identical, so only the OSA PUBP

PRI Simplified Translations (continued)

example is shown here. Note that simplification will convert the OSA PUBP into the digit 0 and add it to the end of the 101xxxx.

Sample TRAVER output for a carrier operator

```
TRAVER TR NIPRI_TEST_TRUNK N TNS NA CIC 0333 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . CAROP (OSA PUBA (TNS NA)$) (OSA PUBP (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
```

PRI Simplified Translations (continued)

Sample TRAVER output for a carrier operator (Continued)

```
. Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 10103330
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 P P333 C333 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
CARRIER OPERATOR CALL.  LOOKING UP 10XXX/101XXXX-00
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 P P333 C333 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P333 ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 00 00 T OA 1 OFRT 10 2 15 NONE
 .  . TABLE OFRTMAP
```

PRI Simplified Translations (continued)

Sample TRAVER output for a carrier operator (Continued)

```
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
USING EQUAL ACCESS (EA) ROUTE   OFRT   10 FROM PRETRANSLATION
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          N                   ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Bell operating company operator - intralata call

This is the equivalent to a 0 + 10 digit intralata call, but the NIPRI signals only a 10 digit national number with an OSA PUBP. The route taken is the position

route out of Table STDPRT. Simplification will convert the OSA PUBP into the prefix digit 0.

Sample TRAVER output for a Bell operating company - intralata call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9184843000 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
TRAVER WARNING: THE FOLLOWING DISPLAYED LINE IS TRUNCATED TO 132 CHARACTERS
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP (CDN L)$) (OSA PUBP $) ( BC 3_1KHZ
(OSA PUBP) (CDN NA)$) ( BC 3_1KHZ (OSA PUBP) (CDN L)$) (
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 09184843000
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 09 09 P OA 1 NA RTE1
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
```

PRI Simplified Translations (continued)

Sample TRAVER output for a Bell operating company - intralata call

```
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
619 Y 201 8 ( 19) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
```

Sample TRAVER output for a Bell operating company - intralata call

```
 . 918 919 FRTD 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D CCS7_T2_LOOPBK0 3 675 N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE POSITION
RTE1 S OP_TO_B_TOPS
TABLE LCASCRCN
619 LPOT ( 17) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 CCS7_T2_LOOPBK0       6754843000         ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

POSITION ROUTES.  POSITION IS: RTE1
1 OP_TO_B_TOPS

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Simplified Translations (continued)

Bell operating company operator - interlata call

This is the equivalent to a 0 + 10 digit call going to the interlata operator. This may be the carrier operator or the BOC operator. Note that for this case, the carrier is picked up via the EA option in Table LTCALLS.

Sample TRAVER output for a Bell operating company operator - interlata call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9184843000 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
TRAVER WARNING: THE FOLLOWING DISPLAYED LINE IS TRUNCATED TO 132 CHARACTERS
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP (CDN L)$) (OSA PUBP $) ( BC 3_1KHZ
(OSA PUBP) (CDN NA)$) ( BC 3_1KHZ (OSA PUBP) (CDN L)$) (
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 09184843000
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 09 09 P OA 1 NA RTE1
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
```

Sample TRAVER output for a Bell operating company operator - interlata call

```
619 Y 201 8 ( 19) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 918 919 FRTD 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D CCS7_T2_LOOPBK0 3 675 N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE POSITION
RTE1 S OP_TO_B_TOPS
TABLE LCASCRCN
619 LPOT ( 17) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
TABLE LATAXLA
L123 918 INTER INTER STD
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA OA 7 P P222 C222 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P222 ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
```

Sample TRAVER output for a Bell operating company operator - interlata call

```
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 09 09 EA OA 1 T NO C222 Y OFRT 10 5 20 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT   10 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          9184843000         ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Bell operating company operator - 7 digit local

This is the equivalent to a 0 + 7 digit call, even though the NIPRI only signals a 7 digit local number with an OSA PUBP. Simplification will convert the OSA PUBP back into the prefix digit 0. The result takes the position route out of Table STDPRT.

Sample TRAVER output for a Bell operating company operator - 7 digit local

```
TRAVER TR NIPRI_TEST_TRUNK N CDN L 6763000 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
TRAVER WARNING: THE FOLLOWING DISPLAYED LINE IS TRUNCATED TO 132 CHARACTERS
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP (CDN L)$) (OSA PUBP $) ( BC 3_1KHZ
(OSA PUBP) (CDN NA)$) ( BC 3_1KHZ (OSA PUBP) (CDN L)$) (
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 06763000
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 06 06 P OA 1 NA RTE1
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
```

Sample TRAVER output for a Bell operating company operator - 7 digit local

```
619 Y 201 8 ( 19) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 676 676 HRTE 100
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  100 T OFRT 100
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .  100 N D TASPC7T2 0 N N
 .  . EXIT TABLE OFRT
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE POSITION
RTE1 S OP_TO_B_TOPS
TABLE LCASCRCN
619 LPOT ( 17) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASPC7T2              6763000            ST
```

Sample TRAVER output for a Bell operating company operator - 7 digit local

```
TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

POSITION ROUTES.  POSITION IS: RTE1
1 OP_TO_B_TOPS

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Bell operating company operator - zero minus

For a zero minus call, no CDN is present. Only an OSA PUBP is used to signal this call type. Note that Table PXLAMAP is not used for this call type since the call is routed via the zero minus position (ZEROMPOS) in Table XLAPLAN.

Sample TRAVER output for Bell operating company operator - zero minus

```
TRAVER TR NIPRI_TEST_TRUNK N OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
TRAVER WARNING: THE FOLLOWING DISPLAYED LINE IS TRUNCATED TO 132 CHARACTERS
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP (CDN L)$) (OSA PUBP $) ( BC 3_1KHZ
(OSA PUBP) (CDN NA)$) ( BC 3_1KHZ (OSA PUBP) (CDN L)$) (
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
ZERO MINUS POS FROM TABLE XLAPLAN
TABLE POSITION
RTE4 T OFRT 126
```

Sample TRAVER output for Bell operating company operator - zero minus

```
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
 126 N D TASBC7ATC 0 N N
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++



TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

POSITION ROUTES.  POSITION IS: RTE4
1 TASBC7ATC             0                 ST

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Cut-thru to carrier

This is the equivalent to a 101xxxx# call.

Sample TRAVER output for cut-thru to carrier

```
TRAVER TR NIPRI_TEST_TRUNK N TNS NA CIC 0333 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . CUTTHRU (TNS NA $)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 NPDGP NCRT DSEQ N (ISDN 1020) $ $
TABLE LTCALLS
ISDN 1020 PUB XLALEC 601 619_ISDN_601 LPOT_L123_0 (EA C222 Y) $
```

Sample TRAVER output for cut-thru to carrier

```
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
601 IBN NONE NT 0 0 NILSFC 0 NIL NIL 00 619_NPRT_601 LPOT_L123_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
619_ISDN_601 NSCR 619 ISDN RTE4 N $ $
TABLE RATEAREA
LPOT_L123_0 LPOT NIL L123 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
 . NOTE: ISDN Digit Conversion has been performed:
 .       Resulting digits are: 1010333
TABLE STDPRTCT
ISDN ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 P P333 C333 Y OFRT 1000 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1000 N D TASPC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
EA:Local override does not apply to this call.
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 NONE N N Y N N N Y N Y Y N N N N Y
TABLE EASAC
NOT ENOUGH DIGITS FOR SAC CALL
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT 1000 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
1000 N D TASPC7ATC 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
```

Sample TRAVER output for cut-thru to carrier

```
+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASPC7ATC                                  STP

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

00- Carrier Call

For this 00- call, no CDN or TNS are used. NIPRI software will convert the OSA PUBA into the digits 00, and no simplification is invoked.

Sample TRAVER output for a 00- carrier call

```
TRAVER TR NIPRI_TEST_TRUNK N OSA PUBA B

Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . CAROA (OSA PUBA $)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
ISDN ( 1) ( 0) 1
```

Sample TRAVER output for a 00- carrier call (Continued)

```
 . SUBTABLE STDPRT
 . 00 00 T OA 1 OFRT 10 2 15 NONE
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
NOT ENOUGH DIGITS FOR SAC CALL
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
ISDN ( 1) ( 0) 1
 . SUBTABLE STDPRT
 . 10222 10222 EA OA 5 P P222 C222 Y OFRT 10 5 20 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P222 ( 1) ( 0) 2
 . SUBTABLE STDPRT
 . 00 00 T OA 1 OFRT 10 2 15 NONE
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
```

Sample TRAVER output for a 00- carrier call (Continued)

```
Using Equal Access (EA) route   OFRT   10 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          N                   ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

History of PRI Simplified Translations

SN06 (DMS)

New section “Digit conversion when six-digit local calling area (LCA) screening is used” added, according to CR Q00725742.

This History section added.

6 PRI Non-Simplified Translations

CAUTION
Possible loss of service
Incorrect translations can result in call failures or automatic message accounting (AMA) losses. To minimize the number of call failures, alter translations only during low-traffic periods.

This chapter describes the datafill required for NIPRI translations when SOC AIN 00026, AIN translations simplification is not being used.

Note that for loads prior to NA015, certain patches are required to complete these call types. See Bulletin 20010001 for details.

Overview of NIPRI translations

NIPRI translations can be implemented in two different ways, depending on how the equipment on the USER side of the PRI chooses to signal each dialing pattern. The first method involves the USER side of the PRI sending in the Type Of Number (TON) of UNKNOWN in the Called Party Number (CDN) for all call types. With this method, the Transit Network Selector (TNS) and Operator System Access (OSA) Information Elements (IE) are not used, and NTNA (NI-1) translations would apply. Since no further translations beyond NTNA are required by this first method, its implementation is not covered in this chapter.

The other method uses the TNS, OSA, and proper value of CDN TON (Local, National, International) to determine the call type. The various combinations for these IEs are shown below to represent each possible dialing pattern (this

table is taken from Table 4-7 of Telecordia document TR-NWT-001268, ISDN PRI Call Control):

TNS	OSA-P	OSA-A	CDN	Routing Interpretation
X				101XXXX (CUT-THROUGH)
	X			0-
		X		00-
			X	Normal Called Party Number
X	X			101XXXX + 0-
X		X		101XXXX + 00-
X			X	101XXXX + 1 + CDN
	X		X	0 + CDN OR 01 + CDN
X	X		X	101XXXX + 0/01 + CDN
X	X			00 + CDN
X		X	X	101XXXX + 00 + CDN
CDN = Called Party Number (NOTE: TR-NWT-1268 refers to this parameter as CPN)				
TNS = Transit Network Selector				
OSA-P = Operator System Access, Pubic Principle (local operator)				
OSA-A = Operator System Access, Public Alternate (carrier operator)				

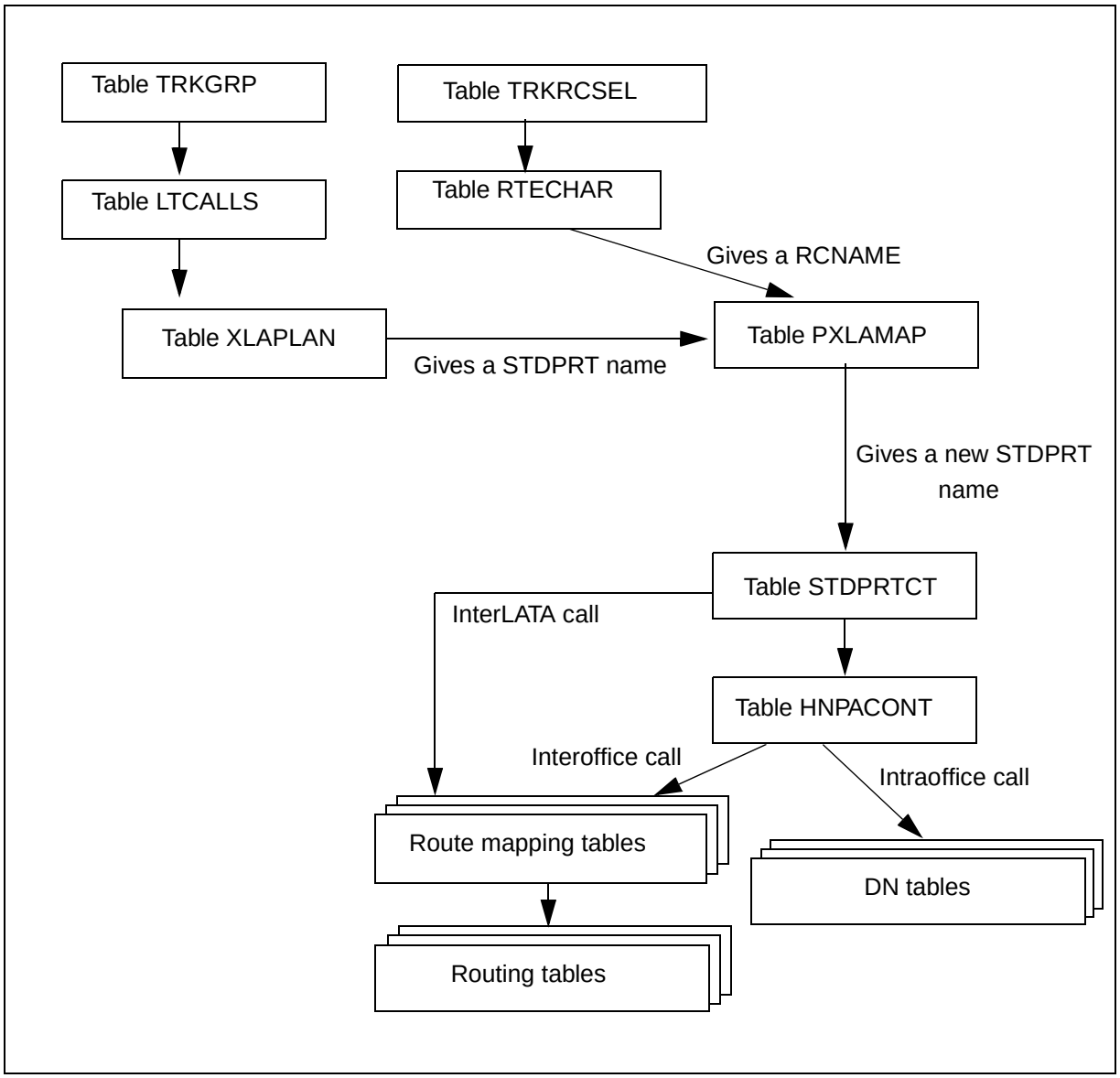
The way to read the above table is that the original end-user would dial the pattern under the “Routing Interpretation” heading, and it would be converted by the USER side equipment into the appropriate TNS, OSA, and CDN IEs. For example, a 0 + 10 digit operator call would cause the NIPRI trunk to deliver a CDN IE with a 10-digit National number and an OSA IE set to PUBP (Public Principle). When these IEs arrive into the switch to be translated, translations tables have to be set up to interpret these IEs back into the original dialed number. So, when a CDN IE with a 10-digit National number arrives with an OSA IE set to PUBP, the switch needs to be able to translate this into the equivalent of a 0+10 digit dialed number.

To accomplish the mapping of the above dialing patterns, the TNS, OSA, and CDN TON IEs are used as routing characteristics in Table RTECHAR. This mirrors how AIN response translations are implemented. Because of this, if your office currently uses AIN response translations, either the standard or

simplified methods, those translations will be re-used by NIPRI translations with minor modifications. If your office does not currently use AIN response translations, you will have to use PRI non-simplified translations unless you purchase, at minimum, SOC AIN000026, AIN Translations Simplification.

This chapter outlines how to implement NIPRI non-simplified translations. If you currently have AIN response translations implemented, the changes to your existing translations for NIPRI will be noted.

Figure 6-18 Table relationships for NIPRI - without simplification



Datafill NIPRI trunks without simplification

This section details the additional datafill required to support NIPRI translations without activating the simplification feature.

Table RCNAME

Translation and routing of NIPRI is based on attributes found in the intelligent information elements (herein referred to as routing characteristics). Prior to translation, these attributes are mapped onto Tables RCNAME and RTECHAR.

Table RCNAME (routing characteristic name) contains a list of names that are associated with a group of routing characteristics in Table RTECHAR.

Once an alphanumeric entry is placed into Table RCNAME, that alphanumeric can be used as an RCNAME key in any of the following:

- translation mapping tables (such as Table XLAMAP and Table PXLAMAP)
- route mapping tables (such as Subtable RTEMAP, Table OFRTMAP, and Table IBNMAP)
- Table RTECHAR

Note: Though there are other tables that contain RCNAME, they are not documented here because they are not relevant to NIPRI processing.

The routing characteristic tables should be datafilled in the following order:

1. Table RCNAME
2. The translation mapping tables and the routing mapping tables
3. Table RTECHAR

Table RTECHAR should be datafilled after Table RCNAME, the translation mapping tables, and the routing mapping tables. Failure to datafill in the order listed above results in call failure for calls using previous routing characteristics that correspond to an old RCNAME.

Recommended datafill for Table RCNAME

The required data for Table RCNAME for NIPRI processing depends on the additional entries required for Table RTECHAR.

The table below shows the data that would be present for a generic end-office. Details on the associated routing characteristics are provided in the following chapter.

Table 6-3 Generic end-office data

Type of access	RCNAME
National call	NACALL
National carrier call	NACAR
International call	INCALL
International carrier call	INCAR
Subscriber Call	SUBCALL
Subscriber Carrier Call	SUBCAR
International operator	INOPER
International carrier operator	INCAROP
National carrier operator	NACAROP
Carrier operator	CAROP
Bell operating company operator call	BOCOP
Cut-thru to carrier	CUTTHRU **
00- Carrier operator	CAROA **
** Denotes additions to AIN response translations	

Modifying generic RCNAME data for office

Modification of Table RCNAME depends on the modification of Table RTECHAR.

Table TRKRCSEL

Table TRKRCSEL (Trunk Routing Characteristics Selection) allows PRI trunks to optionally turn on and off the routing capability using certain types of ISDN information element (IE). The IEs can be turned on or off on an individual trunk group basis.

By turning on certain IEs, Table TRKRCSEL will allow Table RTECHAR to select the proper RCNAME to be used for a particular call.

Routing Characteristics

Below are the routing characteristics that can be turned on or off:

- Bearer Capability (BC)
- Operator System Access (OSA)
- Called Party Number (CDN)
- Transit Network Selection (TNS)
- Service Request (SR)
- Preference Indicator (PI)

Recommended datafill for Table TRKRCSEL

For most offices, it is recommended that the BC, OSA, CDN, and TNS IEs are turned on. This would allow NIPRI translations to use the existing AIN routing characteristics already in Table RTECHAR. This is also necessary to be able to differentiate between all of the different call types.

The following example shows sample datafill for Table TRKRCSEL:

GRPKEY	RCFILTER
NIPRI_TEST_TRUNK	(BC ON) (OSA ON) (CDN ON) (TNS ON) (SR OFF) (PI OFF) $

Table RTECHAR

Table RTECHAR (routing characteristics) allows the DMS to translate and route on attributes found in intelligent information elements. The attributes (herein referred to as characteristics) that are applicable to NIPRI during processing are described in this chapter.

This chapter describes Table RTECHAR under the following headings:

- Routing characteristics
- Combining routing characteristics
- Recommended datafill to support NIPRI processin

Routing characteristics

There are four routing characteristic types:

- Bearer capability
- Called party number
- Operator System Access
- Transit Network Selection

Bearer capability The bearer capability (BC) determines the type of transmission service accessible to the user. The BC of the call is not altered by NIPRI processing. Thus, the BC routing characteristic is maintained.

The table below contains examples of Bearer Capabilities that are supported for NIPRI.

Table 6-4 Bearer capability characteristics

Bearer capability (as per TR-NWT-001285)	Characteristic
Speech	(BC SPEECH))
3.1 kHz audio	(BC 3_1KHZ)
56kbps	(BC 56KDATA)
64kbps	(BC 64KDATA)

Note: Bearer capability is used as a routing characteristic only if the DMS has package NTX767 or NTX768.

Called party number

The called party number (CDN) type indicates the intended use of the corresponding digits. NIPRI processing currently supports the following CDN types:

- NIL indicates that either digits are not present or that the type of number is indeterministic for digits that are present.
- National (NA) indicates a number in either the 10-digit public format or N11 format.
- International (IN) indicates that the number is an international 7- to 12-digits.
- Subscriber (L) indicates that a number is in 7-digit public format.

Note: NIPRI currently does not support a private network (NET) number or a private abbreviated (ABBR) number.

The following table illustrates the characteristics of the “type of number” field.

Table 6-5 Characteristics of the type of number field

Nature of number	Characteristic
National (significant) number/ National (significant) number, operator requested	(CDN NA)

Table 6-5 Characteristics of the type of number field (Continued)

Nature of number	Characteristic
International number/ International number, operator requested	(CDN IN)
Subscriber number/ Subscriber number, operator requested	(CDN L)
No address present, operator requested	(CDN NIL)
No address present, cut-through call to carrier.	(CDN NIL)

Operator system access

The operator system access (OSA) indicates the required operator by type of access:

- Public/Principle (PUBP) access is used to direct the call to an operator when the carrier that will be used in translation is an LEC. Note that the operator this call is being routed to may either be the LEC operator or the carrier operator, depending on the nature of the call and the translation setup.
- Public/Alternate (PUBA) access is used to direct the call to a carrier operator when the carrier that will be used in translation is NOT an LEC.

The following table shows the characteristics of each type of operator.

Table 6-6 Type of operator characteristics

Type of operator	Characteristic
Operator (also referred to as the public/principle operator)	(OSA PUBP)
Carrier operator (also referred to as the public/alternate operator)	(OSA PUBA)

Transit network selection

Transit network selection (TNS) is used in interswitch calls to indicate the type of facility that the user wants to select:

- Nationally-Standardized (NA) indicates a call in the public network using public carriers.
- User-Specified Network indicates a call in the private environment using private facilities.

Note: NIPRI supports only Nationally-Standardized (NA).

The table below shows the type of network characteristics.

Table 6-7 Type of network characteristics

Type of network	Characteristic
Nationally Standardized	(TNS NA)

Routing characteristic combinations supported by NIPRI

The table below illustrates the possible routing characteristic combinations from an NIPRI trunk. Each bearer capability is compatible with all combinations and is not shown here for simplicity.

Table 6-8 Combinations supported by NIPRI

Type of access	Routing characteristic combinations		
Cut-thru to carrier			(TNS NA) **
National call	(CDN NA)		
National carrier call	(CDN NA)		(TNS NA)
Subscriber call	(CDN L)		
Subscriber carrier call	(CDN L)		(TNS NA)
International call	(CDN IN)		
International carrier call	(CDN IN)		(TNS NA)
International operator	(CDN IN)	(OSA PUBP)	
International carrier operator	(CDN IN)	(OSA PUBP) **	(TNS NA)
National carrier operator	(CDN NA)	(OSA PUBP) **	(TNS NA)
00- carrier operator		(OSA PUBA) **	
Carrier operator		(OSA PUBA)	(TNS NA)
Carrier operator (cont)		(OSA PUBP)	(TNS NA) **
BOC operator—zero minus call		(OSA PUBP)	
BOC operator—zero plus national call	(CDN NA)	(OSA PUBP)	
BOC operator—zero plus subscriber call	(CDN L)	(OSA PUBP)	
** Denotes additions to AIN response translations			

Recommended datafill to support NIPRI

CAUTION
Incorrect translations possible
Missing datafill in Table RTECHAR can produce incorrect translations.

A tuple in Table RTECHAR represents the routing characteristics sent in from an NIPRI SETUP message. When a tuple does not exist in Table RTECHAR with the same routing characteristics as those used in the SETUP message, an RCNAME cannot be derived and the response cannot be translated correctly. A DFIL log (DFIL320) is generated to indicate a missing tuple.

The generic RTECHAR datafill provided in the examples is based on the following:

- The generic end-office is an equal-access end office (EAEO).
- The generic end-office does not have routing services based on bearer capability (package NTX767 or NTX768).
- The generic end-office supports a variety of all types of national and international calls in the SETUP message, including operator and carrier calls.

The table below illustrates the RCNAMES and routing characteristic combinations for various access types.

Table 6-9 Routing characteristic combinations by access type

Type of access	RCNAME	Routing characteristic combination
National call	NACALL	(CDN NA $) $
National carrier call	NACAR	(CDN NA (TNS NA) $) $
Subscriber call	SUBCALL	(CDN L) $)
Subscriber carrier call	SUBCAR	(CDN L (TNS NA) $) $
International call	INCALL	(CDN IN $) $
International carrier call	INCAR	(CDN IN (TNS NA) $) $
International operator	INOPER	(CDN IN (OSA PUBP) $) $
International carrier operator	INCAROP	(CDN IN (OSA PUBA) (TNS NA) $) (CDN IN (OSA PUBP) (TNS NA) $) $ **
National carrier operator	NACAROP	(CDN NA (OSA PUBA) (TNS NA) $) (CDN NA (OSA PUBP) (TNS NA) $) $) **

Table 6-9 Routing characteristic combinations by access type

Type of access	RCNAME	Routing characteristic combination
Subscriber carrier operator	SUBCAROP	(CDN L (OSA PUBA) (TNS NA) $) (CDN L (OSA PUBP) (TNS NA) $) $ **
Carrier operator	CAROP	(OSA PUBA (TNS NA) $) (OSA PUBP (TNS NA) $) $ **
Bell operating company operator call	BOCOP	(CDN NA (OSA PUBP) $) (CDN L (OSA PUBP$) (OSA PUBP $) $
Cut-thru to carrier	CUTTHRU	(TNS NA $) $ **
00- Carrier operator	CAROA	(OSA PUBA$) $ **
** Denotes additions to AIN response translations		

Modifying generic RTECHAR data for an office

Some of the routing characteristic combinations can be further grouped to minimize the datafill in the associated mapping tables.

The following subsections describe in detail the modification of generic RTECHAR data depending on the office type or AIN service.

Offices that do not support a NAP

For offices that do not support calls from a NAP, it is possible to group national calls (NACALL) and national carrier calls (NACAR). Similarly, international calls (INCALL) and international carrier calls (INCAR) could also be grouped.

The table below shows routing characteristic combination for offices that do not support a NAP. The datafill replaces the NACALL, NACAR, INCALL, INCAR, SUBCALL and SUBCAR entries in generic RTECHAR data. All other entries specified in generic RTECHAR data remain unaltered.

Table 6-10 Combinations for non-NAP supporting offices

Type of access	RCNAME	Routing characteristic combination
National call & national carrier call	NACALL	(CDN NA $) (CDN NA (TNS NA) $) $
Subscriber call & Subscriber carrier call	SUBCALL	(CDN L $) (CDN L (TNS NA $) $
International call & international carrier call	INCALL	(CDN IN $) (CDN IN (TNS NA) $) $

Offices that support bearer capability routing

When the office supports bearer capability routing (package NTX767 or NTX768), Bearer Capability must also be datafilled in Table RTECHAR. The following is an example of how a national call entry would expand based on Bearer Capability.

The table below illustrates some combinations for national call entries.

Table 6-11 Combinations for national call entries

Type of access	RCNAME	Routing characteristic combinations
National call (Voice call)	NACALL	(CDN NA $) (CDN NA (BC 3_1KHZ) $) $
National call (56 kbps)	NA56K	(CDN NA (BC 56KDATA) $) $
National call (64 kbps)	NA64K	(CDN NA (BC 64KDATA) $) $

Note: The 56kbps calls are separated from the 64kbps calls because PTS trunks support 56kbps calls but do not support 64kbps calls. Each entry in generic RTECHAR would need to be expanded in a way similar to the national call.

NIPRI trunks that do not allow international numbers

When the NIPRI trunk does not allow an international number, the tuples in the table below may be removed from generic RTECHAR datafill.

Table 6-12 Combinations for services that do not support international numbers

Type of access	RCNAME	Routing characteristics and combinations
International call	INCALL	(CDN IN $) $
International carrier call	INCAR	(CDN IN (TNS NA) $) $
International operator	INOPER	(CDN IN (OSA PUBP) $) $
International carrier operator	INCAROP	(CDN IN (OSA PUBA) (TNS NA) $) (CDN IN (OSA PUBP) (TNS NA) $) $

All other entries in generic RTECHAR data would remain unaltered.

NIPRI trunks that do not allow operator numbers

When the NIPRI trunk does not allow operator calls, the tuples in the table below may be removed from generic RTECHAR datafill.

Table 6-13 Combinations for services that do not allow operator numbers

Type of access	RCNAME	Routing characteristic combinations
International operator	INOPER	(CDN IN (OSA PUBP) $) $
International carrier operator	INCAROP	(CDN IN (OSA PUBA) (TNS NA) $) (CDN IN (OSA PUBP) (TNS NA) $) $
National carrier operator	NACAROP	(CDN NA (OSA PUBA) (TNS NA) $) (CDN NA (OSA PUBP) (TNS NA) $) $
Subscriber carrier operator	SUBCAROP	(CDN L (OSA PUBA) (TNS NA) $) (CDN L (OSA PUBP) (TNS NA) $) $
Carrier operator	CAROP	(OSA PUBA) (TNS NA) $) (OSA PUBP) (TNS NA) $) $
00- Carrier operator	CAROA	(OSA PUBA $) $
Bell operating company operator call	BOCOP	(CDN NA (OSA PUBP) $) (CDN L (OSA PUBP) $) (OSA PUBP $) $

All other entries in generic RTECHAR data would remain unaltered.

Cut-thru

In most offices, the translations for cut-thru calls will be identical to national carrier calls. As a result, the CUTTHRU and NACAR routing characteristics can be combined.

Table 6-14 Combination for national carrier & cut-thru calls

Type of Access	RCNAME	Routing characteristic combinations
National carrier call & cut-thru to carrier	NACAR	(TNS NA $) (CDN NA (TNS NA) $) $

Digits used in NIPRI translations

When an NIPRI sends in a SETUP message with digits specified, translation and routing processing should take place to translate the digits and route the call. Depending on the nature of the message, digits to translate can have different formats.

The following table summarizes the digits used in NIPRI translations for various carrier and called party number combinations.

Table 6-15 Digits used in NIPRI translation

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations for an end office
National number	10D	XXXX	101XXXX+(10)D
Subscriber number	7D	XXXX	101XXXX+(7)D
International number	7-15D	XXXX	101XXXX+(7-12)D
No address present, operator requested	Not present	XXXX	101XXXX
National number, operator requested	10D	XXXX	101XXXX+(10)D
Subscriber number, operator requested	7D	XXXX	101XXXX+(7)D
International number, operator requested	7-15D	XXXX	101XXXX+(7-12)D
National number	10D	Not present	(10)D
Subscriber number	7D	Not present	(7)D
International number	7-15D	Not present	(7-12)D
No address present, operator requested	Not present	Not present	0-
National number, operator requested	10D	Not present	(10D)
Subscriber number, operator requested	7D	Not present	(7)D
International number, operator requested	7-15D	Not present	(7-12)D
950+ Call	7D	Not present	(7)D
Carrier cut-through	Not present	XXXX	101XXXX

Table 6-15 Digits used in NIPRI translation (Continued)

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations for an end office
No address present, carrier operator	Not present	Not present	00-

Table PXLAMAP

Table PXLAMAP (pretranslator mapping) is used to map to new pretranslators into the public environment to allow the DMS to translate differently given a RCNAME and a pretranslator.

Table PXLAMAP allows the operating company to alter translation through the following methods:

- The XLA selector directs the call to use a new pretranslator name.
- The POSITION selector provides access to a routing position if there are no address digits to translate on. Note that this selector is not supported by the current NIPRI release.
- The ROUTE selector provides direct access to a route list element when there are no address digits to translate on. Note that this selector is not supported by the current NIPRI release.
- The PREFIX selector activates the Response Translations Simplification. Digit conversion process is used in conjunction with the XLA selector to specify an exception pretranslator.

Note 1: This selector can be used only if the Response Translations Simplification feature is active.

Note 2: If no tuple is present for an RCNAME and an STDPRTCT the Response Translations Simplification digit conversion process is activated by default.

NIPRI translations support only the XLA and PREFIX selectors.

Recommended datafill to support NIPRI

The generic PXLAMAP datafill provided here is based on the following:

- The end-office is an equal-access end office (EAEO).
- This office supports all types of national and international calls in the NIPRI SETUP message, including operator and carrier calls.
- The pretranslator names to be mapped are derived from the XLAPLAN used in Table LTCALLS.

The RCNAMES used in the table below are from the generic RTECHAR example. If an office modified Table RTECHAR data, the following example should be modified accordingly.

Table 6-16 Recommended PXLAMAP datafill

RCNAME	XLANAME (Note)	Data
NACALL	ISDN	(XLA NAT) $
NACAR	ISDN	(XLA NAT) $
SUBCALL	ISDN	(XLA NAT) $
SUBCAR	ISDN	(XLA NAT) $
INCALL	ISDN	(XLA INT) $
INCAR	ISDN	(XLA INT) $
INOPER	ISDN	(XLA IOP) $
INCAROP	ISDN	(XLA ICOP) $
NACAROP	ISDN	(XLA NCOP) $
SUBCAROP	ISDN	(XLA NCOP) $
CAROP	ISDN	(XLA CAOP) $
BOCOP	ISDN	(XLA NAOP) $
CUTTHRU	ISDN	(XLA CUT) $ **
CAROA	ISDN	(XLA CAOA) $ **
** Denotes additons to AIN response translations.		
Note: Assume ISDN is the public translator for an NIPRI trunk. This public translator should not be used for any other service as impacts on LNP calls and NTNAPRI trunks may occur.		

The above entries for NIPRI need to be duplicated for each line pretranslator name that an NIPRI trunk would use. The new pretranslator names would be reused for each line pretranslator because there is only one dialing plan.

The new pretranslator names (for example, NAT) would need to be datafilled in Table STDPRTCT before datafilling Table PXLAMAP.

Modifying generic Table PXLAMAP data

If the NIPRI trunk does not support international or operator calls, the tuples with RCNAMEs reflecting these call types are required.

Datafill for multiple public dialing plans

If there is more than one dialing plan, additional new pretranslators would be required to support the additional dialing plans.

Note: The number of new pretranslators depends on several factors.

The example in the table below depicts sample datafill for two lines in different LATAs. Assume that the international carriers are the same for both LATAs.

Table 6-17 Sample datafill for two lines in different LATAs

RCNAME	XLANAME	Data
NACALL	ISDN	(XLA NAT) $
NACALL	ISDN	(XLA NAT2) $
NACAR	ISDN	(XLA NAT) $
NACAR	ISDN	(XLA NAT2) $
INCALL	ISDN	(XLA INT) $
INCALL	ISDN	(XLA INT) $
INCAR	ISDN	(XLA INT) $
INCAR	ISDN	(XLA INT) $

Note: The same pretranslator can be used for all international calls. Different pretranslators are used for national calls to differentiate among inter-LATA and intra-LATA calls.

Mapping RCNAMEs to reuse pretranslators

The generic datafill shows nine new pretranslators for NIPRI. Depending on the office, these can be further reduced to six pretranslators. The main difference is that the generic datafill allows a different carrier operator to be selected based on whether the 101XXXX was dialed. If different carrier operators are not required, the generic datafill can be modified as in the table below for the NIPRI originator.

Table 6-18 Modified generic datafill

RCNAME	XLANAME	Data
NACALL	ISDN	(XLA NAT) $
NACAR	ISDN	(XLA NAT) $

Table 6-18 Modified generic datafill (Continued)

RCNAME	XLANAME	Data
SUBCALL	ISDN	(XLA NAT) $
SUBCAR	ISDN	(XLA NAT) $
INCALL	ISDN	(XLA INT) $
INCAR	ISDN	(XLA INT) $
INOPER	ISDN	(XLA IOP) $
INCAROP	ISDN	(XLA IOP) $
NACAROP	ISDN	(XLA NCOP) $
SUBCAROP	ISDN	(XLA NCOP) $
CAROP	ISDN	(XLA NCOP) $
BOCOP	ISDN	(XLA NCOP) $
CUTTHRU	ISDN	(XLA CUT) $ **
CAROA	ISDN	(XLA CAOA) $ **
Note: Denotes additions to AIN response translations.		

Table STDPRTCT

Table STDPRTCT and its Subtable STDPRT are the main tables used in translating different call types. In the past, different call types were identified through unique digits datafilled in a standard pretranslator.

Recommended datafill for Tables STDPRTCT and STDPRTCT:STDPRT

Any new pretranslator to map to in Table PXLAMAP should be defined in Table STDPRTCT before.

The generic STDPRTCT datafill provided in the table below is based on the following:

- The end office is an equal-access end office (EAEO).
- The end office supports all types of national and international calls in the NIPRI SETUP message, including operator and carrier calls.
- The datafill used in the previous STDPRTCT example is used as reference material.

The RCNAMES used in the table below are from the generic RTECHAR example. If an office modifies Table RTECHAR data, the following example should be modified accordingly.

Table 6-19 Generic STDPRTCT datafill

STDPRTCT	
NAT	(1) (1234) ... (national calls) Subtable STDPRT The entries below are for carriers. 1010488 1010488 EA DD T NA 488 Y OFRT 700 7 17 N 9501542 9501542 FGB DD 0 C542 Y OFR3 542 7 7 ... other carriers ... (similar datafill as pretranslators for carrier, NA call) 2 410 N DD 0 NA 411 411 T NP 0 OFRT 1 3 3 NONE 412 510 N DD 0 NA ... other N11 ... ... Note that the standard North American entries are interleaved. The following entry is required for home area codes that do not require billing. 613 613 N NP 0 NA
INT	(1) (123) .... (international calls) Subtable STDPRT The entries below are for carriers. 1010488 1010488 EA DD 7 T IN 488 Y OFRT 701 7 25 N ... other carriers ... (same datafill as pretranslators for carrier, IN call) The entry below is similar to the ISDN translator for international direct dialed calls. 2 9 N DD 0 IN

Table 6-19 Generic STDPRTCT datafill (Continued)

STDPRTCT	
NAOP	(1) (122) ... (national operator call) Subtable STDPRT The entries below are for carriers. 1010488 1010488 EA OA T NA 488 Y OFRT 700 7 17 N 9501542 9501542 FGB OA 0 C542 Y OFR3 542 7 7 .. other carriers ... (similar datafill as pretranslators for carrier, NA call) The entry below is similiar to the ISDN translator for international operator calls. 2 9 P OA 0 NA TOPS
IOP	(1) (127) ... (national operator call) Subtable STDPRT The entry below is similar to the ISDN translator for international operator calls. 1010488 1010488 EA OA 7 T IN 488 Y OFRT 701 7 25 N ** 2 9 P OA 0 IN TOPS ... other carriers... (similar datafill as pretranslators for carrier)
NCOP	(1) (127) ... (national carrier operator call) Subtable STDPRT The entries below are for carriers. 1010488 1010488 EA OA 7 T NA 488 Y OFRT 700 7 17 N ... other carriers... (similar datafill as pretranslators for carrier)
CAOP	(1) (127) ... (operator carrier call—no address present) Subtable STDPRT The entries below are for carriers. 101488 1010488 EA OA 7 T NO 488 Y OFRT 700 7 7 N ... other carriers ... (similar datafill as pretranslators for carrier)

Table 6-19 Generic STDPRTCT datafill (Continued)

STDPRTCT	
ICOP	(1) (125) ... (international carrier operator call) Subtable STDPRT The entry below is for a carrier. 1010488 1010488 EA OA 7 T IN 488 Y OFRT 701 7 25 N ... other carriers ... (similar datafill as pretranslators for carrier, IN operator call)
CUT **	(cut-thru to carrier - no address present) Subtable STDPRT The entry below is for a carrier. 1010488 1010488 EA DD 7 T NO 488 Y OFRT 701 7 7 N ... other carriers
CAOA **	(00- carrier operator - no address present) Subtable STDPRT Note that an XLATYPE of “P” is used instead of a “T”. This is necessary to strip off the digits “00” that appear after the 1010XXXX. The XLATYPE of “P” makes these entries different than those in CAOP. 1010488 1010488 EA OA 7 P P488 488 Y OFRT 700 7 22 N ... other carriers 00 00 T OA 1 OFRT 600 2 15 NONE
** Denotes additions to AIN response translations.	

Option ONEPLNC

In Table LTDEF, Option ONEPLNC (one plus non-compliance) was introduced to allow the prefix digit “0” or “1” in a 0/1+10 digit call to be used in translations. Without this option, when the far end sends a 0/1+10 digit call, the prefix 0/1 is stripped off and only the remaining 10 digits are used by translations. This strippping of the prefix digit is in accordance with the March 1998 revision of Telecordia document TR-NWT-001268, ISDN PRI Call Control.

Option ONEPLNC was developed for customers who do not have any AIN response translations built so that they could use the prefix digit 0/1 in their 0/1+10 digit calls through their normal translations. This option is also for customers who do not want to use AIN response translations for their NIPRI

prefix dialed calls. This simplifies the translations that need to be built for 0/1+10 digit calls.

Option ONEPLNC is not intended to be used with AIN response translations which NIPRI translations are built upon because AIN response translations do not expect a prefix digit. When a prefix digit reaches these translations, the prefix digit will not be fenced off, resulting in the carrier receiving the prefix digit. This may cause the call to fail.

AIN response translations already assume that no prefix digits will be used, so there is no need to use Option ONEPLNC with it. As a result, Nortel does not recommend the use of Option ONEPLNC with the NIPRI translations outlined in this chapter.

There are problems when using Option ONEPLNC instead of AIN. Without AIN response translations, you will not be able to route international calls that use a type of number (TON) of international. This is due to NIPRI not allowing the 01/011 prefix digits for international TON calls. When using Option ONEPLNC, international calls will have to be sent with a TON of UNKNOWN to be able to use the 01/011 prefix. Also, you will not be able to use the OSA IE, which is used to signal operator calls when the prefix digit "0" is not used.

Sample TRAVERs for NIPRI trunks without simplification

This section contains TRAVER examples of various call types during NIPRI translations without activating the Response Translations Simplification feature (AIN00026).

Table RCNAME and Table RTECHAR are datafilled as specified in the recommended datafill to support NIPRI translations in a generic SSP, as shown in the figure below.

Figure 6-19 Table RCNAME

```
TABLE RCNAME
 . NACALL
 . NACAR
 . SUBCALL
 . SUBCAR
 . INCALL
 . INCAR
 . INOPER
 . INCAROP
 . NACAROP
 . SUBCAROP
 . CAROP
 . BOCOP
 . CUTTHRU
 . CAROA

** Denotes additions to AIN response translations
```

For the end-office, the figure below shows the entries for Table RTECHAR.

Figure 6-20 Table RTECHAR

```
TABLE RTECHAR
 . NACALL (CDN NA $) $
 . NACAR (CDN NA (TNS NA) $) $
 . SUBCALL (CDN L $) $
 . SUBCAR (CDN L (TNS NA) $ $
 . INCALL (CDN IN $) $
 . INCAR (CDN IN (TNS NA) $) $
 . INOPER (CDN IN (OSA PUBP) $) $
 . INCAROP (CDN IN (OSA PUBA) (TNS NA) $) $
  (CDN IN (OSA PUBP)(TNS NA) $) $ **
 . NACAROP (CDN NA (OSA PUBA) (TNS NA) $) $
  (CDN NA (OSA PUBP)(TNS NA) $) $ **
 . SUBCAROP (CDN L (OSA PUBA) (TNS NA) $ $
  (CDN L (OSA PUBP)(TNS NA) $) $ **
 . CAROP (OSA PUBA (TNS NA) $) (OSA PUBP (TNS NA) $) $ **
 . BOCOP (CDN NA (OSA PUBP) $) (CDN L (OSA PUBP $)(OSA PUBP $) $
 . CUTTHRU (TNS NA $) $ **
 . CAROA (OSA PUBA $) $ **

 ** Denotes additions/changes to AIN response translations.
```

If the end-office supports routing based on bearer capability, the above RTECHAR entries would be modified, as shown in the figure below.

Figure 6-21 Table RTECHAR modified

```
TABLE RTECHAR
 . NACALL (CDN NA $) (BC 3_1KHZ (CDN NA) $) $
 . NACAR (CDN NA (TNS NA) $) (BC 3_1KHZ (CDN NA) (TNS NA) $) $
 . SUBCALL (CDN L $) (BC3_1KHZ (CDN L) $) $
 . SUBCAR (CDN L (TNS NA) $) (BC 3_1KHZ (CDN L) (TNS NA) $)$
 . INCALL  (CDN IN $) (BC 3_1KHZ (CDN IN) $) $
 . INCAR (CDN IN (TNS NA) $) (BC 3_1KHZ (CDN IN) (TNS NA) $) $
 . INOPER (OSA PUBP (CDN IN) $) (BC 3_1KHZ (OSA PUBP) (CDN IN) $) $
 . INCAROP (OSA PUBA (CDN IN) (TNS NA) $)(OSA PUBP (CDN IN) (TNS NA) $)
       (BC 3_1KHZ (OSA PUBA) (CDN IN) (TNS NA) $) (BC 3_1KHZ (OSA PUBP)
       (CDN IN) (TNS NA) $)$ **
 . NACAROP (OSA PUBA (CDN NA) (TNS NA) $)(OSA PUBP (CDN NA) (TNS NA) $)
       (BC 3_1KHZ (OSA PUBA) (CDN NA) (TNS NA) $)
       (BC 3_1KHZ (OSA PUBP) (CDN NA) (TNS NA) $)$
 . SUBCAROP (OSA PUBA (CDN L) (TNS NA) $) (OSA PUBP (CDN L) (TNS NA) $)
       (BC 3_1KHZ (OSA PUBA) (CDN L) (TNS NA) $)
       (BC 3_1KHZ (OSA PUBP) (CDN L) (TNS NA) $)$ **
 . CAROP (OSA PUBA (TNS NA) $) (OSA PUBP (TNS NA) $)
       (BC 3_1KHZ (OSA PUBA) (TNS NA) $)
       (BC 3_1KHZ (OSA PUBP) (TNS NA) $)$ **
 . BOCOP (OSA PUBP (CDN NA)$)(OSA PUBP (CDN L) $) (OSA PUBP $)
       (BC 3_1KHZ (OSA PUBP) (CDN NA) $) (BC3_1KHZ (OSA PUBP) (CDN L) $)
       (BC 3_1KHZ ( OSA PUBP) $)$
 . CUTTHRU (TNA NA $) (BC 3_1KHZ (TNS NA)$ $ **
 . CAROA (OSA PUBA $) (BC 3_1KHZ (OSA PUBA)$)$ **
```

The entries shown in the figure below map the RCNAME and pretranslator to obtain a new pretranslator based on call type.

Figure 6-22 Table PXLAMAP

```
TABLE PXLAMAP
 . NACALL ISDN ( XLA NAT)$
 . NACAR ISDN ( XLA NAT)$
 . SUBCALL ISDN (XLA NAT)$
 . SUBCAR ISDN (XLA NAT)$
 . INCALL ISDN ( XLA  INT)$
 . INCAR ISDN ( XLA  INT)$
 . INOPER ISDN (XLA IOP) $
 . INCAROP  ISDN ( XLA ICOP)$
 . NACAROP ISDN ( XLA NCOP)$
 . SUBCAROP ISDN (XLA NCOP)$
 . CAROP ISDN (XLA CAOP) $
 . BOCOP ISDN (XLA NAOP) $
 . CUTTHRU ISDN (XLA CUT) $ **
 . CAROA ISDN (XLA CAOA) $ **
** Denotes additions to AIN response translations.
```

The new entries are pretranslators, as shown in the figure below.

Figure 6-23 Table STDPRTCT

```
TABLE STDPRTCT
NAT ( 1) ( 0) 0
 . SUBTABLE STDPRT
  . 1010234 1010234 EA DD 7 T NA MCI Y OFRT 963 7 17 N
  . 613 613 N NP 0 NA
  . 819 819 N DD 0 NA
INT ( 1) ( 0) 0
 . SUBTABLE STDPRT
  . 1010234 1010234 EA DD 7 T IN MCI Y OFRT 700 7 25 Y
  . 1010488 1010488 EA DD 7 T IN  ITT  Y OFRT 900 7 20 N
  . 2 9 N DD 0 IN
ICOP ( 1) ( 0) 0
 . SUBTABLE STDPRT
 . 1010234 1010234 EA OA 7 T IN MCI Y OFRT  700 7 25 Y
NCOP ( 1) ( 0) 0
 . SUBTABLE STDPRT
 . 1010488 1010488 EA OA 7 T NA ITT Y OFRT 963 7 17 N
NAOP (1) (0) 0
 . SUBTABLE STDPRT
  . 1010234 1010234 EA OA 7 T NA MCI Y OFRT 963 7 17 N
  . 2 9 P OA 0 NA TOPS
IOP (1) (0) 0
 . SUBTABLE STDPRT
  . 1010234 101234 EA OA 7 T IN MCI Y OFRT 701 25 Y
  . 2 9 P OA O IN TOPS
CUT (1) (0) 0
 . SUBTABLE STDPRT
  . 1010488 1010488 EA DD 7 T NO 488 Y OFRT 700 7 7 N
CAOA (1) (0) 0
 . SUBTABLE STDPRT
  . 1010488 1010488 EA OA 7 P P488 488 Y OFRT 700 7 22 N
CAOP (1) (0) 0
 . SUBTABLE STDPRT
  . 101488 1010488 EA OA7 T NO 488 Y OFRT 700 7 7 N

 ** Denotes additions to AIN response translations.
```

National call (10 digit CDN)

For this example, either a 10 digit CDN arrives from the NIPRI trunk, or a 1 + 10 digit CDN arrives and the ONEPLNC option is not datafilled in Table

LTDEF. When the ONEPLNC option is not datafilled, the leading 1 of a 1 + 10 digit CDN will be stripped off prior to performing translations.

Figure 24 TRAVER for a national call (10 digit CDN)

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9184811234 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . NACALL (CDN NA $) ( BC 3_1KHZ (CDN NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . NACALL ISDN ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 918 918 N DD 0 NA
```

Figure 24 TRAVER for a national call (10 digit CDN) (Continued)

```
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
407 Y 127 8 ( 16) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 918 919 FRTD 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D AIN_ATC 0 N N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
407 LPOT ( 1) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
TABLE LATAXLA
L456 918 INTER INTER STD
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . NACALL ISDN ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA DD 7 T NA C222 Y OFRT 1001 7 22 Y
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
```

Figure 24 TRAVER for a national call (10 digit CDN) (Continued)

```
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC             9184811234         ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

National carrier call

For this call, the NIPRI signals a 10 digit national CDN and a TNS of 0333.

Figure 25 TRAVER for a national carrier call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9194811234 TNS NA CIC 0333 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . NACAR (CDN NA (TNS NA)$) ( BC 3_1KHZ (CDN NA) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . NACAR ISDN ( XLA NAT)$
```

Figure 25 TRAVER for a national carrier call (Continued)

```
TABLE STDPRTCT
NAT ( 1) ( 0) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA DD 7 T NA C333 Y OFRT 1001 7 22 Y
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
407 Y 127 8 ( 16) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 919 919 FRTD 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D AIN_ATC 0 N N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
407 LPOT ( 1) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
EA:Local override does not apply to this call.
TABLE LATAXLA
L456 919 INTER INTER STD
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT 1001 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
```

Figure 25 TRAVER for a national carrier call (Continued)

```
TABLE OFRT
1001 N D TASBC7ATC 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC             9194811234         ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

International call

For NIPRI signaling, the digits 011 are not sent as part of the CDN. Instead, the TON of international is used to signal an international call.

Figure 26 Sample TRAVER output for an international call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . INCALL (CDN IN $) ( BC 3_1KHZ (CDN IN)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
```

Figure 26 Sample TRAVER output for an international call (Continued)

```
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . INCALL ISDN ( XLA INT)$
TABLE STDPRTCT
INT ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 4 9 N DD 0 IN
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE CCTR
41 T 041 6 13 T OFRT 10 Y $
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . INCALL ISDN ( XLA INT)$
TABLE STDPRTCT
INT ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA DD 7 T IN C222 Y OFRT 1001 7 25 Y
 .  . TABLE OFRTMAP
```

Figure 26 Sample TRAVER output for an international call (Continued)

```
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC             41123456789        ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

International carrier call

For NIPRI signaling, the digits 011 are NOT sent as part of the CDN. Instead, the TON of international calls and a TNS are used to signal an international carrier call.

Figure 27 Sample TRAVER output for an international carrier call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 TNS NA CIC 0333 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
```

Figure 27 Sample TRAVER output for an international carrier call (Continued)

```
 . INCAR (CDN IN (TNS NA)$) ( BC 3_1KHZ (CDN IN) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . INCAR ISDN ( XLA INT)$
TABLE STDPRTCT
INT ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA DD 7 T IN C333 Y OFRT 1001 7 25 Y
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE CCTR
41 T 041 6 13 T OFRT 10 Y $
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
EA:Local override does not apply to this call.
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
```

Figure 27 Sample TRAVER output for an international carrier call (Continued)

```
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT 1001 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
1001 N D TASBC7ATC 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC             41123456789        ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

International operator

For NIPRI signaling, the digits 01 are not sent as part of the CDN on an international operator call. Instead, the TON of international calls and the OSA PUBP are used to signal this call type.

Figure 28 Sample TRAVER output for an international operator

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
```

Figure 28 Sample TRAVER output for an international operator

```
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . INOPER (OSA PUBP (CDN IN)$) ( BC 3_1KHZ (OSA PUBP) (CDN IN)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . INOPER ISDN ( XLA IOP)$
TABLE STDPRTCT
IOP ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 4 9 N OA 0 IN
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE CCTR
41 T 041 6 13 T OFRT 10 Y $
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . INOPER ISDN ( XLA IOP)$
TABLE STDPRTCT
```

Figure 28 Sample TRAVER output for an international operator

```
IOP ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA OA 7 T IN C222 Y OFRT 1001 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          41123456789        ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

International carrier operator

For NIPRI signaling, the digits 01 are not sent as part of the CDN for international operator dialing. Instead, the TON of international along with the OSA PUBP and TNS are used to signal an international carrier operator call.

Figure 29 Sample TRAVER output for an international carrier operator

```
TRAVER TR NIPRI_TEST_TRUNK N CDN IN 41123456789 TNS NA CIC 0333 +
OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . INCAROP (OSA PUBA (CDN IN) (TNS NA)$) (OSA PUBP (CDN IN) (TNS NA)$) ( BC
3_1KHZ (OSA PUBA) (CDN IN) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . INCAROP ISDN ( XLA ICOP)$
TABLE STDPRTCT
ICOP ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 T IN C333 Y OFRT 1001 7 25 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
```

Figure 29 Sample TRAVER output for an international carrier operator (Continued)

```
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE CCTR
41 T 041 6 13 T OFRT 10 Y $
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
EA:Local override does not apply to this call.
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT 1001 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
1001 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          41123456789        ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

National carrier operator

For NIPRI, the equivalent of a 101xxxx + 0 + 10 digit call, is to send in a 10 digit national CDN, an OSA PUBP, and a TNS.

Figure 6-30 Sample TRAVER output for a national carrier operator

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9184843000 TNS NA CIC 0333 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . NACAROP (OSA PUBA (CDN NA) (TNS NA)$) ( BC 3_1KHZ (OSA PUBA) (CDN NA)
(TNS NA)$) (OSA PUBP (CDN NA) (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . NACAROP ISDN ( XLA NCOP)$
TABLE STDPRTCT
NCOP ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 T NA C333 Y OFRT 10 7 22 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
```

Figure 6-30 Sample TRAVER output for a national carrier operator

```
407 Y 127 8 ( 16) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 918 919 FRTD 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D AIN_ATC 0 N N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
407 LPOT ( 1) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
EA:Local override does not apply to this call.
TABLE LATAXLA
L456 918 INTER INTER STD
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT   10 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Figure 6-30 Sample TRAVER output for a national carrier operator

```
DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          9184843000         ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Overview of NIPRI translations

This is the equivalent of (101xxxx + 0-) or (101xxxx + 00-). TRAVERs using either an OSA PUBP or OSA PUBA will be identical, so only the OSA PUBP example is shown here.

Figure 31 Sample TRAVER output for a carrier operator

```
TRAVER TR NIPRI_TEST_TRUNK N TNS NA CIC 0333 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . CAROP (OSA PUBA (TNS NA)$) (OSA PUBP (TNS NA)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . CAROP ISDN ( XLA CAOP)$
TABLE STDPRTCT
CAOP ( 1) ( 0) 2
 . SUBTABLE STDPRT
```

Figure 31 Sample TRAVER output for a carrier operator (Continued)

```
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA OA 7 T NA C333 Y OFRT 10 7 22 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
EA:Local override does not apply to this call.
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
NOT ENOUGH DIGITS FOR SAC CALL
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT   10 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          N                  ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Bell operating company - intralata call

This is the equivalent to a 0 + 10 digit intralata call. Note that the route taken is the position route out of Table STDPRTCT.

Figure 32 Sample TRAVER output for a Bell company operator - intralata call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9164843000 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP $) ( BC 3_1KHZ (OSA PUBP) (CDN
NA)$) ( BC 3_1KHZ (OSA PUBP)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . BOCOP ISDN ( XLA NAOP)$
TABLE STDPRTCT
NAOP ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 9 9 P OA 0 NA RTE1
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
407 Y 127 8 ( 16) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 916 916 FRTE 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
```

Figure 32 Sample TRAVER output for a Bell company operator - intralata call (Continued)

```
 . SUBTABLE RTEREF
 .  118 N D AIN_ATC 0 N N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE POSITION
RTE1 T OFRT 10
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
TABLE LCASCRCN
407 LPOT ( 1) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 AIN_ATC               9164843000         ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

POSITION ROUTES.  POSITION IS: RTE1
1 OP_TO_B_TOPS

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Bell operating company operator - interlata call

This is the equivalent to a 0 +10 digit call going to the interlata operator. This may be the carrier operator or the BOC operator. Note that for this case, the carrier is picked up via the EA option in Table LTCALLS.

Figure 33 Sample TRAVER output for a Bell operating company operator - interlata call

```
TRAVER TR NIPRI_TEST_TRUNK N CDN NA 9184843000 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP $) ( BC 3_1KHZ (OSA PUBP) (CDN
NA)$) ( BC 3_1KHZ (OSA PUBP)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . BOCOP ISDN ( XLA NAOP)$
TABLE STDPRTCT
NAOP ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 9 9 P OA 0 NA RTE1
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
407 Y 127 8 ( 16) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 918 919 FRTD 118
```

Figure 33 Sample TRAVER output for a Bell operating company operator - interlata call

```
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D AIN_ATC 0 N N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE POSITION
RTE1 T OFRT 10
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
TABLE LCASCRCN
407 LPOT ( 1) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
TABLE LATAXLA
L456 918 INTER INTER STD
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . BOCOP ISDN ( XLA NAOP)$
TABLE STDPRTCT
NAOP ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA OA 7 T NO C222 Y OFRT 10 7 22 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT   10 from Pretranslation
```

Figure 33 Sample TRAVER output for a Bell operating company operator - interlata call

```
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          9184843000         ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Bell operating company operator - 7 digit local

This is the equivalent to a 0 + 7 digit call. Note that the result takes the position route out of Table STDPRT.

Figure 34 Sample TRAVER output for a Bell company operator - 7 digit local

```
TRAVER TR NIPRI_TEST_TRUNK N CDN l 4883000 OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP (CDN L)$) (OSA PUBP $) ( BC 3_1KHZ
(OSA PUBP) (CDN NA)$) ( BC 3_1KHZ (OSA PUBP) (CDN L)$) (
```

Figure 34 Sample TRAVER output for a Bell company operator - 7 digit local (Continued)

```
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . BOCOP ISDN ( XLA NAOP)$
TABLE STDPRTCT
NAOP ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 4 9 P OA 0 NA RTE1
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE POSITION
RTE1 T OFRT 10
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
TABLE HNPACONT
407 Y 127 8 ( 17) ( 1) ( 0) ( 0) 0 $
 . SUBTABLE HNPACODE
 . 488 498 HRTE 118
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .  118 N D TASBC7ATC 0 N N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
```

Figure 34 Sample TRAVER output for a Bell company operator - 7 digit local (Continued)

```
TABLE LCASCRCN
407 LPOT ( 1) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC             4883000            ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

POSITION ROUTES.  POSITION IS: RTE1
1 OP_TO_B_TOPS

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Bell operating company operator - zero minus

For a zero minus call, no CDN is present. Only a OSA PUBP is used to signal this call type. Note that Table PXLAMAP is not used for this call type since the call is routed via the zero minus position (ZEROMPOS) in Table XLAPLAN.

Figure 35 Sample TRAVER output for a Bell company operator - zero minus

```
TRAVER TR NIPRI_TEST_TRUNK N OSA PUBP B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . BOCOP (OSA PUBP (CDN NA)$) (OSA PUBP $) ( BC 3_1KHZ (OSA PUBP) (CDN
NA)$) ( BC 3_1KHZ (OSA PUBP)$)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
ZERO MINUS POS FROM TABLE XLAPLAN
TABLE POSITION
RTE1 T OFRT 10
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
```

Figure 35 Sample TRAVER output for a Bell company operator - zero minus (Continued)

```
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++



TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

POSITION ROUTES.  POSITION IS: RTE1
1 OP_TO_B_TOPS          N                   ST3P

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Cut-thru to carrier

This is the equivalent to a 101xxxx call.

Figure 36 Sample TRAVER output for a cut-thru carrier

```
TRAVER TR NIPRI_TEST_TRUNK N TNS NA CIC 0333 B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . CUTTHRU (TNS NA $)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
```

Figure 36 Sample TRAVER output for a cut-thru carrier

```
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . CUTTHRU ISDN ( XLA CUT)$
TABLE STDPRTCT
CUT ( 1) ( 0) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010333 1010333 EA DD 7 T NO C333 Y OFRT 1001 7 7 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  . 1001 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE OCCINFO
C333 0333 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 TASBC7ATC                                    STP

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

00- Carrier Call

For this 00- call, no CDN or TNS are used. For this reason, the EA option in Table LTCALLS is required to designate a PIC. Note that the STDPRT CAOA uses a 'P' XLATYPE for the digits 1010222 so that another STDPRT can be used to look at the digits 00. This XLATYPE of 'P' differentiates this call type from the carrier operator call type.

Figure 37 Sample TRAVER output for a 00- carrier call

```
TRAVER TR NIPRI_TEST_TRUNK N OSA PUBA B
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
 . NIPRI_TEST_TRUNK ( BC ON) (OSA ON) (CDN ON) (TNS ON) ( SR OFF) ( PI
OFF)$
TABLE RTECHAR
 . CAROA (OSA PUBA $)$
TABLE TRKGRP
NIPRI_TEST_TRUNK PRA 0 PRAC NCRT ASEQ N (ISDN 1005) $ $
TABLE LTCALLS
ISDN 1005 PUB XLALEC 26 407_ISDN_26 LPOT_L456_26 (EA C222 Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFTRIG
TABLE LINEATTR
26 ISDNKSET NONE NT 0 0 NILSFC 0 NIL NIL 00 407_ISDN_26 LPOT_L456_26 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
407_ISDN_26 NSCR 407 ISDN RTE1 N $ $
TABLE RATEAREA
LPOT_L456_26 LPOT NIL L456 $
TABLE PXLAMAP
 . CAROA ISDN ( XLA CAOA)$
TABLE STDPRTCT
CAOA ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 00 00 T OA 1 OFRT 126 2 15 NONE
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .  126 N D TASBC7ATC 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
```

Figure 37 Sample TRAVER output for a 00- carrier call

```
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE OCCINFO
C222 0222 EAP Y Y Y Y Y N N Y Y Y Y LONG 0 FGRPD N N Y N Y N N N Y Y N N N
N Y
TABLE EASAC
NOT ENOUGH DIGITS FOR SAC CALL
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
TABLE PXLAMAP
 . CAROA ISDN ( XLA CAOA)$
TABLE STDPRTCT
CAOA ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1010222 1010222 EA OA 7 P P222 C222 Y OFRT 10 7 22 N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE PXLAMAP
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P222 ( 1) ( 0) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 00 00 T OA 1 OFRT 10 2 15 NONE
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .   10 N D OP_TO_B_TOPS 0 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT   10 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
```

Figure 37 Sample TRAVER output for a 00- carrier call

```
TABLE OFRT
  10 N D OP_TO_B_TOPS 0 N N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFFTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 . N11 ( DG N11TRIG1)$ NIL
Trigger AIN N11 is applicable to office.
 . LNP ( DG LNPDIG) ( ESCDN ) ( ESCEA ) ( ESCOP ) ( ESCCN DD_OA)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 OP_TO_B_TOPS          N                   ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 NCRTANNC
2 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Part V
Facility Related Features

Facility related features involve physical custom configuration and are applicable to all PRI customers regardless of their application.

Part V: “Facility Related Features” contains the chapters:

- PRI B-channel Service Messaging
- PRI Sizing with Virtual Facility Groups (VIRTGRPS)
- PRI Backup D-channel

7 PRI B-channel Service Messaging

Description

Nortel proprietary PRI uses service messages to communicate channel states. National ISDN (NIPRI) omits service messages from the specification, leaving algorithms to determine channel states. These algorithms cause mismatched channel states between the central office (CO) and the CPE. Nortel provides service messages on NIPRI as an option. If the CPE supports service messages, Nortel recommends using them. This is also the default option. If the CPE does not support service messages, Nortel recommends using option NO_B-channel_Service Messages.

The datafill for No Service Messaging is an option in Table LTDATA shown in the example below. This only applies to NIPRI.

Figure 7-1 Example of data in Table LTDATA

```
ISDN 95 SERV
SERV Y Y ALWAYS ALWAYS (NO_BCH_SERV) $
```

8 PRI Sizing with Virtual Facility Groups (VIRTGRPS)

Description

VIRTGRPS can be used to restrict the size of a trunk on a per call-type basis.

Tables STDPRTCT and STDPRT translate the call before normal translations. Nortel uses these tables to route the call to a VIRTGRP before normal translations. STDPRTCT has the name specified in Table LINEATTR while Table STDPRT routes on the dialed digits. The call will be routed from STDPRTCT to IBNRTE where a VFG selector routes the call to VIRTGRPS. The call will then continue through normal translations. The figures below show the table flow for Table STDPRTCT as well as an example table.

Figure 8-1 Table flow for Table STDPRTCT

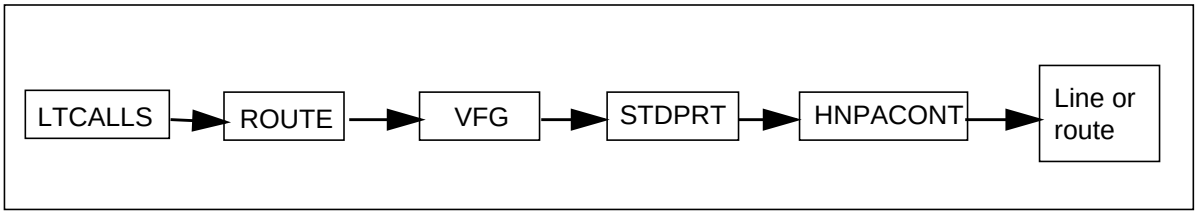


Figure 8-2 Example of Table STDPRTCT

```
            EXTPRTNM   STDPRT   AMAPRT
-----------------------------------------
                PBX    (  1)    (  0)
```

Table STDPRTCT:STDPRT

The following figure below shows an example of Table STDPRTCT:STDPRT.

Figure 8-3 Example of Table STDPRTCT:STDPRT

```
     FROMDIGS              TODIGS
                                PRETRTE
-----------------------------------------------
        548                548
                T DD 0   IBNRTE 1000  3 15    NONE
        549                549
                T DD 0   IBNRTE 1001  3 15    NONE
        550                550
                T DD 0   IBNRTE 1002  3 15    NONE
        551                551
                T DD 0   IBNRTE 1003  3 15    NONE
```

The following table describes Table STDPRTCT:STDPRT.

Table 8-1 Description of Table STDPRTCT:STDPRT (Sheet 1 of 2)

Field name	Description	Settings
FROMDIG	From Digits	FROMDIG. Enter the digit or digits translated. When the entry represents a block of consecutive numbers, enter the first number in the block.
TODIG	To Digits	When field FROMDIG represents a block of consecutive numbers, enter the last number in the block. Otherwise, the entry is equal to the entry in field FROMDIG.
PRETRTE	Pretranslation Route	PRERTSEL. Enter T since translations will route to another routing table that will use the VFG selector.
	Type of Call	TYPCALL. Enter the type of call: DD (direct dial), NL (nil), NP (no prefix), or OA (operator assisted).
	Number of Prefix Digits	NOPREDIG. Enter the number of digits that are interpreted as prefix digits.
	Table Identifier	TABID. Enter IBNRTE because this is the table name to which the translation routes.
	Key	KEY. Enter the index into the IBNRTE table.
	Minimum Digits Received	MINDIGSR. Enter the minimum number of digits collected before routing the call.

Table 8-1 Description of Table STDPRTCT:STDPRT (Sheet 2 of 2)

Field name	Description	Settings
	Maximum Digits Received	MAXDIGSR. Enter the maximum number of digits collected.
	Position	POS. Enter the type of position in Table POSITION that the translation is routed to. Otherwise, the value of this field is NONE.

Table VIRTGRPS

Table VIRTGRPS limits the trunk group size and specifies the new LINEATTR for routing. The figure below shows an example of Table VIRTGRPS.

Figure 8-4 Example of Table VIRTGRPS

```
    KEY                              DATA
                                           OPTIONS
----------------------------------------------------------
  ERIC SIZE    1 POTS  9022225804  300 Y
                                                $
```

The table below describes Table VIRTGRPS.

Table 8-2 Description of Table VIRTGRPS (Sheet 1 of 2)

Field name	Description	Settings
KEY	Virtual Facility Group Key	VIRTGRP. Enter a user defined VFG name.
DATA	Virtual Facility Group Type	VFGTYPE. Enter SIZE to provide sizing capabilities.
	Size	SIZE. Enter the number of simultaneous calls allowed for the VFG. Value between 0 and 2048.
	Incoming Type	INCTYPE. Enter POTS if the call is entering the Plain Ordinary Telephone Service translation environment.
BILLNUM	Billing Number	BILLNUM. Enter the 10-digit billing number to which the next leg of the call is charged. If the call is charged to the originators billing number for the next leg of the call, enter N.

Table 8-2 Description of Table VIRTGRPS (Sheet 2 of 2)

Field name	Description	Settings
LINEATTR	Line Attribute Index	LINEATTR. Enter the line attribute index that specifies the translations and screening tables used for the next leg of the call.
LINECDR	Line Call Detail Recording	LINECDR. Enter Y if CDR is required to record virtual line type calls. Enter N if CDR is not required.
OPTIONS	Options	OPTIONS. Enter EA to indicate Equal Access. Enter the name assigned to the primary inter-LATA carrier (PIC) in Table OCCNAME. Choice - Enter Y if the caller is allowed to dial a 10xxx prefix to choose a carrier manually. Enter N if the caller is not allowed.

The routing table example is illustrated in the Trunk Routing section using the HNPACONT tables.

9 PRI Backup D-channel

Ordering code

Functional group ordering code: NI000011

Functionality ordering code: not applicable

Release applicability

BCS36 and up.

Prerequisites

To operate, PRI Backup D-channel has the following prerequisites:

- NI0 ISDN Base, NI000007
- MDC - MDC Minimum, MDC00001

Description

The Backup Data Channel (D-channel) only provides a hot-standby alternate path. This capability also provides a backup D-channel to be used when the primary D-channel is out of service. Normally, the primary D-channel is in the inservice (INS) state and the backup D-channel is in the standby (STB) state. In a trouble situation, the system automatically switches the activities on the D-channels (for example, when a carrier or trunk at the switching node at the far end fails, or when there are hardware problems at the DMS-100). When you busy an INS D-channel, it activities the STB D-channel automatically. Switching manually to backup D-channel can also be done from a maintenance and administration position (MAP) terminal.

Operation

Datafill the DCHBCKUP subfields in Table TRKSGRP to define the backup D-channel. The DCHNL subfields in Table TRKSGRP are the same as the DCHBCKUP subfields. Detailed datafill descriptions are in the Base Service Capability section of this document.

Limitations and restrictions

Primary Data and Backup Data must be on the same peripheral.

Backup data must a different and higher number than the primary.

Datafill example for Table TRKSGRP

The following example shows sample datafill for Table TRKSGRP.

Figure 9-1 MAP display example of Table TRKSGRP

```
    SGRPKEY        CARDCODE
                                                SGRPVAR
_____________________________________________________

    SL1NTPRI 0 DS1SIG
ISDN 2 2 87Q931 1 N STAND NETWORK PT_PT USER N UNEQ
30 N STRA DTCI 0 0 24 64K HLC
(DTCI 0 1 24 64K HDLC) $
```

Part VI
ISP Data Related Features

ISP in data customer related features applies specifically to internet service providers using PRI.

Part VI: “ISP Data Related Features” contains the chapters:

- PRI Call Forward/Interface Busy
- PRI ISP Even Call Distribution

10 PRI Call Forward/Interface Busy

Ordering codes

Functional group ordering code: NI000047

Functionality ordering code: not applicable.

Release applicability

NA013 and up.

Requirements

The Call Forward/Interface Busy (CFIB) feature has no functional group requirements.

Description

The CFIB feature provides the capability to forward calls to a remote directory number (DN) when the routelist to the base DN is busy. The term interface in this feature refers to the routelist entry in the routing tables. A routelist is considered busy when all routes in the routelist are call processing busy, out-of-service, or unavailable. When the base DN subscribes to the CFIB feature, the call is redirected to a new DN, also known as the remote DN.

The customers targeted for CFIB are the internet service providers (ISP). One application of this feature is to forward the calls from a location in one time zone, whenever the routelist is busy, to another location in a different time zone where there may be less traffic. Another application of this feature is to provide a way to handle routing during disaster situations that cause the routelist to be unavailable.

The basis for CFIB subscription is by individual DN. All DNs that subscribe to CFIB are referred to as base DNs in this document. The DNs to which the calls are forwarded are referred to as remote DNs. The originating DN is the DN of the user that calls the base DN.

Operation

When a call to a base DN fails due to the routelist being call processing busy, out-of-service, or unavailable and if the base DN subscribes to CFIB, then the switch forwards the call to a remote DN based on the bearer capability of the incoming call. The switch forwards the call to the remote DNs provided the following conditions are met:

- the call is a circuit-mode call
- this feature supports the bearer capability of the call
- the maximum redirection count is not reached

The redirection data, which consists of the original called number (OCN), the redirecting number (RGN), and the redirecting reason (RGR), are sent to the originator and the terminator.

Limitations and restrictions

The limitations and restrictions that follow apply to the For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules. feature.

- The base DN and the remote DN must be assigned on different switches. Therefore, CFIB can only be activated once for each call in the base SPCS.
- The remote DN must not subscribe to CFIB. The software does not enforce this restriction.
- Only the following types of originators support the CFIB feature:
  - PRI trunks
  - ISUP trunks
  - IBN MF trunks
  - BRI lines
  - POTS lines
  - RES lines
  - IBN lines
- The routelists that are still being referenced by the CFIB feature DNs in the DNROUTE table should not be deleted from the routing tables. This restriction is not enforced by software.
- This feature provides no software restriction to prevent other trunks besides National ISDN (NI2) and NTNA PRI trunks from being provisioned in the routelist to the base DN, However, testing is performed with NI2 and NTNA PRI trunks only.
- The calls forwarded as a result of CFIB must be terminated on ISUP trunks only.

- The provisioned billing DN in table DNROUTE must be a 10-digit number.
- The capability of displaying information on the origination and termination display sets is not supported.
- Database or TCAP type queries are not supported on the forwarding leg of CFIB. Portable numbers, E800 numbers, etc. cannot be datafilled as the remote DN (Forward-To number) for CFIB.

Interactions

The paragraphs that follow describe how the CFIB card interacts with other functionalities.

When Call Forward (CFW-all kinds), Advanced Intelligent Network (AIN) redirections, key short hunt (KSH) or line overflow to DN (LOD) occurs before CFIB, the original called number (OCN) and the original redirecting reason (ORR) are provided by these redirection features. Redirecting number (RGN) and redirecting reason (RGR) are provided by the CFIB. In these cases, the RGN is the base DN provisioned with CFIB. The RGR is user busy.

Only AIN redirections are allowed to occur after CFIB. In this case, CFIB provides the OCN (the base DN) and ORR (user busy). AIN redirections provide the RGN and RGR.

The size limitation in VIRTGRPS is the total number of calls present on the base DN route plus the number of active CFIB calls when the switch uses a virtual facility group (VFG) to route calls to a base DN.

Billing

The CFIB feature generates two automatic message accounting (AMA) records. The feature generates one AMA record for the originating DN to the base DN portion of the call. The feature generates a second AMA record for the base DN to the remote DN portion of the call. The second AMA record uses a special billing DN, which the DNROUTE table provisions. The CFIB feature appends the ISDN core module (Module 70/71) to the AMA record of the base DN to the remote DN portion of the call.

Datafill related to Call Forward/Interface Busy for Table CFIBDATA

The table that follows provides the datafill related to Call Forward/Interface Busy feature for Table CFIBDATA. This table includes only those fields that apply directly to the Call Forward/Interface Busy feature, and gives the

flexibility to route calls of different bearer capabilities to different and remote DNs.

Table 10-1 Datafill related to Table CFIBDATA

Field	Subfield	Entry	Explanation and action
CFIBID		A string of up to 16 characters	CFIB identifier. This is the key to a tuple in Table CIFBDATA. This identifier is specified in Table DNROUTE for a DN subscribing to the CFIB option.
RDNSPCH		DN (maximum 15 digits)	DN to which the call is forwarded if the incoming bearer capability is Circuit-Mode Speech.
RDN3KAUD		DN (maximum 15 digits)	DN to which the call is forwarded if the incoming bearer capability is Circuit-Mode 3.1 kHz Audio.
RDN64KUD		DN (maximum 15 digits)	DN to which the call is forwarded if the incoming bearer capability is Circuit-Mode Unrestricted Digital Information (64kbit/s)
RDNUDAD		DN (maximum 15 digits)	DN to which the call is forwarded if the incoming bearer capability is Circuit-Mode Unrestricted Digital Information adapted from 56kbit/s to 64kbit/s.

Datafill example for Table CFIBDATA

The figure that follows shows sample datafill for the Table CFIBDATA.

Figure 10-1 MAP example for Table CFIBDATA

```
CFIBID  RDNSPCH    RDN3KAUD  RDN64KUD    RDNUDAD
-------------------------------------------------
CFIB1   5551000    5551007   7915551111  8015551003
```

SERVORD

The CFIB feature uses the Service Order System (SERVORD).

SERVORD limitations and restrictions

The CFIB feature has no SERVORD limitations or restrictions.

SERVORD prompts

The following table provides the SERVORD prompts used to add to a DN or block of DNs.

Table 10-2 SERVORD prompts for For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules. (Sheet 1 of 2)

Prompt	Correct input	Explanation
SNPA	Valid SNPA provisioned in Table TOFCNAME	Serving Numbering Plan Area. Enter the area code for the DN.
BLOCK_OF_DNS	YES or NO	Block of Directory Numbers. Enter YES if CFIB option is to be provisioned for a range of DNs.
DN	Valid DN	Directory Number. The switch displays this prompt if the response to the BLOCK_OF_DNS is NO. Enter a valid DN to which CFIB is to be provisioned.
FROM_DN	Valid DN	From Directory Number. The switch displays this prompt if the response to the BLOCK_OF _DNS is Yes. Enter the first DN in the range of DNs.
TO_DN	Last 3 digits in the range of DNs.	To Directory Number, The switch displays this prompt if the response to the BLOCK_OF _DNS is Yes and follows the FROM_DN prompt.
VDNTYPE	CFIB	Virtual Directory Number Type. Enter CFIB for the Call Forward/Interface Busy feature.
TABNAME	OFRT, OFR2, OFR3, OFR4. IBNRTE, IBNRT2, IBNRT3, IBNRT4	Table Name Routelist. Enter the routing table that contains the routelist to the base DN.

Table 10-2 SERVORD prompts for For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules. (Sheet 2 of 2)

Prompt	Correct input	Explanation
INDEX	0–1023	Route Index.Enter the route index of the table entered in response to the TABNAME prompt.
CFIBID	Valid index in table CFIBDATA	CFIB Identifier. Enter the index into table CFIBDATA.
CFIBSBDN	10-digit DN	CFIB Special Billing Directory Number. Enter the special billing DN used to bill the base DN to remote DN portion of the CFIB call.
RPNPP	Y or N	Remote Party Number Presentation parameter. Enter Y or N to indicate whether the presentation of the remote party number (remote DN) is allowed.

SERVORD example to add CFIB

The following SERVORD example shows how to add the CFIB feature to a block of DNs with the SERVORD NEWDN command in prompt mode.

Figure 10-2 SERVORD example for CFIB in prompt mode

```
>NEWDN
SONUMBER:  NOW 99 6 18 PM
>
SNPA:
> 613
BLOCK_OF_DNS:
> YES
FROM_DN:
>7222000
TO_DN:
> 300
VDNTYPE:
> CFIB
CFIBSBDN:
> 6137221010
TABNAME:
> IBNRTE
INDEX:
> 20
CFIBID:
> CFIB1
RPNPP:
>Y
OPTION:
> $
```

The following SERVORD example shows how to add CFIB to a block of DNs with the SERVORD NEWDN command in no-prompt mode.

Figure 10-3 SERVORD example for CFIB in no-prompt mode

```
NEWDN $ 613 YES 7222000 300 CFIB 6137221010 IBNRTE 20 CFIB1
Y $
```

Datafill related to CFIB for Table DNROUTE

The following table provides the datafill related to the CFIB feature for Table DNROUTE. This table is datafilled automatically with Table DNINV by SERVORD. This datafill is included only to help in understanding the

translation and in changing a field without deleting the feature from the DN. This table includes only those fields that apply directly to the CFIB feature.

Table 10-3 Datafill related to Table DNROUTE

Field	Subfield	Entry	Explanation and action
FEAT		CFIB	Feature. Enter CFIB for the Call Forward/Interface Busy feature
TABNAME		OFRT, OFR2, OFR3, OFR4, IBNRTE, IBNRT2, IBNRT3, IBNRT4	Table Name. Specify the routelist that is used to route the incoming call to the base DN.
INDEX		1–1023	Enter the index into the routing table.
CFIBID		A string of up to 16 characters	Index of Table CFIBDATA used to get information about remote DNs.
CFIBBASE		Common Language Location Identifier (CLLI)	This PRI CLLI becomes the originator of the forwarded call to the remote DN when all routes in the routelist are busy.
CFIBSBDN		A 10-digit number	Billing number to be used for the base DN to remote DN portion of the CFIB call
RPNPP		Y or N	Indicate whether the presentation of the remote party number (remote DN) is allowed. The default is Y.

Datafill example for Table DNROUTE

The following figure shows sample datafill for Table DNROUTE.

Figure 10-4 MAP example for Table DNROUTE

```
FEATURE  TABNAME   INDEX CFIBID  CFIBBASE CFIBSBDN    RPNPP
-------------------------------------------------------------
CFIB     IBNRTE    20    CFIB1   CLLI1    6135551010    Y
```

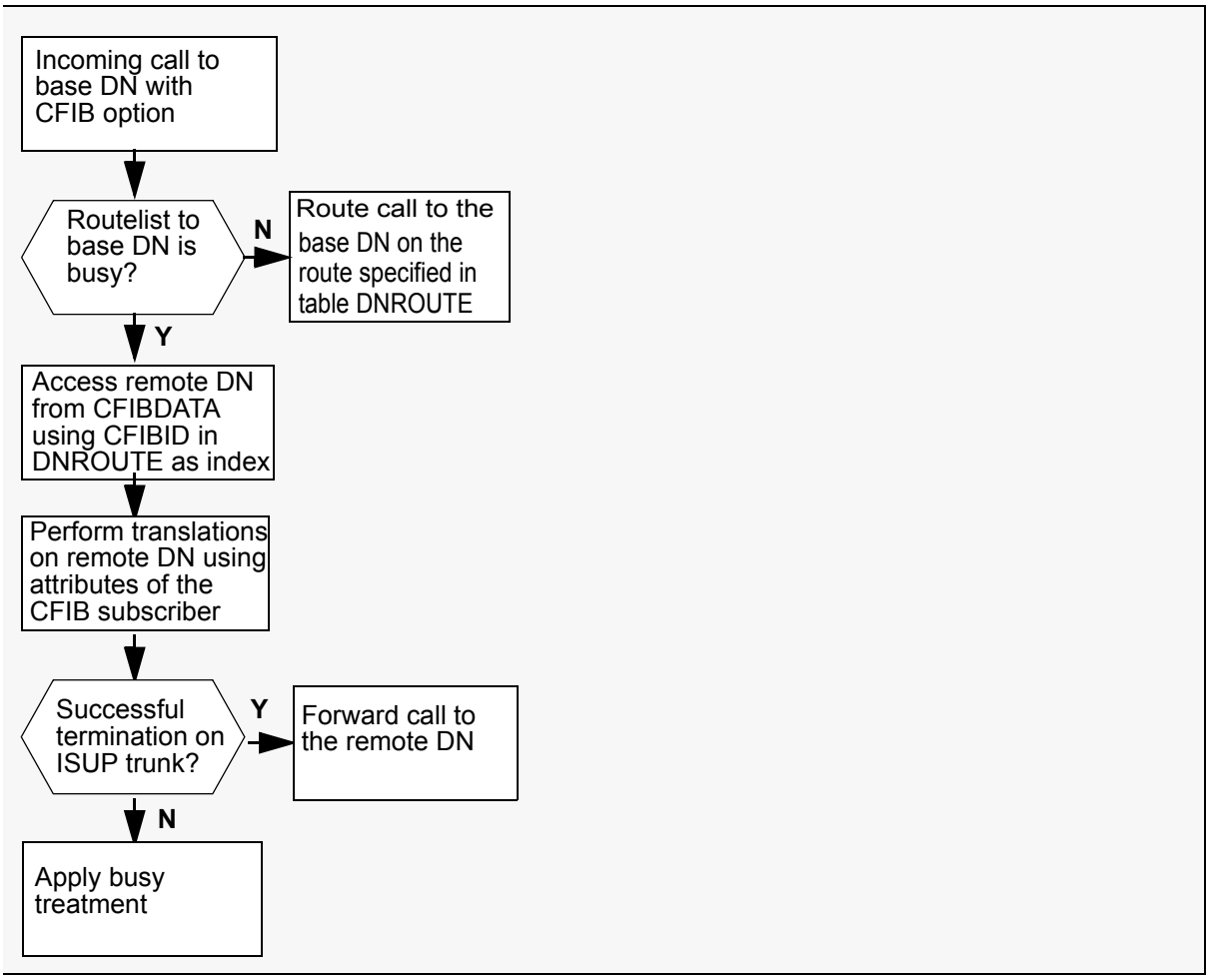
Translations table flow

The CFIB feature translations tables are:

- DNROUTE
- CFIBDATA

The flowchart that follows provides the CFIB feature translations process.

Table flow for CFIB



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

Table 10-4 Datafill example for CFIB

Datafill table	Example data
CFIBDATA	CFIB1 5551000 5551007 7915551111 8015551003
DNROUTE	613 722 8880 FEAT CFIB IBNRTE 20 CFIB1 ISDN 1012 6135551010 Y

History

SN08 (DMS)

Q01038988: addition of a bullet point, concerning Database or TCAP type queries, to the Limitations and restrictions section.

11 PRI ISP Even Call Distribution

ISP Even Call Distribution ordering codes

Functional group ordering codes: NI000036

Functionality ordering codes: not applicable

Release applicability

NA010 and up.

Description

ISP Even Call Distribution provides the following functionality to internet access providers (IAP) and internet service providers (ISP):

- An even distribution of calls across a set of possible trunk members.
- Support of a maximum of 220 primary rate interface (PRI) trunk groups in a PRI route list.
- Prevention of call retranslation between PRI trunk groups (and reduced use of real time) through the use of super-groups.
- A maximum number of trunk group attempts.

  Setting a maximum number of trunk-group attempts conserves real time during busy periods. With this limit, the switch searches only a fixed number of trunk groups during call routing. During busy periods, the switch returns an all trunks busy (ATB) indication instead of providing no treatment or delayed treatment to a caller. The maximum number of trunk-group attempts can range from 1 to 220.

  Note: ISP Even Call Distribution introduces a recommended maximum number of attempts of 50 (based on 23 members in each trunk group). A warning message displays if the operating company sets the maximum number of trunk-group attempts to a value greater than 50.

Operation

The circular hunt capability is an advantage for switches connected to ISPs. Before the ISP Even Call Distribution feature, the following problems existed in these switches:

- Overuse of the first trunk group on the list.
- Retranslation used additional processor real time.
- Killer trunks repeatedly selected.

ISP Even Call Distribution reduces or eliminates these problems.

The process of finding an IDL channel to complete a call involves two hunting algorithms. The first, done with the SG selector in the routing table, determines which trunk group will be selected. The second, done with the Selection Sequence (SELSEQ) field in Table TRKGRP, determines which channel within the trunk group will be selected.

The SuperGroup is a list of trunk groups in Table SUPERTKG indicated in the SG route. Trunk groups are selected either Clockwise (CHCL) or Counterclockwise (CCHCL). Clockwise will start with the first Supertrunk trunk group and proceed down the list. Counterclockwise will start with the last Supertrunk trunk group and continue up the list. Valid routing tables are IBNRTE, IBNRT2, IBNRT3, IBNRT4, OFRT, OFR2, OFR3, OFR4, HNPSCONT, FNPACONT (RTEREF), ACRTE, PXRTE, CTRTE, FARTE, OFCRTE, FTRTE, and NSCRTE. When the number of attempts (ATTEMPTS) is reached without finding an IDL trunk, the call is terminated, and an All Trunks Busy (ATB) indication is sent.

Table TRKGRP determines how the channels within the trunk group will be selected. Field SELSEQ will be set to either SG_CWCTH, or SG_CCWCTH. If SG_CWCTH is used, the switch starts after the last searched member and continues clockwise or ascending order. When it searches to the last member without finding an IDL member, it proceeds to the next trunk group as described above. When SG_CCWCTH is used, the switch starts after the last searched member and continues counterclockwise or descending order. When it searches to the first member without finding a IDL member, it proceeds to the next trunk group as described above.

The table below shows the field descriptions for the trunk group selection sequence in Table IBNRTE.

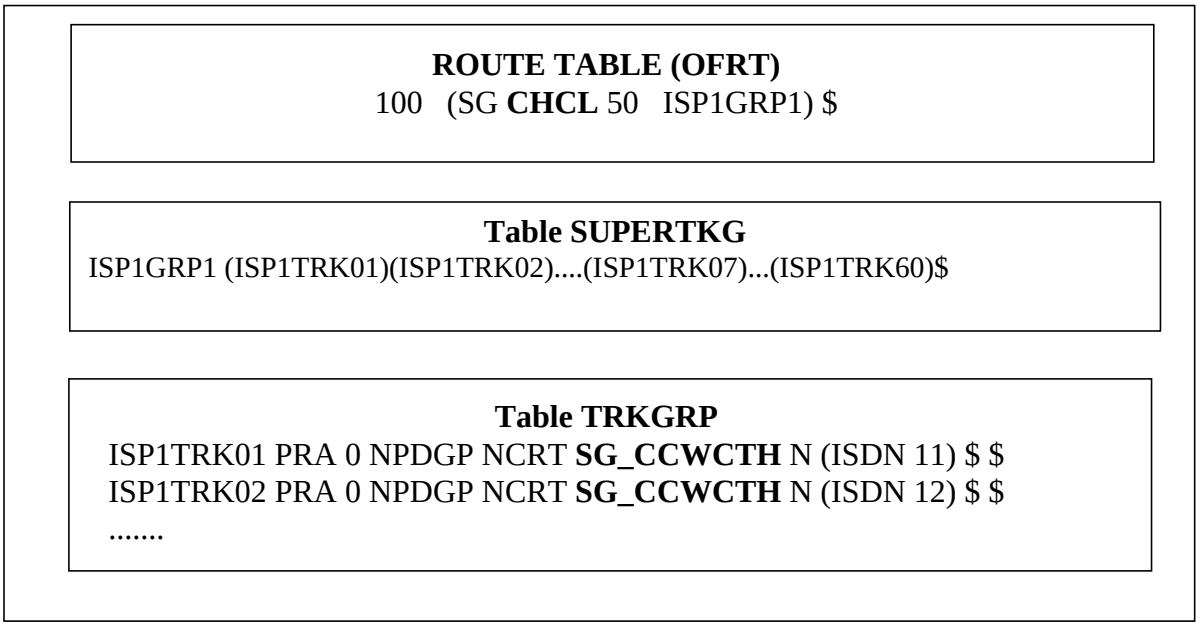
Table 11-1 Description of fields in Table IBNRTE

Field	Subfield	Entry	Description
IBNRTSEL		SG	Routed through a tuple in Table SUPERTKG.
	ALGORITHM	CHCL, CHCCL	Algorithm. Enter one of the following: • CHCL (circular hunt in clockwise direction). • CHCCL (circular hunt in counterclockwise direction).
	ATTEMPTS	Numeric (1–220)	Attempt number. The maximum number of trunk groups to be tested for a free trunk member. If greater than 50, DFIL616 is generated. Maximum of 50 is recommended.
	SUPERTKG_ NAME	Alphanumeric (1 to 16 characters)	Super-trunk Group Name. Enter the name of the super-trunk group listed in Table SUPERTKG.

Even call distribution through CHCL and SG_CWCTH

The combination of CHCL and SG_CWCTH provides the best selection process for a complete clockwise search at the trunk group and member levels. The following figure shows an example of table data entries for this combination.

Figure 11-1 Example of table entries for CHCL and SG_CWCTH combination



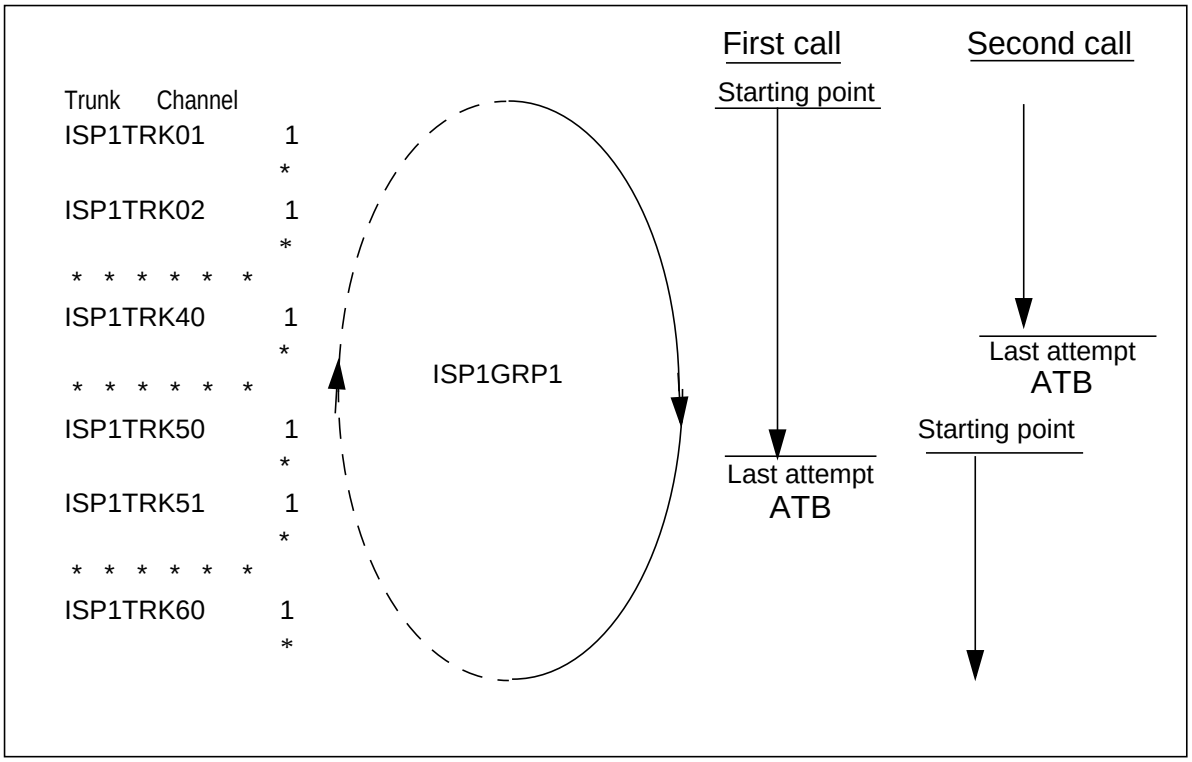
For this example, call processing routes a call through Table OFRT tuple 100. This starts a circular hunt search in the clockwise direction (CHCL) in Table SUPERTKG tuple ISP1GRP1.

The search starts at trunk-group ISP1TRK01. For this trunk group, the SELSEQ field from Table TRKGRP is SG_CWCTH. The search for a free trunk member starts from the first member of ISP1TRK01 until it reaches the last member. If the selection process finds a free trunk member, it offers the trunk member to the call.

For subsequent calls, the search starts from the last accessed trunk group for routing the call (for example, ISP1TRK02). In the trunk group ISP1TRK02, the selection sequence (SELSEQ) is SG_CWCTH. With this selection sequence, the search for a free member starts at the trunk member after the last searched trunk member and continues through the last member in this (ISP1TRK02) trunk group. When the selection process cannot find a free trunk in this trunk group, it selects (in a clockwise direction) the next trunk group in the super group ISP1GRP1 to route the call.

The following figure shows a representation of the selection process when CHCL and SG_CWCTH are datafilled. The ellipse indicates that all members of the trunk groups in a super trunk group are searched as though they were all in one group.

Figure 11-2 Representation of the route selection process when CHCL and SG_CWCTH are datafilled

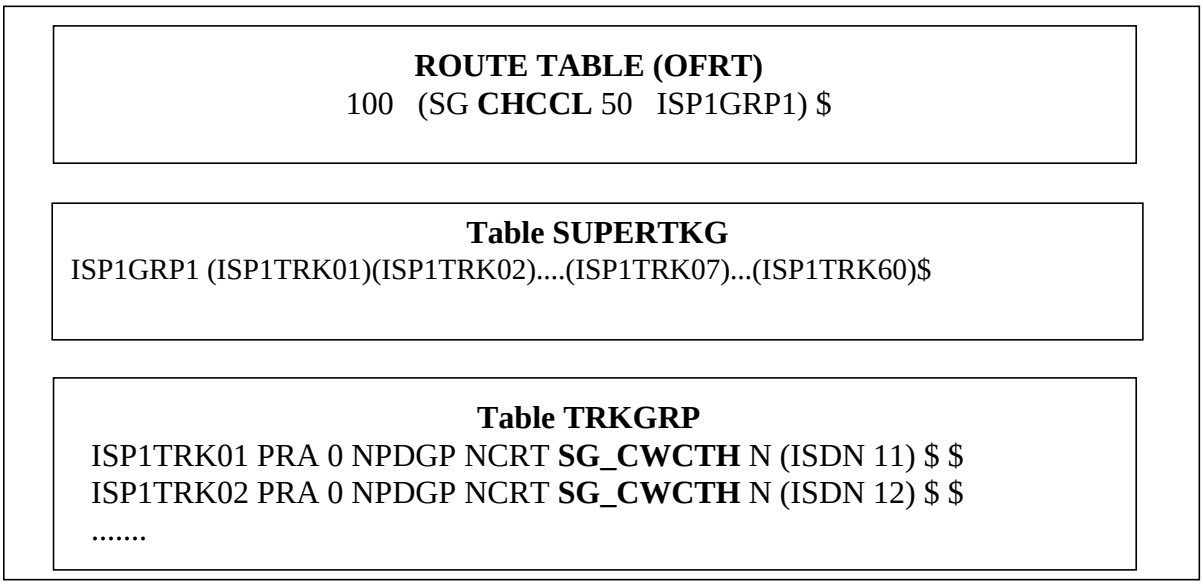


When 50 trunk groups (for example, from ISP1TRK01 to ISP1TRK50) are searched and no free trunk member is available, the DMS sends an ATB indication and stops the call routing process. When the call routing process accesses tuple 100 in Table OFRT to route the next call, the search starts from the first trunk member of the trunk group ISP1TRK51 and continues in a clockwise direction. If the selection process finds no free member in trunk group ISP1TRK60, the search returns to the first trunk group (ISP1TRK01). The ATTEMPTS value in this example is set at 50, therefore the search stops at ISP1TRK40 if an idle member cannot be found. The DMS switch sends an ATB indication and stops the call routing process.

Even call distribution through CHCCL and SG_CCWCTH

The combination of CHCCL and SG_CCWCTH provides the best selection process for a complete counterclockwise search at the trunk group and member levels. The following figure shows an example of table data entries for this combination.

Figure 11-3 Example of table entries for CHCCL and SG_CCWCTH combination



For this example, a call is routed through Table OFRT tuple 100. This starts a circular hunt search in a counterclockwise direction (CHCCL) in Table SUPERTKG tuple ISP1GRP1.

The search starts from trunk group ISP1TRK01. For this trunk group the SELSEQ field from Table TRKGRP is SG_CCWCTH. This starts the search from the last member of ISP1TRK01 and continues until it reaches the first member. When no free member is found, the call proceeds to the last trunk group (ISP1TRK60). When the selection process finds a free trunk member, the member is offered to the call.

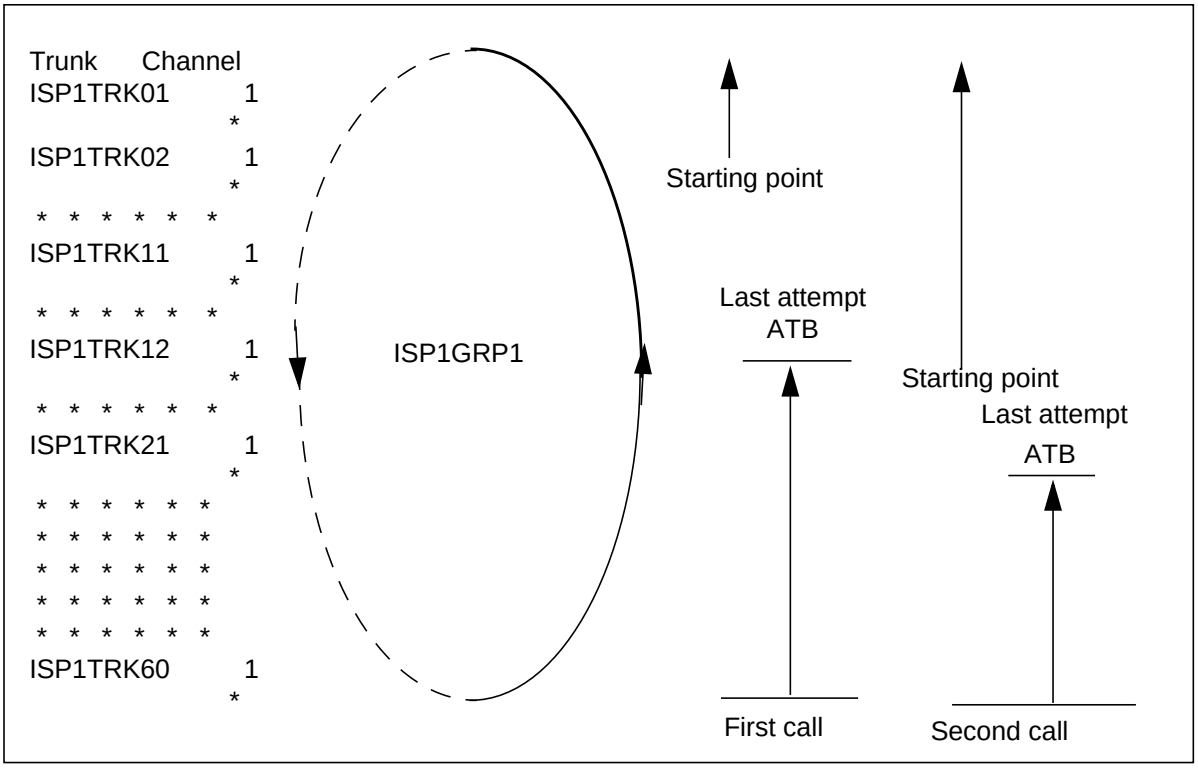
For the subsequent calls, the selection process starts the search from the last accessed trunk group for routing the call (for example, ISP1TRK59). In trunk group ISP1TRK59, the SELSEQ is SG_CCWCTH. This selection sequence starts the search from the trunk member previous to the last searched trunk member. The selection process searches up to the first member in this (ISP1TRK59) trunk group for a free member. When it cannot find a free member in this trunk group, the selection process selects the next trunk group (in reverse order) in the super group ISP1GRP1 to route the call.

When 50 trunk groups (for example, ISP1TRK01 and from ISP1TRK60 to ISP1TRK12) are searched and no free trunk member is available, the DMS switch sends an ATB indication and stops the call routing process. When the routing process accesses tuple 100 in Table OFRT to route the next call, the search starts from trunk group ISP1TRK11 and continues in a counterclockwise direction. When no free member is available in trunk group ISP1TRK01, the search proceeds to the last trunk group (ISP1TRK60) and

continues the search for a free member. The ATTEMPTS value in this example is 50, therefore the search for this call stops at ISP1TRK21 if an idle member cannot be found. The DMS switch sends an ATB indication and stops the call routing process.

The following figure shows a representation of the route selection process when CHCCL and SG_CCWCTH are datafilled.

Figure 11-4 Representation of the route selection process when CHCCL and SG_CCWCTH are datafilled



Limitations and restrictions

The following limitations and restrictions apply to ISP Even Call Distribution:

- ISP Even Call Distribution supports only PRI trunks.
- ISP Even Call Distribution supports only narrow-band PRI calls.
- ISP Even Call Distribution supports only NTNI and NTNA PRA trunk types.
- For complete circular selection with super-groups, use either the SG_CWCTH or SG_CCWCTH selection algorithm for all trunk groups in a super-group. Do not "mix" these selection algorithms among trunk

groups in a super-group. For example, when using CHCL, use SG_CWCTH. When using CHCCL, use SG_CCWCTH.

- The recommended ATTEMPTS value of 50 is based on a total of 23 B-channels in each trunk group. With non-facility associated signaling (NFAS), reduce the ATTEMPTS value so that the total number of B-channels searched in a super-group does not exceed 1150.

Datafill sequence

The following table lists the tables that require datafill to implement ISP Even Call Distribution. The tables are listed in the order in which they are datafilled.

Table 11-2 Datafill tables required for ISP Even Call Distribution

Table	Purpose of table
TRKGRP	Trunk Group. This information includes the B-channel selection sequence.
Routing tables	The routing tables specify the route or routes to follow after call translation.

Datafilling Table TRKGRP

The following table shows the datafill specific to ISP Even Call Distribution for Table TRKGRP. Only those fields that apply directly to ISP Even Call Distribution are shown. Note that this also applies to universal and IBN translations.

Table 11-3 Datafilling Table TRKGRP (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
GRPKEY		See subfield	Group Key. This field consists of subfield CLLI.
	CLLI	Alphanumeric (1–16 characters)	Common Language Location Identifier. This subfield specifies the CLLI code assigned to the trunk group in Table CLLI.

Table 11-3 Datafilling Table TRKGRP (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
GRPINFO		See subfield	Variable Group Data. This field consists of subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, SELSEQ, BILLDN, LTID, and OPTIONS. Only subfield SELSEQ applies to ISP Even Call Distribution.
	SELSEQ	SG_CWCTH, SG_CCWCTH	Selection Sequence. • Enter SG_CWCTH to specify super-group circular hunting in the clockwise direction. ***Note:*** For best results, use the SG_CWCTH algorithm with the CHCL super-group selection algorithm defined in the routing table. • Enter SG_CCWCTH to specify super-group circular hunting in the counterclockwise direction. ***Note:*** For best results, use the SG_CCWCTH algorithm with the CHCCL super-group selection algorithm defined in the routing table.

Datafill example for Table TRKGRP

The following example shows sample datafill for Table TRKGRP.

Figure 11-5 MAP display example for Table TRKGRP

```
GRPKEY        GRPINFO
_____________________________________________________

64K7DT0 PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 20) $ $
64K8DTO PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 21) $ $
```

Methods of changing subfield SELSEQ value

Changes to the trunk selection method for a trunk group (subfield SELSEQ) are allowed for some trunk selection methods, under certain conditions. The following table lists the methods of changing the value of subfield SELSEQ.

Table 11-4 Methods of changing SELSEQ value

Current SELSEQ value	New SELSEQ value	Method of changing SELSEQ value
ASEQ or DSEQ (without feature AD3901) (Note)	SG_CWCTH, SG_CCWCTH	Change the entry in Table TRKGRP by placing the trunk group (all B- and D-channels) in installation busy (INB) state. The change is in effect from the next call after dynamic download is complete.
ASEQ or DSEQ (with feature AD3901) (Note)	SG_CWCTH, SG_CCWCTH	Change the entry in Table TRKGRP without changing the B- and D-channel states. The change is in effect from the next call after dynamic download is complete.
CWCTH or CCWCTH	SG_CWCTH, SG_CCWCTH	Change the entry in Table TRKGRP without changing the B-channel and D-channel states. The change is in effect from the next call after dynamic download is complete.
MIDL or LIDL	SG_CWCTH, SG_CCWCTH	Deprovision the interface and provision the interface again.

Part VII
Private Branch Exchange (PBX) Related Features

PBX features apply specifically to voice/data PRI customers.

Part VII: “Private Branch Exchange (PBX) Related Features” contains the chapters:

- PRI Message Waiting Indicator
- PRI E911 Preferred DN
- PRI Networked ACD
- PRI Bearer Capability Routing
- PRI Service Identifier Routing
- PRI Call Screening
- PRI Calling Line Identification
- PRI Calling Name Delivery
- PRI Network Ring Again
- PRI Subscriber Usage Sensitive Pricing for CNAME
- PRI Two B-channel Transfer
- PRI with Semipermanent Packet

12 PRI Message Waiting Indicator

Ordering codes

Functional group ordering code: NI000052

Functionality ordering code: NA

Release applicability

NA011 and up

Requirements

To operate, PRI Message Waiting Indicator NIPRI requires AF7569, Non-Call Associated Signaling (NCAS).

Description

Base MWI Control using NIPRI provides MWI control that is common to local and remote client users. This activity addresses support of Serving PRI Group as an interface between the DMS-100 switch and the ISDN Message Storage and Retrieval (MSR). Base MWI Control using NIPRI functions with pre-NA011 offerings of MWI control for remote client users.

The feature AF7776 allows a host DMS-100 switch to receive and acknowledge MWI control requests using public NIPRI NCAS connections that are established between the host DMS-100 switch and an ISDN MSR. An NCAS connection allows supplementary services on ISDN class II equipment, such as MWI Control, to communicate with the DMS-100 switch without setting up a circuit switched (B-channel) connection.

Operation

Base MWI Control using NIPRI is activated by provisioning the appropriate tables. Users can activate voice-mail notification with an access code.

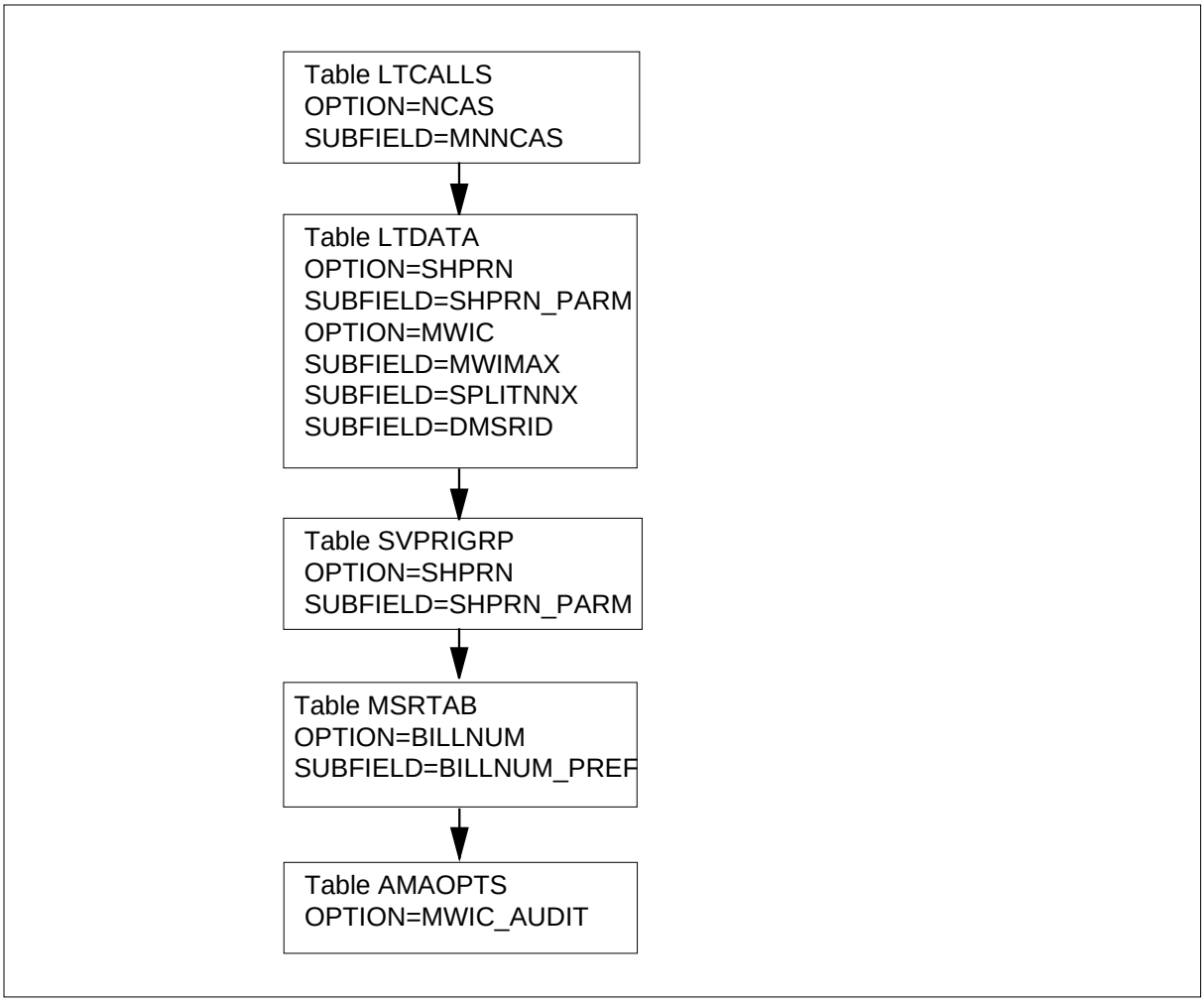
Translations table flow

The PRI Message Waiting Indicator NIPRI translations tables are:

- Table LTCALLS
- Table LTDATA
- Table SVPRIGRP
- Table MSRTAB
- Table AMAOPTS

The following flowchart provides the PRI Message Waiting Indicator NIPRI translations process.

Figure 12-1 Table flow for PRI Message Waiting Indicator NIPRI



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

Table 12-1 Datafill example for PRI: Base MWI Control Using NI-PRI

Datafill table	Example data
LTCALLS	ISDN 500 PUB XLALEC 0 (NCAS 5) $
LTDATA	ISDN 502 SERV SERV Y SCREENED ALWAYS (RNDELV SCREENED) (SHPRN YYYY) ISDN 503 SERV SERV N N ALWAYS ALWAYS(MWIC 500 N9195551234)$
SVPRIGRP	MSR_SRVGRP1 3 (ISDN 109)(ISDN 110)(ISDN 1111)(SHPRN YYYY)
MSRTAB	6137216050 $ 8197228907 $ 7777777777(BILLNUM 6137223001 N)$
AMAOPTS	MWIC_AUDIT PERIODIC 980620 0000 24 HRS

Limitations and restrictions

The following limitations and restrictions apply to PRI Message Waiting Indicator NIPRI.

Message services directory number provisioning

The following limitations and restrictions apply:

- The ``virtual" Message Services Directory Number (DN) of Table DNROUTE is not explicitly identified as a Message Services DN. The Message Services DN points to an index of the routing tables, which routes calls to the terminating PRI trunk group.
- The routing tables do not prevent a non-ISDN NIPRI trunk group from being specified as a terminating interface.
- The PRI Super Trunk Group list does not prevent a non-ISDN NIPRI trunk group from being specified as a terminating interface.

MSRID billing number and automatic message accounting generation

The following limitations and restrictions apply:

- Automatic Message Accounting/Billing Record

  In the automatic message cccounting (AMA) record Daily Aggregate Service Events (DASE) module (code 072), the Interstate count field is used and filled with ``FFFFFF" in accordance with Bellcore AMA Format (BAF) fill procedure. All the counts are populated in the Intrastate count field.

North American DN system only

NIPRI works only in North American loads using North American DN system. This feature will not work with North American loads using Universal DN system.

Office parameter MAX_NUM_PRI_MWIC_CONTROL

The office parameter MAX_NUM_PRI_MWIC_CONTROL can be in the range of 8-4500. The DMS-100 switch supports up to 4500 outstanding MWI transactions.

A verification procedure is in place for this office parameter. During the table control change, when the value of the office parameter is being decreased, the input value is verified against the sum of MWIMAX provisioned on all PRI interfaces. If the input value is less than the sum, the change is rejected, and the following error message generated:

```
The value cannot be less than the sum of MWIMAX
```

Option SHPRN-serving PRI group configuration

The verification process of Table SVPRIGRP fails the attempt to add the special handling of presentation restricted numbers (SHPRN) option under the following conditions:

- Option SHPRN added against non-NIPRI interface

  The SHPRN option follows GR-866-CORE requirements and is only applicable to the variant NIPRI. The Serving PRI Group concept is only supported by the variant NIPRI. If an attempt is made to provision the SHPRN option in Table SVPRIGRP, the verification process generates the following error message:

  The SHPRN option and Serving PRI Groups are only supported by the NIPRI variant only.

- Option SHPRN added without CGNDELV and RNDELV

  The SHPRN option follows GR-866-CORE requirements and is only valid with the features CGNDELV and RNDELV in Table LTDATA. If adding the SHPRN option to a Serving PRI Group with members that do not have CGNDELV and RNDELV provisioned, the verification process generates the following error message:

  ```
  Serving PRI Group members must have CGNDELV and RNDELV
  features of Table LTDATA to provision SHPRN against a Serving
  PRI Group
  ```

The verification process of Table LTDEF fails the attempt to change the variant from NIPRI to any other variant if the interface is part of a Serving PRI Group. The verification process generates the following error message:

```
PGRPID supported for NIPRI variant only
```

Option SHPRN-single PRI configuration

The verification process of Table LTDATA fails the attempt to add the SHPRN option under the following conditions:

- Option SHPRN added against non-NIPRI interface

  The SHPRN option follows GR-866-CORE requirements and is only applicable to the variant NIPRI. If adding the SHPRN option to an LTID in Table LTDATA that is not defined as NI-PRI, the verification process generates the following error message:

  ```
  SHPRN option is only valid on NIPRI LTID
  ```

- Option SHPRN added without RNDELV

  Option SHPRN follows GR-866-CORE requirements and is only correct with the option RNDELV in Table LTDATA. If adding the SHPRN option to an LTID that does not have RNDELV provisioned, the verification process generates the following error message:

  ```
  The SHPRN option requires RNDELV and CGNDELV set to screened
  before adding the SHPRN option
  ```

The verification process of Table LTDEF fails the attempt to change the variant from NIPRI to any other variant if the SHPRN option is provisioned against the corresponding LTID in Table LTDATA. The verification process generates the following error message:

```
INVALID CHANGE: Delete the SHPRN option entry from Table LTDATA
for this interface before changing the PRI variant
```

PRI MWI control processing-destination DN is a remote client user-TCAP query with MWI control request

The message transfer part (MTP) priority of the transaction capabilities application part (TCAP) query remains 1, which is not compliant with the GR-866-CORE requirement of 0.

Regardless of the type of number (TON) and the numbering plan identifier (NPI) that the destination DN has in the MWI control request, the DMS-100 switch always encodes TON and NPI in the TCAP query as National (00000000) and ISDN Numbering Plan (0001) respectively.

The DMS-100 switch always encodes the MSRID (00001100) in the TCAP query with TON of National (00000000) and with the NPI of an ISDN Numbering Plan (0001).

Regardless of whether or not bearer capability is present in the MWI control request, the DMS-100 switch always encodes bearer capability in the TCAP query with the following:

- Coding standard of International Telegraph and Telephone Consultative Committee (CCITT) standard
- Information transfer capability of SPEECH
- Transfer mode of circuit mode
- Information transfer rate of 64kbit/s
- Bearer capability multiplier/protocol indicator of CCITT mu-law
- Multiplier layer ID of user info layer 1

The DMS-100 switch does not include the Calling Party Number (00000010) in the TCAP query.

The DMS-100 switch does not include the MWI Type Identifier (11010111) in the TCAP query.

The DMS-100 switch does not include the Timestamp Identifier (00010111) in the TCAP query.

PRI MWI control processing-intersection set of DN

ITSDN, as described in GR-866-CORE, is not supported.

PRI MWI control processing-operational measurements

The PRIMWIC and MWICTACP operational measurement (OM) groups are maintained on a 30-minute basis instead of on a special study basis.

PRI MWI control processing-optional argument processing

The MWI Control request can include the following optional arguments:

- MSRID:

  The DMS-100 switch screens the MSRID optional argument in an MWI control request. The DMS-100 switch does not use the MSRID to screen against the authorized MSRID assigned to a client user in order to update the user's MWI.

  When the MSRID optional argument is not present in the MWI control request, the DMS-100 switch associates the request with the default MSRID of the NIPRI.

- Bearer capability:

  The DMS-100 switch does not process the bearer capability optional argument in an MWI control request.

- Calling party number:

The DMS-100 switch does not process the calling party number optional argument in an MWI control request.

- Timestamp:

  The DMS-100 switch does not process the timestamp optional argument in an MWI control request.

- MWI type:

  The DMS-100 switch does not process the MWI type optional argument in an MWI control request.

PRI MWI control provisioning-default MSRID

The MSRID entered for the default MSRID must exist in Table MSRTAB.

If the default MSRID entered is not in Table MSRTAB, the verification process of Table LTDATA fails the attempt to add or change the tuple and the process generates the following error message:

```
Default MSRID entered is not in Table MSRTAB.
```

Table MSRTAB has one limitation. Table MSRTAB does not fail the attempt to delete an MSRID entry even if the entry is in use by Table LTDATA.

Interactions

The following paragraphs describe how PRI Message Waiting Indicator NIPRI interacts with other functionalities.

Advanced intelligent network

The SHPRN feature interacts with Advanced Intelligence Network (AIN) during construction of the terminating NIPRI SETUP Message. Existing AIN capabilities are not altered by this feature.

The AIN feature can query a signaling control point (SCP) database and change the controlling components of a call. AIN invokes prior to referencing the SHPRN option of a single or serving PRI group. When AIN is involved in the call, the CGN and RN information in the AIN response message will be utilized. The SHPRN option can override the delivery based on the features CGNDELV and RNDELV provisioned against the corresponding NIPRI trunk.

Call forwarding/redirecting numbers

NIPRI supports call forwarding or redirecting numbers (RN) by delivering the original and last forwarding (redirecting) numbers. AF6862, Redirecting Numbers, assists the MSR system in locating the appropriate mailbox to leave the message, and in providing an appropriate greeting when answering the call by the MSR.

The SHPRN feature interacts with RN by providing the capability of disregarding the presentation status of the RN and delivering the redirecting numbers to the MSR system. When the SHPRN feature overrides an RN presentation status of “prohibited" and delivers the RN IE to the MSR system, the presentation status is unchanged.

Calling number

The original CGN can be utilized by the MSR system to assist in locating a client user's mailbox to retrieve messages and identify the CGN to the client during message storage. The SHPRN feature provides the capability of disregarding the presentation status of the CGN and delivering the calling number to the MSR system. When the SHPRN feature overrides a CGN presentation status of “prohibited" and delivers the CGN IE to the MSR system, the presentation status is unchanged.

Two B-channel transfer

The NIPRI interface connected to an MSR system supports TBCT functionality. A direct call or forwarded call to an MSR system can be one leg of a TBCT. The second leg can be an outgoing call from the MSR system that is in the alerting or unanswered state.

Office parameters used by PRI: Base MWI Control using NIPRI

The following table lists the office parameters used by PRI Message Waiting Indicator NIPRI. For additional information about office parameters, refer to the *Office Parameters Reference Manual.*

Table 12-2 Office parameters used by PRI: Base MWI Control Using NIPRI

Table name	Parameter name	Explanation and action
MAX_NUM_PRI_ MWIC_CONTROL	Maximum Number of PRI Message Waiting Indicator Control	This office parameter limits the number of outstanding MWI transactions in the DMS switch.

Datafill sequence

The following table lists the tables that require datafill to put PRI Message Waiting Indicator NIPRI into operation. You must enter data into the tables in this order.

Table 12-3 Datafill requirements for PRI Message Waiting Indicator NIPRI

Table	Purpose of table
LTCALLS	Logical Terminal Calls. Stores service-related data, such as translations, that the DMS switch associates with the call type.
LTDATA	Logical Terminal Data. Stores service-related data associated with the logical terminal identifier (LTID), field LTDKEY, which is the key to this table.
SVPRIGRP	Serving PRI Groups. Defines serving PRI groups.
MSRTAB	Message Storage and Retrieval System. Supports feature Update Message Support for MWI (AU2903).
AMAOPTS	Automatic message accounting Options. Controls the activation and scheduling of the recording options for automatic message accounting (AMA).

Datafill related to PRI: Base MWI Control Using NIPRI for Table LTDATA

The following table provides the datafill related to PRI Message Waiting Indicator NIPRI for Table LTDATA. This table includes only those fields that apply directly to PRI Message Waiting Indicator NIPRI.

Table 12-4 Datafill related to Table LTDATA

Field	Subfield	Entry	Explanation and action
SHPRN		SHPRN_PARM	Special Handling of Presentation Restricted Numbers. This field affects subfield SHPRN_PARM.
	SHPRN_PARM	NNNN, YYYY, YNNY, NNNY, YNYY, NNYY	First letter represents Direct Calls-Calling Party Number. Second letter represents Forwarded Calls-Calling Party Number. Third letter represents Forwarded Calls-Original Number on calls forwarded multiple times. Fourth letter represents Forwarded Calls-Last (or only) Forwarding Number. Default is NNNN.

Table 12-4 Datafill related to Table LTDATA

Field	Subfield	Entry	Explanation and action
MWIC		MWIMAX, SPLITNNX, and DMSRID	Message Waiting Indication Control Option provides the DMS-100 switch with the capability of accepting an MWI control request over an ISDN NI PRI trunk group. This field affects subfields MWIMAX, SPLITNNX, and DMSRID.
	MWIMAX	8-2000	Maximum number of outstanding MWI Control requests that are supported on the NI PRI. Default is 200.
	SPLITNNX	Y or N	Used only if the host DMS-100 switch shares the client user's code with another switch. This parameter indicates whether to consider the MWI control request received by the host DMS-100 switch as a remote MWI control request. Y indicates a remote request. N indicates a local request. Default is N.
	DMSRID	10 (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)	Default parameter when no MSRID is supplied by the ISDN MSR system. No default value.

Datafill related to PRI: Base MWI Control Using NIPRI for Table LTCALLS

The following table provides the datafill related to PRI Message Waiting Indicator NIPRI for Table LTCALLS. This table includes only those fields that apply directly to PRI Message Waiting Indicator NIPRI.

Table 12-5 Datafill related to Table LTCALLS

Field	Subfield	Entry	Explanation and action
NCAS		MNNCAS	Non-Call-Associated Signaling option. This field affects subfield MNNCAS.
	MNNCAS	1-20	The MNNCAS (maximum number of NCAS) of the NCAS option provides the maximum number of NCAS connections established against only an NIPRI trunk with a PUBLIC service type at any given time. The default value is 1.

Datafill related to PRI Message Waiting Indicator NIPRI for Table MSRTAB

The following table provides the datafill related to PRI Message Waiting Indicator NIPRI for Table MSRTAB. This table includes only those fields that apply directly to PRI Message Waiting Indicator NIPRI.

Table 12-6 Datafill related to Table MSRTAB

Field	Subfield	Entry	Explanation and action
MSRID		10-digit string(0,1,2,3,4,5, 6,7,8,9)	Message Storage and Retrieval System Identification. This field affects subfields BILLNUM and BILLNUM_PREF.
	BILLNUM	10-digit string(0,1,2,3,4,5, 6,7,8,9)	The BILLNUM option associates a billing number with an MSRID.
	BILLNUM_PREF	Y or N	Indicates whether to generate billing or not if activation/deactivation count is equal to zero. Default value of Y.

Datafill example for Table MSRTAB

The following figure shows sample datafill for Table MSRTAB.

Figure 12-2 MAP display example for Table MSRTAB

```
        MSRID       OPTLIST

_____________________________________________________________

6137216050               $
8197228907               $
7777777777   (BILLNUM 6137223001 Y) $
```

Datafill related to PRI Message Waiting Indicator NIPRI for Table AMAOPTS

The table that follows provides the datafill related to PRI Message Waiting Indicator NIPRI for Table AMAOPTS. This table includes only those fields that apply directly to PRI Message Waiting Indicator NIPRI.

Table 12-7 Datafill related to Table AMAOPTS

Field	Subfield	Entry	Explanation and action
OPTION		MWIC_AUDIT	Recording options for automatic message accounting (AMA). This field affects subfield MWIC_AUDIT.
	MWIC_AUDIT	PERIODIC yymmdd 0000 24 HRS	This option provides the DMS-100 switch the ability to generate daily AMA records of aggregate counts of successful MWI control activations and deactivations on an MSRID basis. The MWIC_AUDIT option works in conjunction with the BILLNUM option in Table MSRTAB. MWIC_AUDIT schedules the audit to capture the metrics of the new BILLNUM option.

Datafill example for Table AMAOPTS

The figure that follows shows sample datafill for Table AMAOPTS.

Figure 12-3 MAP example for Table AMAOPTS

```
OPTION      SCHEDULE
-------------------------------------------------------
MWIC_AUDIT  PERIODIC 980620 0000 24 HRS
```

Translation verification tools

The NCAS portion of this feature does not use TRAVER (translation verification) to confirm translations.

SERVORD

PRI does not use the Service Order System (SERVORD).

13 PRI E911 Preferred DN

Ordering codes

Functional group ordering code: NI000043

Functionality ordering code: NI000038

Release applicability

NA012 and up.

NA012 introduced For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules.

Requirements

For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules. This feature has no functional group requirements.

Description

The E911 Preferred DN feature ensures that the PSAP receives the desired DN from a National Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) trunk.

The DN received at the PSAP will determine the location of the emergency call via the PSAP Database. Traditionally, the billing DN was sent to the PSAP where is was looked up and then EMS was sent to the appropriate address.

This address worked fine in small business, however with a PBX shared by several companies located in a large multi-floor building, a general location was not acceptable. This feature allows the CPN to be delivered to the PSAP which, when looked up in the database, will provide a specific location (floor level, office section, etc). Alternately, when the CPN is not a public number in the database, a default DN will be sent to the PSAP database.

The E911 Preferred DN feature only applies to 911, 0911, or 1911 calls. The E911 Preferred DN feature does not apply to other incoming x911 emergency calls.

Datafill sequence

This section lists the tables that require datafill related to For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules.

Datafill related to For use only in Translation, Card, Servord, OParms, Alarm and recovery modules for Table LTDATA

The following table provides the datafill for Table LTDATA. This table includes only those fields that apply directly to For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules.

Table 13-1 Datafill related to Table LTDATA

Field	Subfield	Entry	Explanation and action
	Option	E911DN	Option. Enter option E911DN to provide the CPN or the default DN for incoming 911 calls.

Datafill example for Table LTDATA

The following figure shows sample datafill for Table LTDATA.

Figure 13-1 MAP example for Table LTDATA

```
LTDKEY   DATATYPE DFLTCGN      OPTION
- — — — — — — — — — — — — — — — — — — — — -
ISDN 500 DN DN    613 723 1234 E911DN DEFAULT $
ISDN 111 DN DN    613 723 1234 E911DN CGN $
```

Operation

The E911 Preferred DN feature adds option E911DN to field DN selector. The operating company datafills the default 10-digit default DN in Table LTDATA using the DN selector. This number represents the centralized location to direct emergency services.

When default is set, the default DN is sent. When option E911DN is the default, then the switch provides the default DN as the CPN. The switch sets the SI to network provided. When CGN is set the switch will screen the CPN. When call screening passes, the switch sends the validated CPN. The switch sets the SI to user provided passed screening. When call screening fails, the switch sends the default DN as the CPN. The connected SI says network provided. The E911 Preferred DN feature must have a screening list for 911 calls. The screening list can be the same list as the one used for non-911 calls.

When the incoming CPN is not available, the switch sends the default DN as the CPN. The switch sets the screening indicator (SI) for the CPN to network provided.

When there is re-direction then the switch processes the redirection number (RN1) and not the CPN. The switch sets the SI for the CPN to user provided not screened.

When option E911DN value is default, the switch sends the default DN as RN1. When option E911DN value is CGN, the switch screens RN1. When RN1 passes screening, the switch sets the SI to user provided passed screening. When RN1 fails screening, the switch sends the default DN as RN1.

When the CLI option is used to edit the CPN, the edited CPN will be screened and processed as the CPN.

Limitations and restrictions

The limitations and restrictions that follow apply to For use only in Translation, Card, Servord, OParms, Alarm and Recovery modules.

- E911 Preferred DN is only for NIPRI interfaces.
- E911 Preferred DN pertains only to incoming 911, 0911, or 1911 calls on a NIPRI interface.
- When the operating company does not datafill CLI selector in Table LTDATA for an NIPRI interface, the CPN screening of non-911 calls does not occur. When the operating company datafills option E911DN, the switch screens 911 calls.
- When the operating company does not datafill the RN selector in Table LTDATA for an NIPRI interface, RN screening of non-911 calls does not occur. When the operating company datafills option E911DN, the switch screens the RNs for 911 calls.

Billing

The E911 Preferred DN feature does not prevent the generation of billing records. The switch sets the billing number to the validated CPN or the default DN.

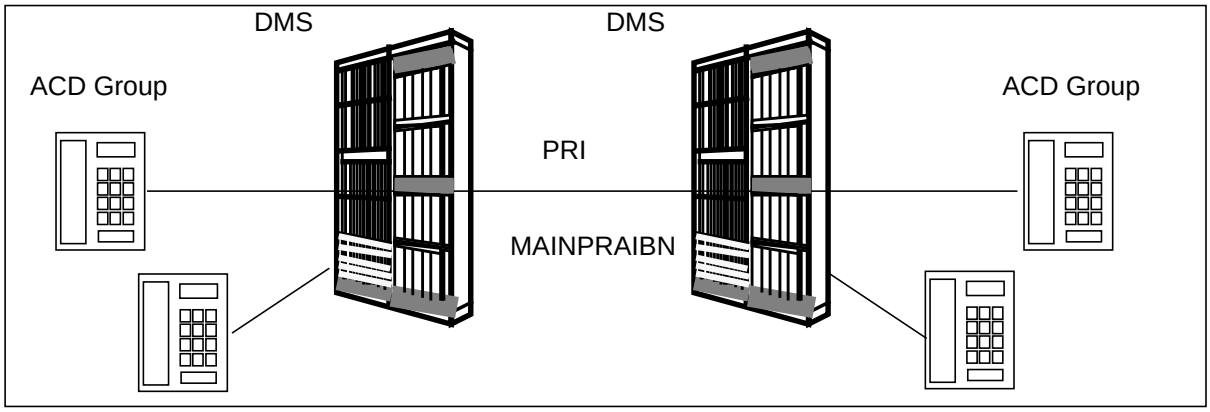
14 PRI Networked ACD

Network Automatic Call Distribution (ACD)

NACD is a feature that allows overflow routes or load sharing across different switches. The existing ACD groups stay the same. NACD provides a link between groups on different switches by use of a few new tables. Communication is accomplished via Remote Service Operations Element in SETUP, ALERTING, FACILITY, and FACILITY REJECT messages.

The following figure illustrates a Network Automatic Call Distribution.

Figure 14-1 Illustration of Network Automatic Call Distribution



Five tables are associated with networking ACD across different switches.

Figure 14-2 Illustration of NACD Table Flow

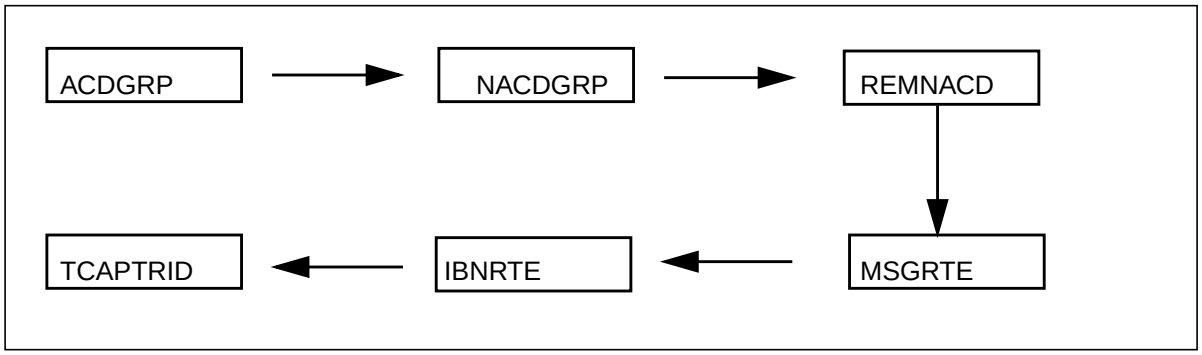


Table ACDGRP defines the individual ACD groups on a node.

Figure 14-3 Example of Table ACDGRP

```
ACDNAME         CUSTGRP ACDRNGTH      THROUTE
    NSROUTE PRIOPRO DBG MAXCQSIZ MAXWAIT
                                ADCMIS
                MSQS DISTRING OBSWTONE
                 FRCNGTSV
                                OPTIONS
-------------------------------------------------------------------------
S2NACD1       S2NACD      12       OFRT   100
         OFRT  100   10  N    2    5
           Y33N           (DEFLOB 100)$
    Y   5 10 15 CALLQ N N N   NONE       N
                       N
(AUDIO 60Y AUDIO1)(TMDELOFL3 ALLPRIO)(OVFLINQ OLDEST 4Y 45)
           (MAXCQLMT 3)$
```

Table 14-1 Description of Table ACDGRP

Field Name	Description	Setting
ACDNAME	Name	1-16 characters.
CUSTGRP		The customer group to which the ACD group belongs.
ACDRNGTH	0 or 12-60	Ringing threshold Max. Time (Sec.) before agent is re-enqueued. 0 call is not re-enqueued.

Table 14-1 Description of Table ACDGRP

Field Name	Description	Setting
THROUTE	Threshold Route TABNAME INDEX	 OFRT or IBNRTE - Which route in the table.
NSROUTE	Night Service Route TABNAME INDEX	Used when no active agents OFRT or IBNRTE - Which route in the table.
PRIOPRO	Priority Promotion Time-out	0-255 - Expiration time before call goes to higher priority queue. 0 - No time-out.
DBG	Intraoffice Delayed Billing	Y- Billing starts when call is answered. N- Billing stats when caller receives announcement. ACD_TOLL_DELAYED_BILLING in table OFCENG controls this.
MAXCQSIZ	Maximum Call Queue Size	0-511, Maximum size of the queue. 0- No queuing capability. If queue size is exceeded, overflow route is used.
MAXWAIT	Maximum Wait Time	0-1800 - Maximum time the call can wait in queue. 0 - Call is not re-routed.

Table NACDGRP designates which ACD groups are NACD groups and which remote overflow group should be used.

Figure 14-4 Example of Table NACDGRP

```
ACGRP QTHRESH WTHRESH PWF BESTGRP SRVRATE NUMIDLE TIMEIDLE
                                           NTWKGRPS
                            OPTIONS
_______________________________________________________________
           S2NACD1    2    5    30   N    5    5    5
                                        (REM S3NACD1 30)$
                                          $
```

Table 14-2 Description of Table NACDGRP

Field Name	Description	Setting
NTWKGRPS	Network ACD Groups LCL or REM LCLGRP PFW	Overflow to Local(LCL) or Remote(REM) NACD Group. 1-16 character name of NACD Group Preference Weighting Factor 0-32,767. The higher the number the higher the more desirable the route.

Table REMNACD provides routing information about NACD groups in other switches.

Figure 14-5 Example of Table REMNACD

```
REMGROUP      REMOTEDN      ROUTE      OPTIONS
______________________________________________________
   S3NACD1      9032231871  IBNRTE 888     $
```

Table 14-3 Description of Table REMNACD

Field Name	Description	Setting
REMGROUP	Remote ACD Group	1 to 16 characters.
REMOTEDN	Remote Directory Number	DN of Remote ACD Group.
ROUTE	Route	OFRT of IBNRTE 0-1023.
OPTIONS	Options NONDMS	$ - Remote ACD group is on a DMS switch NONDMS - Remote ACD group is a non-DMS switch. TRGTRI - Target Resource Index of non-DMS switch.

Table MSGRTE provides the option to go LOCAL, CCS7, or PRI to the terminating ACD group.

Figure 14-6 Example of Table MSGRTE

```
                    MSGRTKEY
                            MSGRTRES
__________________________________________________________

           PUBLIC    903223    903223
          (PRA MAINPRAIBN 0 N $) $
```

Table 14-4 Description of Table MSGRTE

Field Name	Description	Setting
MSGRTEKEY	NETID DIGRANGE	Network ID. Digit Range to and from.
MSGRTSEL	LOCAL SS7 PRA	Terminates on this switch. Terminates to a CCS7 route. Terminates on a PRI route.
		TRKCLLI - Trunk CLLI. DELDIGS - Delete Digits. PREDIGS - Prefix Digits.

Table TCAPTRID limits the number of TCAP transactions.

Figure 14-7 Example of Table TCAPTRID

```
        TCAPAPPL    NUMTRIDS    NUMCOMPS
__________________________________________________________
           NACD        200             0
```

Table 14-5 Description of Table TCAPTRID

Field Name	Description	Setting
TCAPAPPL	NACD	Transaction Capability Application Part Application
NUMTRIDS	0-32,767	Number of Transaction IDs

15 PRI Bearer Capability Routing

PRI Bearer Capability Routing ordering codes

Functional group ordering codes: NI000008, NI000014

Functionality ordering codes: not applicable

Release applicability

BCS36 and up.

Prerequisites

To operate, PRI Bearer Capability Routing has the following prerequisites:

- NI0 ISDN Base, NI000007
- MDC - MDC Minimum, MDC00001

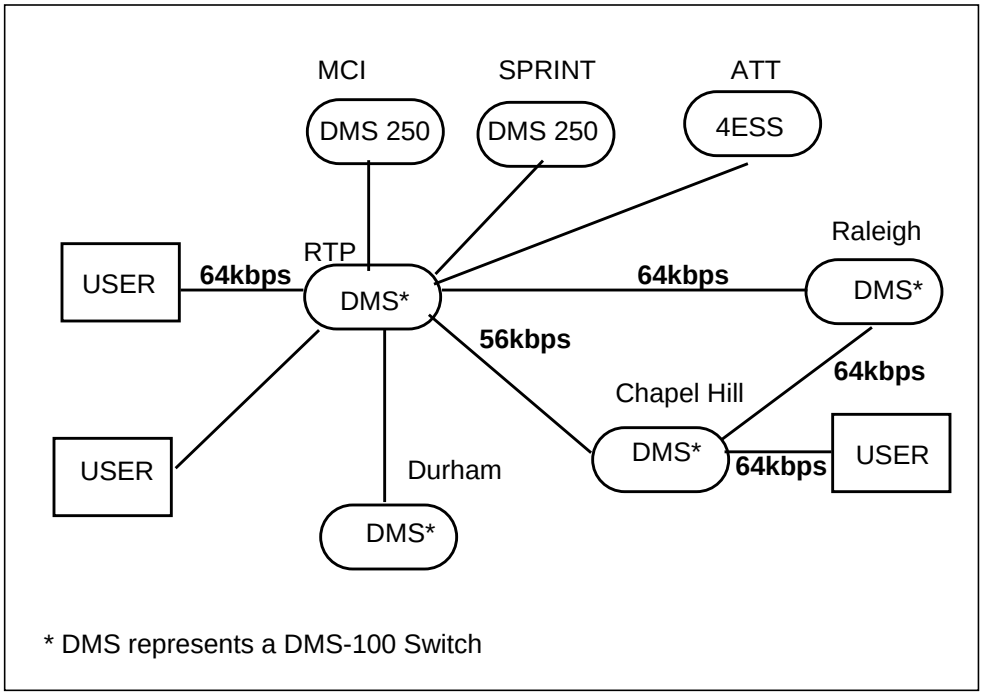
Description

PRI Bearer Capability Routing (BCR) is used when a call needs a certain bandwidth that may or may not be provided through normal translations. BCR ensures that the call will be sent over the appropriate facilities.

BCR is accomplished by special pre-translators called PXLAMAP and XLAMAP for public and private calls respectively. Each table's key fields are written in bold.

BCR is a feature that can also be used with any call type. BCR is used when a call required a certain bandwidth. For example, data or video that require 64kbps channels. Not all links in the Public Switched Telephone Network (PSTN) are 64kbps. In the illustration below, the call is between two customer locations and requires 64kbps bandwidth. The RTP office would route normal calls to Chapel Hill through the 56kbps line, but in this case, the BCR would route it to Raleigh, and then Chapel Hill since the complete path is 64kbps.

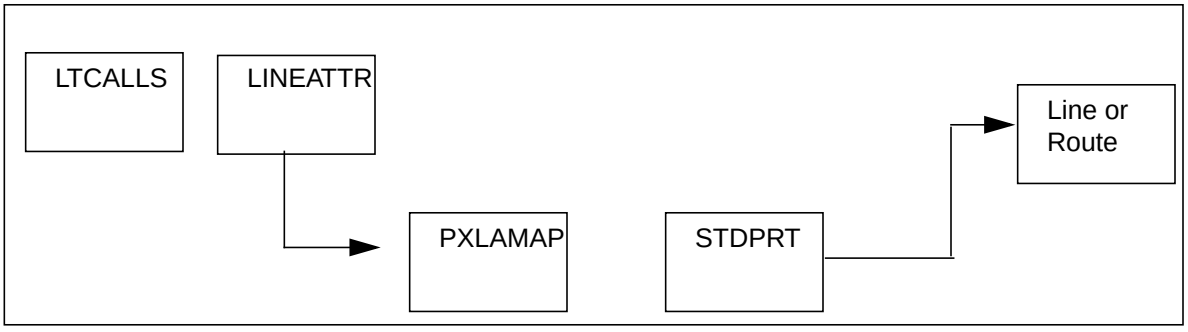
Figure 15-1 Illustration of Bearer Capability Routing



Translations table flow

The following figure illustrates Bearer Capability Routing.

Figure 15-2 Illustration of Bearer Capability Routing.



Billing

PRI Bearer Capability Routing affects billing as follows: if the BD option is datafilled against the customer group in Table CUSTSMDR, and SMDR extension record is generated identifying the type of bearer capability.

Station Message Detail Recording

PRI Bearer Capability Routing does not affect Station Message Detail Recording.

Datafilling Table BCDEF

Table BCDEF (Bearer Capability Definition) defines the different bearer capabilities.

The following table shows the datafill specific to PRI Bearer Capability Routing for Table BCDEF.

Table 15-1 Description of Table BCDEF

Field Name	Description	Settings
KEY	BCNAME	Bearer Capability Name
BCDATA	XFERCAP	Transfer Capability. SPEECH - For Voice Calls. RESDIG - For 56kbps Transparent Data. UNRESDIG - For 64kbps Unrestricted Data. AU3_1KHZ - For 3.1kHz Audio Data. Transfer Mode.
	XFERMOD	CIRCUIT - Circuit Switched. PACKET - Packet Data. Coding Standard. CCITT - CCITT
	CODINGST	NETWORK - Network Specific.

The following example shows sample datafill for Table BCDEF.

Figure 15-3 MAP display example for Table BCDEF

```
         KEY          BCDATA
--------------------------------------------
      64KDATA       UNRESDIG CIRCUIT CCITT
```

Datafilling Table BCCOMPAT

Table BCCOMPAT (Bearer Capability Combatability) shows which bearer capabilities are compatible with each other.

The following table shows the datafill specific to PRI Bearer Capability Routing for Table BCCOMPAT.

Table 15-2 Description of Table BCCOMPAT

Field Name	Description	Settings
KEY	CALLBC (Incoming Call Bearer Capability)	3_1KHZ - Default to NON_PRI Trunks. 7_1KHZ - High Quality Audio. 56KDATA - Adapted from 64K.
	TERMBC (Terminating Bearer Capability)	64KDATA - Clear Channel. 64KX25 - X.25 Packet Data. 64_RAYE_AD_DATA - Adapted to 64K by Bit-Stuffing DATAUNIT - 56K adapted for 64K same as 56KDATA SPEECH. VOICE_DATA - Used on DMS250 for backwards compatability only.

The following example shows sample datafill for Table BCCOMPAT.

Figure 15-4 MAP display example for Table BCCOMPAT

```
                    KEY
--------------------------------------------------------
            SPEECH     56KDATA
            SPEECH     DATAUNIT
            SPEECH     3_1KHZ
            SPEECH     VOICE_DATA
            64KX25     64KRES
            56KDATA    SPEECH
            56KDATA    DATAUNIT
            56KDATA    3_1KHZ
            56KDATA    VOICE_DATA
            DATAUNIT   56KDATA
            DATAUNIT   64KRES
            64KRES     64KX25
            64KRES     DATAUNIT
            3_1KHZ     SPEECH
            3_1KHZ     VOICE_DATA
            7_KHZ      SPEECH
            VOICE_DATA SPEECH
```

Datafilling Table RCNAME

Table RCNAME (Route Characteristic Name) defines valid names.

The following tables show the datafill specific to PRI Bearer Capability Routing for Table RCNAME.

Table 15-3 Description of Table RCNAME

Field Name	Description	Settings
NAMEKEY	Routing Characteristic Name	Found in Table RTECHAR.

The following example shows sample datafill for Table RCNAME.

Figure 15-5 MAP display example for Table RCNAME

```
NAMEKEY
-------

RC64KD
```

Datafilling Table RTECHAR

Table RTECHAR (Route Characteristics) matches incoming information element data with the GROUPRC listings and determines the RCNAME.

The following table shows the datafill specific to PRI Bearer Capability Routing for Table RTECHAR.

Table 15-4 Description of Table RTECHAR

Field Name	Description	Settings
RCKEY	Routing Characteristics Name RCNAME	From RCNAME
GROUPRC	FIRSTRC	Routing Characteristics Groupings First Group RCSEL - Selector BC BC - Bearer Capability Name from BCDEF

The following example shows sample datafill for Table RTECHAR.

Figure 15-6 MAP display example for Table RTECHAR

```
                RCKEY
                                            GROUPRC
________________________________________________________________________
               RC64KD      (BC 64KDATA $) (BC 56KDATA $) $
```

Datafilling Table XLAMAP

Table XLAMAP is the pre-translator for a private call marked with a bearer capability. This table matches the IBN translator and bearer capability then determines the new route or pre-translator.

The following table shows the datafill specific to PRI Bearer Capability Routing for Table XLAMAP.

Table 15-5 Description of Table XLAMAP

Field Name	Description	Settings
XLAKEY	RCNAME	Translations Key
	XLANAME	Routing Characteristics Name - From Table RCNAME. Translator Name - From Table XLANAME.
DATA	SEL NEWXLA POS EXTRTID	Selector - New Translator Pointer. XLA - For Translator Name. POSITION - For Operator Position. ROUTE - For Route Index. New Translator (XLA) in XLANAME. Position (POS) TOPS, CAMA, None, etc. External Route Identification (ROUTE). TABID - Table Identifier. KEY - Index into Table.

The following example shows sample datafill for Table XLAMAP.

Figure 15-7 MAP display example for Table XLAMAP

```
             XLAKEY                    DATA
--------------------------------------------------------
            RC64KD    CXLA1         (  XLA RC64XLA)$
```

Datafilling Table PXLAMAP

Table PXLAMAP is the pre-translator for a public call marked with a bearer capability. This table matches the POTS translator and bearer capability and then determines the new route or pre-translator.

The following table shows the datafill specific to PRI Bearer Capability Routing for Table PXLAMAP.

Table 15-6 Description of Table PXLAMAP

Field Name	Description	Settings
PXLAKEY	RCNAME LANAME	Translations Key. Routing Characteristics Name - From Table RCNAME. Translator Name - From Table XLANAME, NCOS, and CUSTHEAD.
DATA	SEL NEWXLA LINEATTR EXTRTID	Selector - New Translator Pointer. XLA - For Translator Name. LINEATTR - For Line Attribute. ROUTE - For Route Index. New Translator (XLA) in XLANAME. Line Attribute Number. External Route Identification (ROUTE). TABID - Table Identifier. KEY - Index into Table.

The following example shows sample datafill for Table PXLAMAP.

Figure 15-8 MAP display example for Table PXLAMAP

```
PXLAKEY                    DATA
-------------------------------------------
RC64KD PBX                 XLA DCAC
```

Datafilling Table OFCENG

Table OFCENG has the number of extension blocks needed to store routing characteristics during call processing, with one extension block per call.

The following example shows sample datafill for Table OFCENG.

Figure 15-9 MAP display example for Table OFCENG

```
PARMNAME                   PARMVAL
-------------------------------------------
NUM_RC_EXT_BLKS            200
```

Datafilling Table IBNXLA

Table IBNXLA is used for the next route or table for private calls.

The following table shows the datafill specific to PRI Bearer Capability Routing for Table IBNXLA.

Table 15-7 Description of Table IBNXLA

Field Name	Description	Settings
KEY	XLANAME DGLIDX	Translator Name - From XLANAME. Digilator Index - Digits to be Replaced.
RESULT	TRSEL CONTINUE REPLCODE OPPTION	Translator Selector - REPL (Replace). Y - Continue with next Translator. N - Restart from Beginning Based on NCOS. Replacement Code - Replacement Digits. RC - Translations Based on RCNAME. RCNAME

The following example shows sample datafill for Table IBNXLA.

Figure 15-10 MAP display example for Table IBNXLA

```
            KEY
                                    RESULT
------------------------------------------------------
      CXLA1    127
             ROUTE N N N 3 N 7 15  NELSONPRI   $
```

TRAVER Example

The following is an example of the Public BCR TRAVER within the Bearer Capability Routing.

Figure 15-11 Sample TRAVER output for Public BCR

```
>traver tr pri 14 n cdn 4762222 tns na cic '333' bc 64kdata b
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE TRKRCSEL
.TUPLE NOT FOUND
 . Default Value is ( BC ON) (OSA OFF) (CDN OFF) l <(TNS OFF) ( SR OFF)( PF
OFF)$
TABLE RTECHAR
 . RC64KD (BC 64KDATA $) (BC 56KDATA $)$
TABLE TRKGRP
PRI14 PRA 0 NPDGP NCRT ASEQ N (ISDN 150) $ $
TABLE LTCALLS
ISDN 150 PUB XLALEC 300 $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE LINEATTR
300 PBX NONE NT NSCR 0 902 PBX NLCA NONE 0 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
.RC64KD PBX ( XLA DCAC)$
TABLE STDPRTCT
DCAC ( 1) (0) 0
.SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING. CALL TYPE
DEFAULT IN NP. PLEASE REFER TO DOCUMENTATION.
.10333 10333 S DD 5 PRI17 3 15 NONE
AIN Infor Collected TDP: no subscribed trigger.
AIN Info Analyzed TDP: no subscribed trigger
.SUBTABLE AMAPRT
.KEY NOT FOUND
.DEFAULT VALUE IS: NONE OVRNONE N

+++TRAVER:SUCCESSFUL CALL TRACE+++

DIGIT RANSLATION ROUTES
1 PRI17    N CDN E164 L 4762222 NIL_NSF BC 64KDATA
TREATMENT ROUTES. TREATMENT IS: GNCT
1 120TONE
+++TRAVER: SUCCESSFUL CALL TRACE+++
```

16 PRI Call Screening

PRI Call Screening ordering codes

Functional group ordering codes: NI000015

Functionality ordering codes: not applicable

Release applicability

NA008 and up.

Description

PRI Call Screening provides the functionality for calling number (CGN) screening, redirecting number (RN) privacy, screening, billing, and delivery for NIPRI. PRI Call Screening is compliant to TR-NWT-001187 (ISDN Calling Number Identification Services for Primary Rate Interfaces, Issue 1, March 1992, plus Revision 1, December 1994).

This feature provides the following:

- Ensures a returnable calling party number
- Ensures correct distance billing for 800/888 calls
- Ensures that invalid numbers do not enter the public network

Operation

Table DNSCRN provides information is used by call processing to perform call screening and call validation on specified directory numbers. When calling line identification (CLI) is enabled, attributes CLILTID1 and CLILTID2 identify LTID tuples in Table LTDEEF to be used by call processing for screening, editing, and redirection purposes.

PRI Call Screening includes redirecting number (RN) screening. RN screening interacts with CGN screening. RN screening requires datafill in Table LTDATA to define CGNs from RNs. RN screening is only applied to NIPRI interfaces.

Table LTDATA stores the following data associated with the LTID.

- RN screening requirements
- Information to enable editing of the RN
- A default presentation indicator (PI)

PRI Call Screening enhances the PRI redirecting number delivery (RND) service by providing the capability to suppress or override the presentation of one or both redirecting party numbers. RND, for incoming calls on an NIPRI, controls presentation of DNs of the first or second instance of redirection to the called party.

RND determines what redirection information is delivered across the PRI. One or two sets of RND information can be independently screened based on their respective outgoing trunk and/or the incoming privacy indictor. The first set of RND information is associated with the first instance of redirection, and the second set of RN information (when present) is associated with the latest instance of redirection.

PRI Call Screening with RND provides for RND privacy. The RND DN may not be displayed at the called party premises due to any of the following reasons:

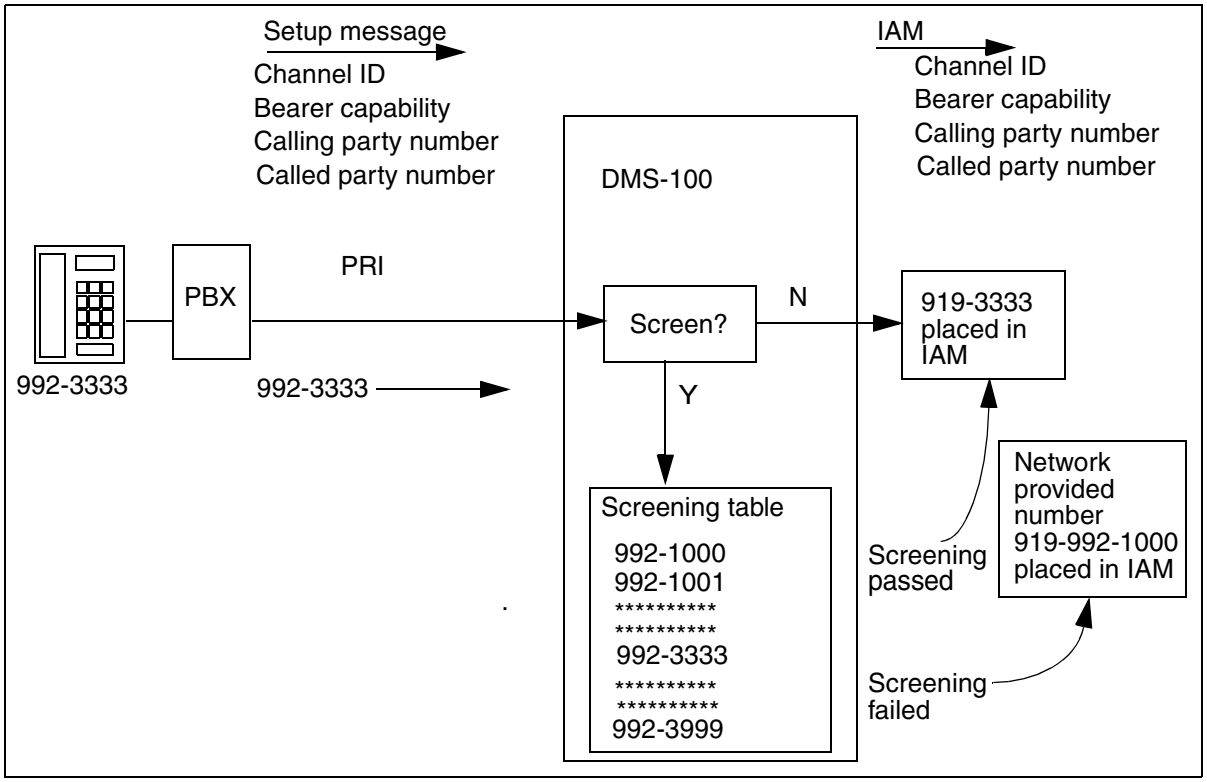
- The RND is not available. This occurs, when interworking with per-trunk signaling (PTS) trunks.
- The redirecting party has restricted presentation of the DN with the PI.
- A subscription on the originating side to suppress the presentation of the DN. Suppression subscriptions are controlled on an individual PRI basis.
- An active subscription on the terminating side of the PRI to restrict presentation of the RND DN to the called party.

When the incoming message has no PI values, the results are based on the screening results and subscription of privacy against the interface. When the incoming message has PI values, the results are based on the screening results and PI values. PI is applied to both RNs independently and the presentation or suppression of one does not affect the other.

PRI Call Screening enhances the NIPRI billing function by introducing the billing number selection (BNS) parameter to determine the billing number for AMA recording. The BNS parameter is assignable for each PRI. BNS allows a special billing number (SBN), a user provided but not screened redirecting number (UPNS), or a user provided redirecting number that passed screening to be recorded in the AMA billing record.

The following figure shows an example of call screening and redirected number (RN) screening. For example, if a subscriber's DN is 9992-3333 and does not have this feature, the DN displays to the called party regardless of whether the call is internal or external to the private branch exchange (PBX). When the subscriber has this feature and calls within the PBX, the DN still displays to the called party. However, when the subscriber calls outside the PBX, the DMS-100 switch sends any number to which the subscriber has previously prescribed to the called party's display, for example, the company's main DN 992-1000.

Figure 16-1 Call screening and redirected number screening



The following figure shows RN editing and screening functionality flow.

Figure 16-2 RN editing and screening functionality

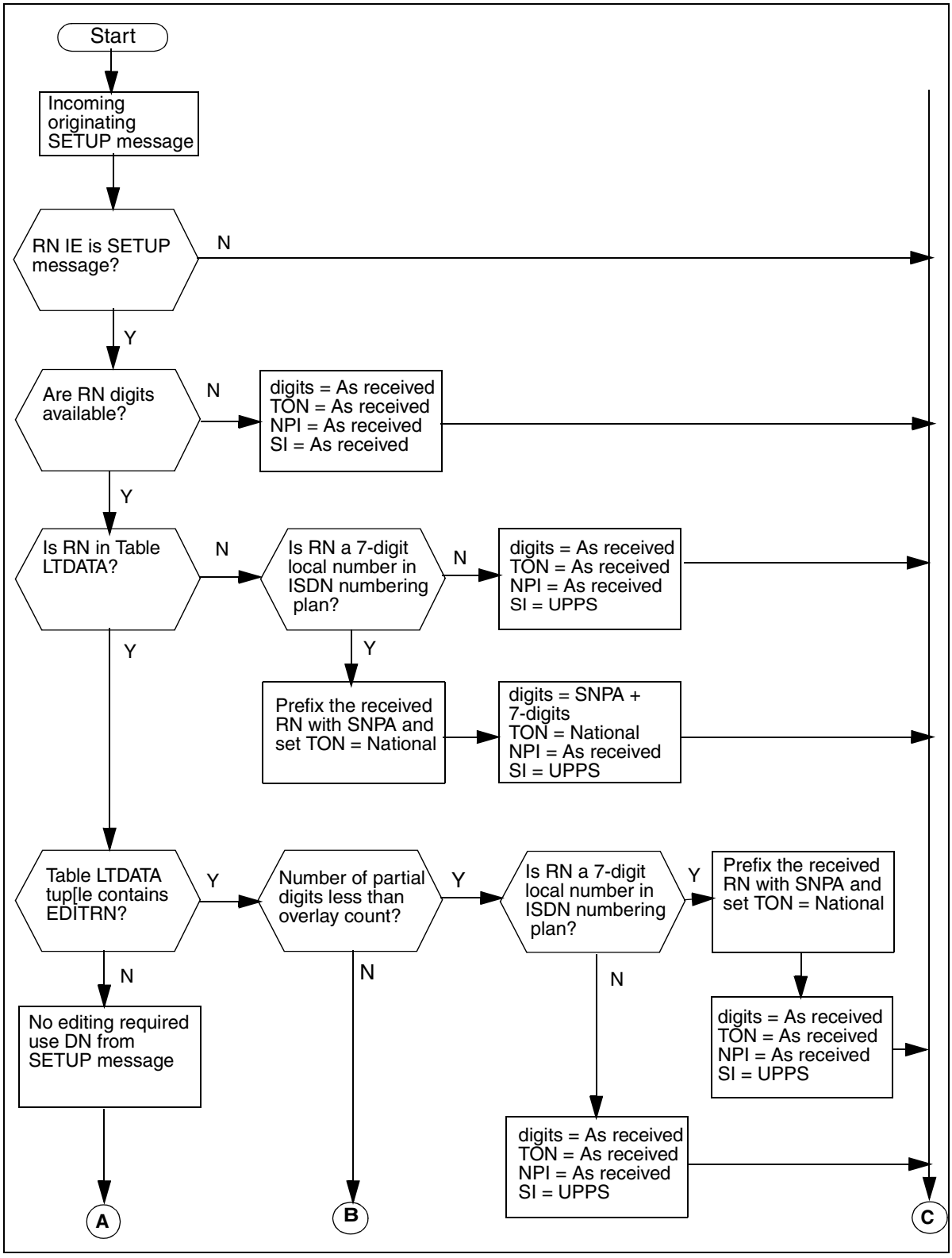


Figure 16-2 RN editing and screening functionality

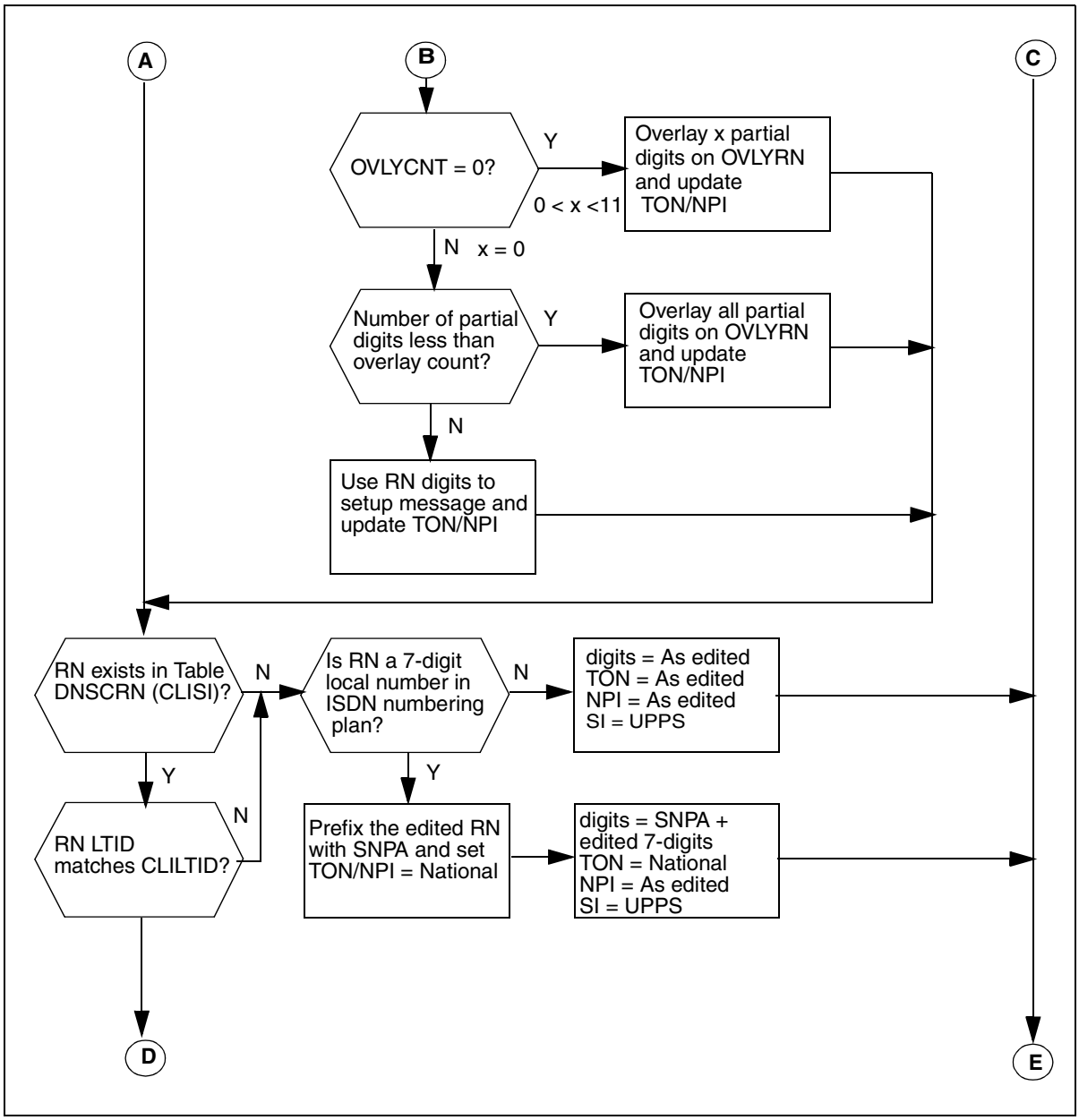
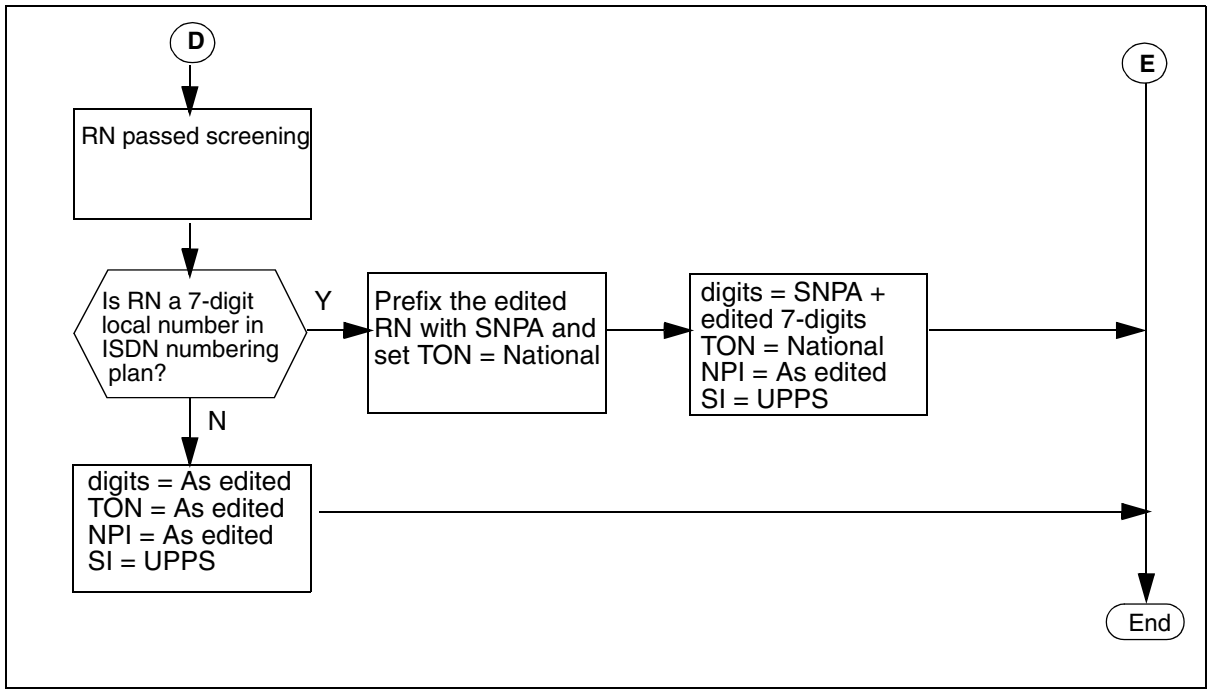


Figure 16-2 RN editing and screening functionality



The following figure shows the CGN editing and screening functionality (NI variant) flow for PRI Call Screening.

Figure 16-3 CGN editing and screening functionality (NI variant)

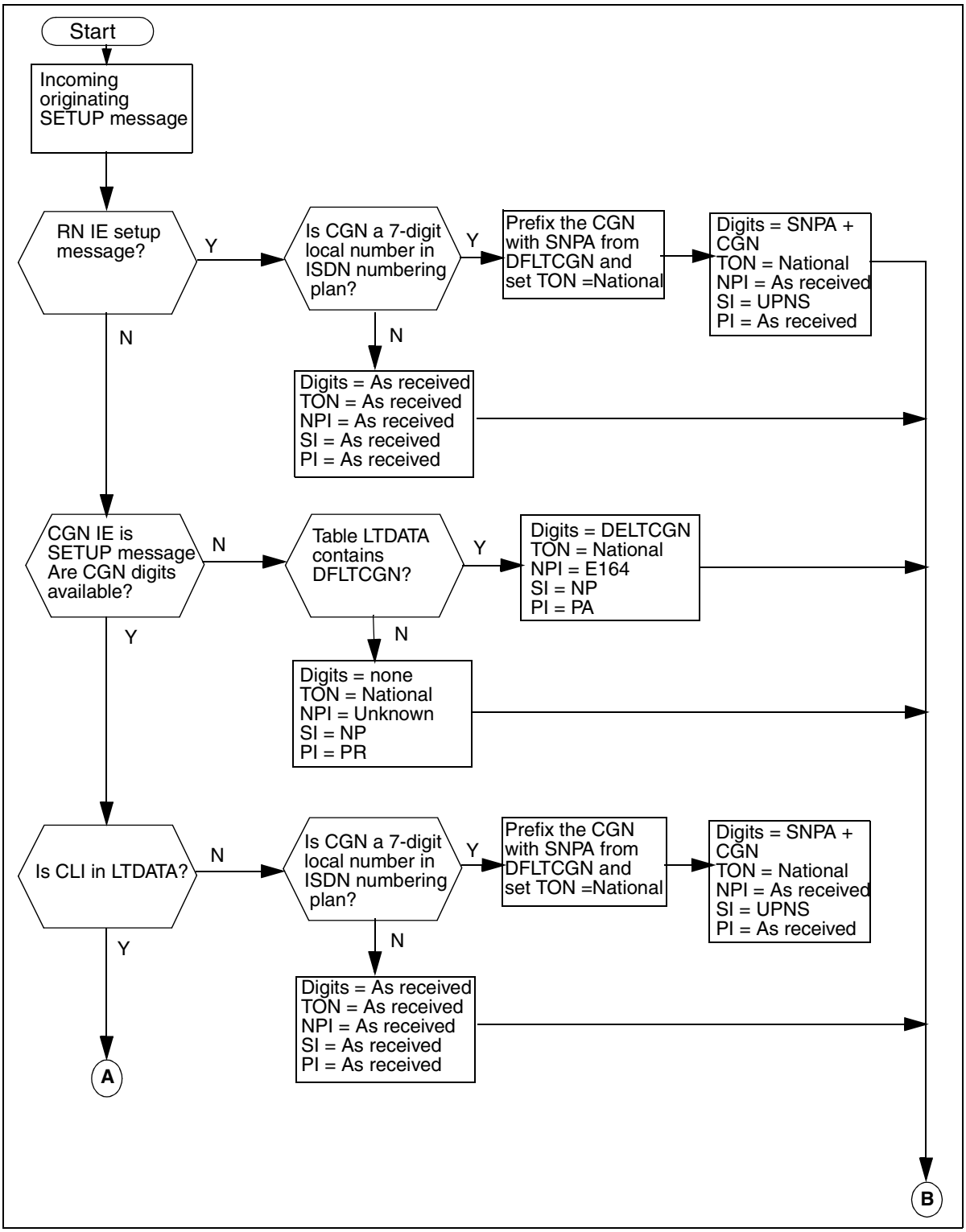


Figure 16-3 CGN editing and screening functionality (NI variant)

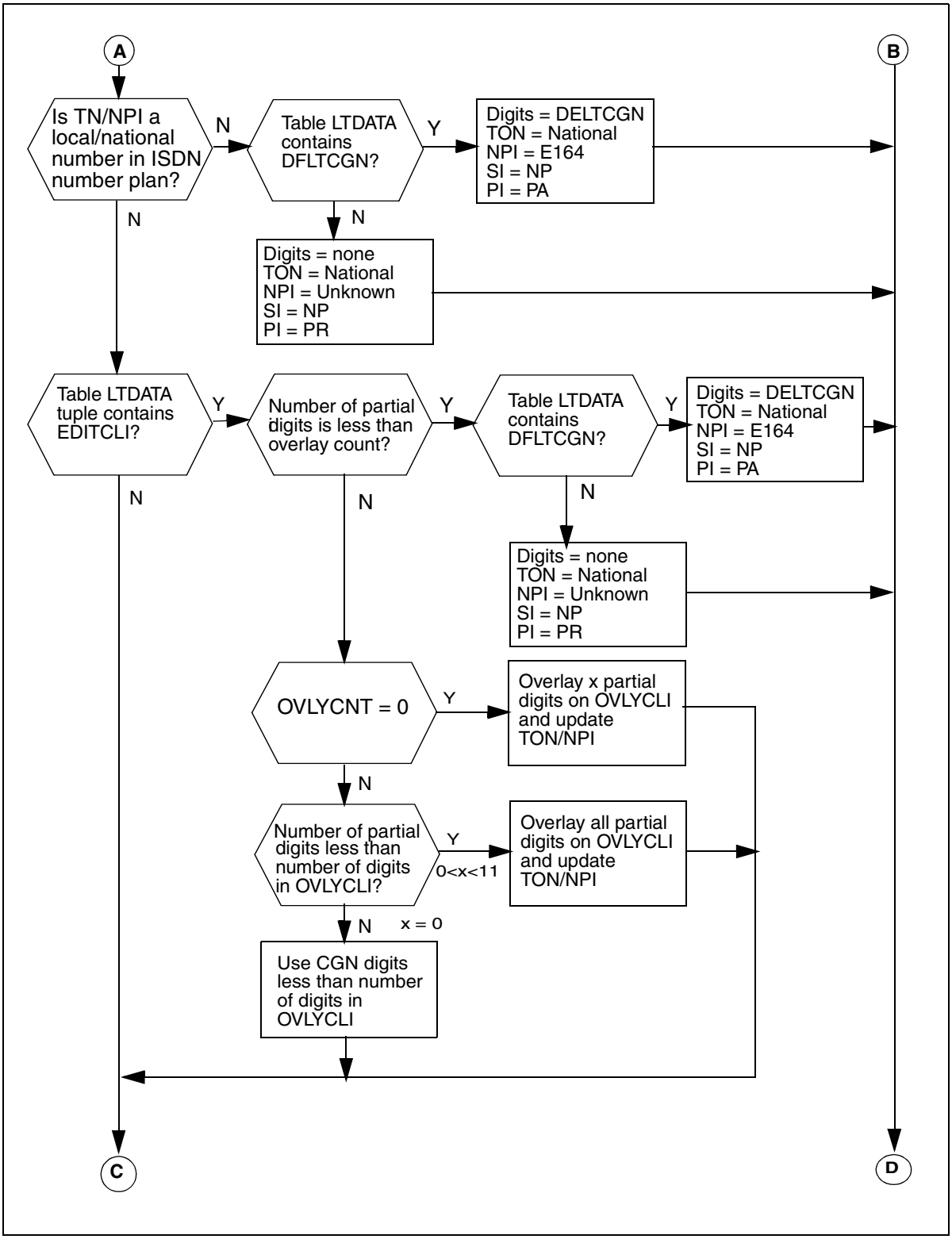
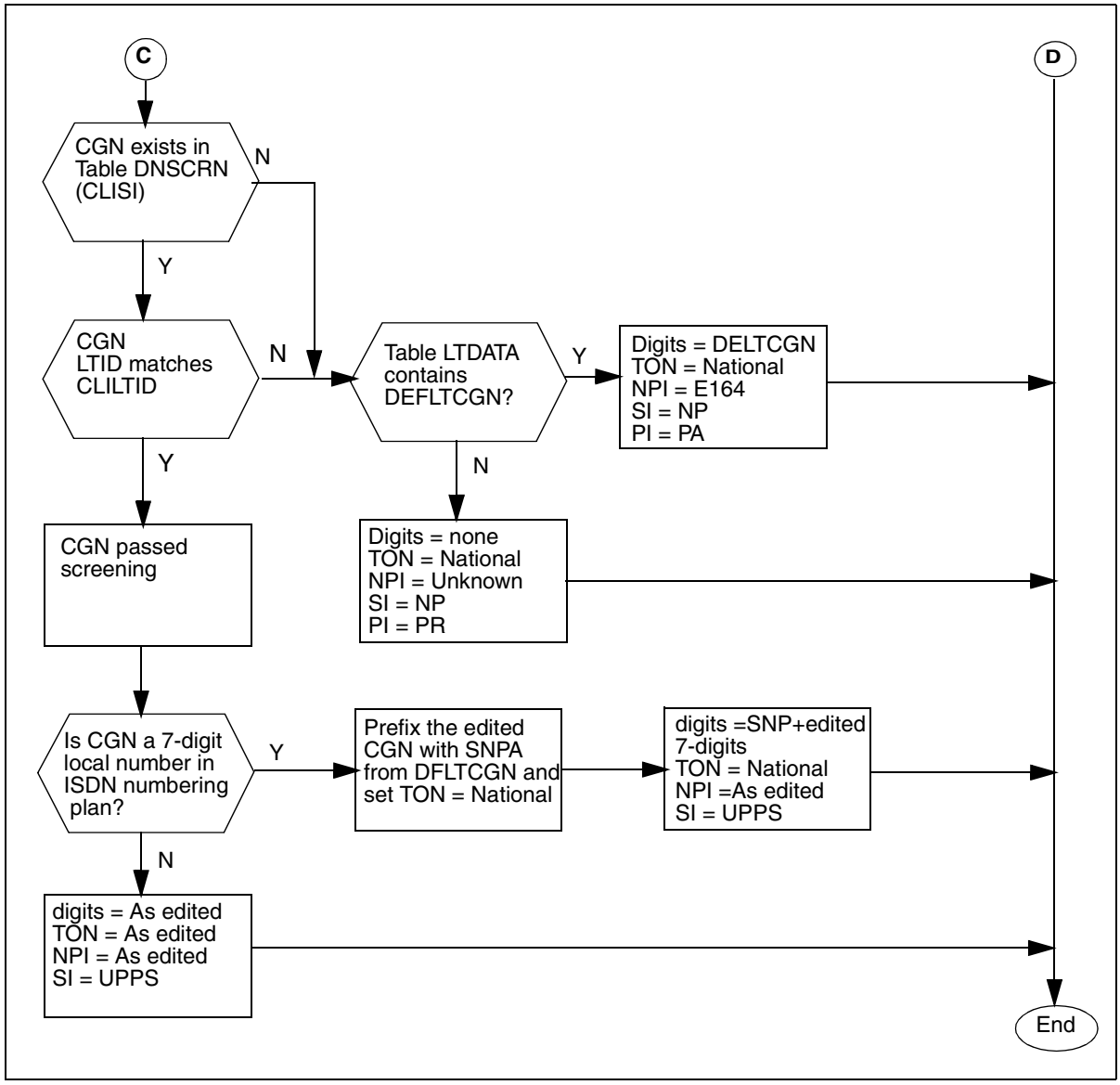
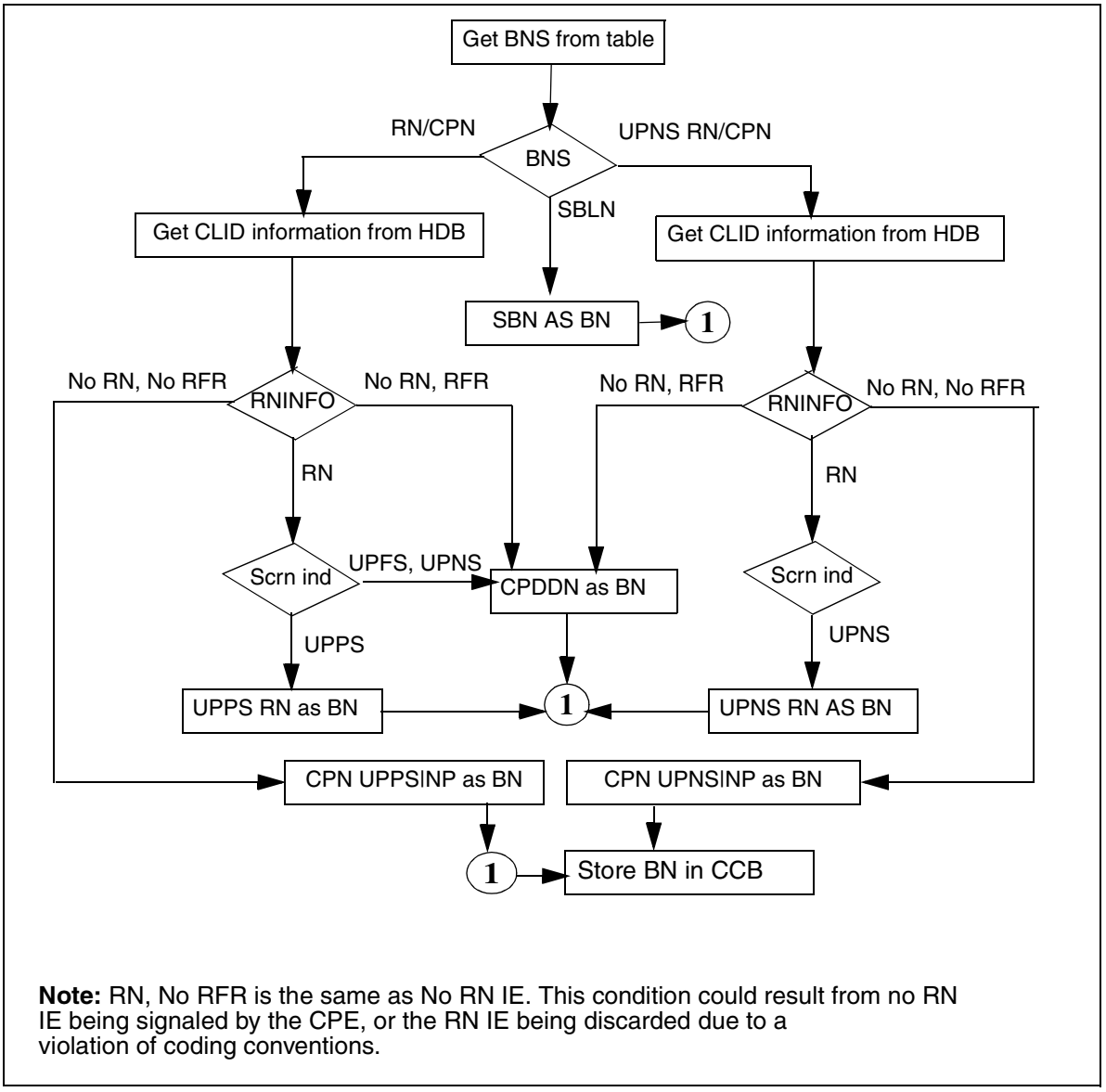


Figure 16-3 CGN editing and screening functionality (NI variant)



The following figure shows the billing number determination flow for PRI Call Screening.

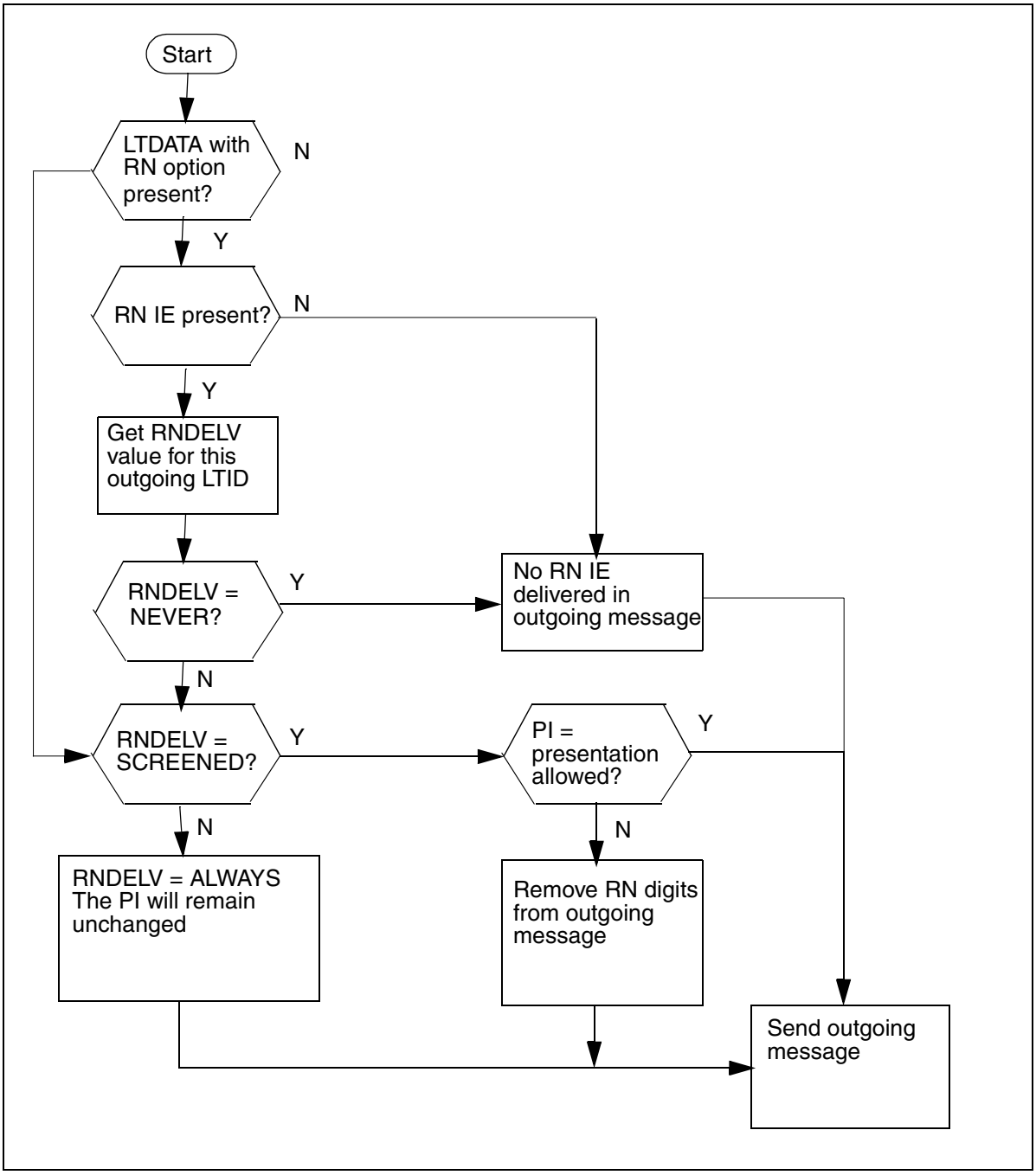
Figure 16-4 Billing number determination flow



Note: RN, No RFR is the same as No RN IE. This condition could result from no RN IE being signaled by the CPE, or the RN IE being discarded due to a violation of coding conventions.

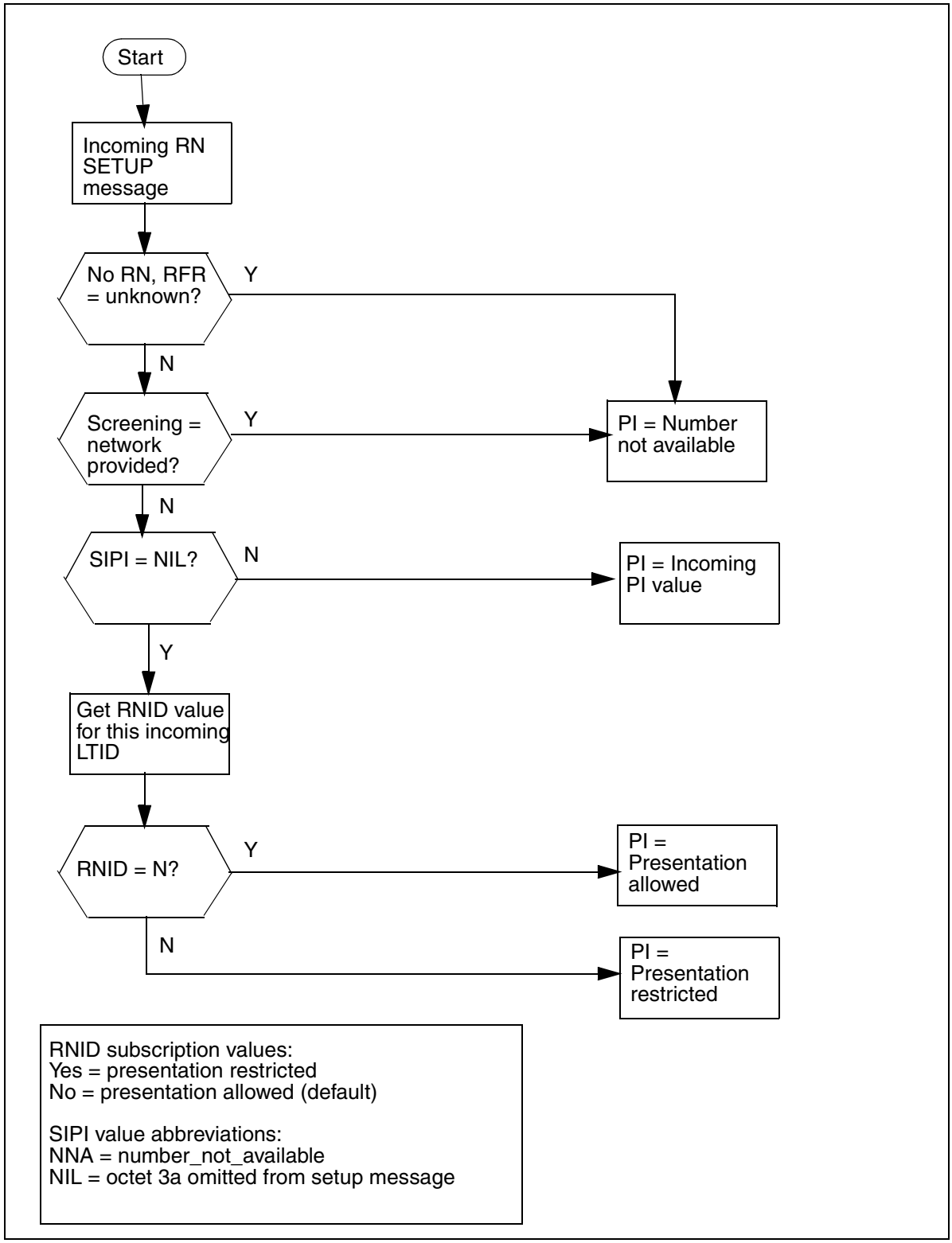
The following figure shows the call flow for redirected number delivery.

Figure 16-5 Redirecting number delivery flowchart



The following figure shows the flow for redirecting number privacy.

Redirecting number privacy



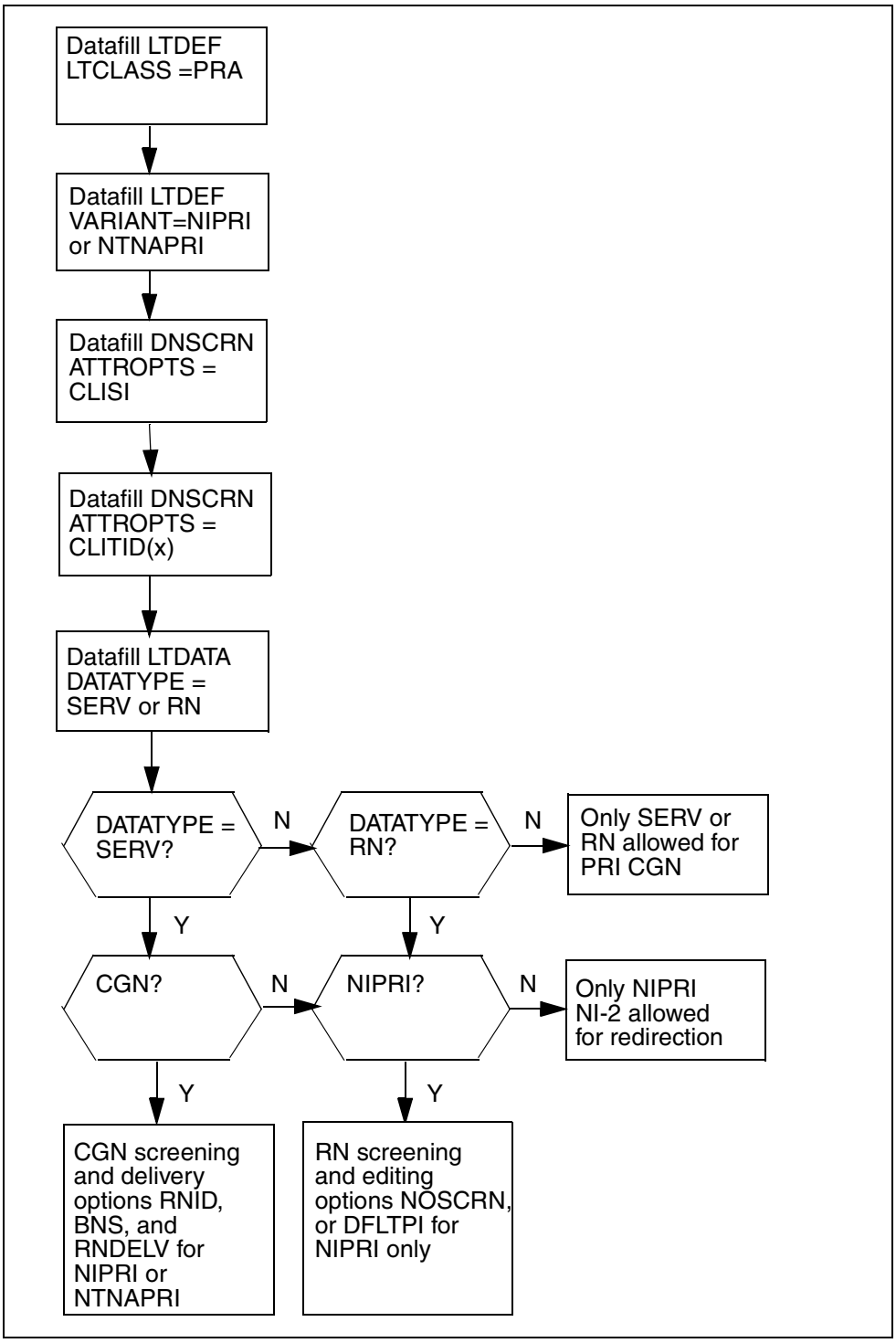
Translations table flow

The PRI Call Screening translations tables are described in the following list:

- In Table LTDEF (logical terminal definitions) the tuples defining LTIDs for screening must be datafilled with subfield VARIANT = NIPRI or NTNAPRI and respective ISSUEs before datafilling the referencing OPTION CLILTID1 or CLILTID2 in Table DNSCRN.
- Table LTDATA (logical terminal data) stores service-related data associated with the logical terminal identifier (LTID). Field LDTKEY consists of three parts: subfield logical terminal group (LTGRP), subfield logical terminal number (LTNUM), and subfield data type (DATATYPE).
- Subscription parameters related to ISDN PRI, such as calling party number delivery, are supported in Table LTDATA. With PRI Call Screening, the following subscription parameters are added to Table LTDATA:
  - — In subfield DATATYPE, add RN (redirection number) and OPTION EDITRN (edit RN), and subfields OVLYRN (overlay RN), NPI (network plan indicator), and TON (type of number).
  - — When subfield DATATYPE = SERV, add entry RNID (RN identification) and refinement SUPPRESS to subfield OPTION.
  - — When subfield DATATYPE = SERV, add entry RNDELV (RN delivery) screening and refinements. Add ALWAYS, SCREENED, OR NEVER to subfield DELIVER.
  - — When subfield DATATYPE = SERV, add entry BNS (billing number selection) to subfield OPTION.
- In Table DNSCRN, field ATTROPTS is checked for (CLISI), calling line identifier screening information, indicating if the DN can be used for screening purposes. When in field ATTROPTS CLILTID is datafilled for the DN and the call matches the CGN or RN service requirements of the LTIDs in LTDATA, then screening passes.

The PRI Call Screening translation process is shown in the flowchart that follows.

Figure 16-6 Table flow for PRI Call Screening



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

Table 16-1 Datafill example for PRI Call Screening

Datafill table	Example data
LTDEF	ISDN 20 B PRA 20 NTNAPRI V1 NIL (NOPMD) ISDN 20 2BD PRA 20 NIPRI NI2VI NIL (NOVOICE)
LTDATA	ISDN 20 SERV SERV N Y ALWAYS ALWAYS RNID Y ISDN 20 RN RN EDITRN 613 E164 NATL 0
DNSCRN	7751639 CLSI SLILTID CKT PRAOG 18

Limitations and restrictions

The following limitations and restrictions apply to PRI Call Screening:

- RN services are provided for NI-2 variants only.
- Subscription of RN/CPN preferred as the billing number (BN) parameter is not assigned per call type.
- Subscription of special BN parameter is not assigned by call type.
- Subscription of UPNS RN/CPN preferred as the BN is not assigned by call type.
- Detailed AMA for network provided (NP) per-interface is not supported.
- For an originating NIPRI (NI-2), Telcordia requires vendors to preserve the incoming presentation indicator (PI) value. When the incoming PI is NIL (3a is missing from the calling party number (CPN) information element in the SETUP message), the PI for the CPN will be altered according to the INCLID value. Otherwise, the INCLID parameter will not affect the PI for the CPN. This must be done on an individual line basis, that is, the PBX must send a NIL value for the CPN PI for the INCLID value to be used.

Billing

PRI Call Screening enhances the NIPRI billing function by introducing the billing number selection (BNS) parameter to determine the billing number for AMA recording. The BNS parameter is assignable for each PRI. BNS allows a special billing number, or a user-provided redirecting number that passed screening to be recorded in the AMA billing record.

Datafilling Table LTDATA

The following table shows the datafill specific to PRI Call Screening for Table LTDATA. Only those fields that directly apply to PRI Call Screening are shown.

Table 16-2 Datafilling Table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTKEY		See subfields	Logical Terminal Data Key. This field consists of subfields LTGRP, LTNUM, and DATATYPE.
	LTGRP	Alphanumeric (maximum 8 characters)	Logical Terminal Group. Enter the Logical Terminal Group (LTG) name.
	LTNUM	1–1022	Logical Terminal Number.
	DATATYPE	DN, SERV	Logical Terminal Data Type. • Enter DN for a default CGN. The default CGN is a part of the screening capability of NIPRI. DN has the default CGN as a mandatory datafill. Enter the number that is to be used when the original number fails screening. • Enter SERV for service-related data associated with a logical terminal identifier (LTID) or PRA interface.
LTDRSLT		See subfield	Logical Terminal Result. This field consists of subfield DATATYPE.
	DATATYPE	DN, SERV	Logical Terminal Data Type. Enter the logical terminal data type as follows: • Enter DN for directory number. • Enter SERV for service-related data associated with a logical terminal identifier (LTID) or PRA interface.

Table LTDATA, DATATYPE = SERV

When the entry in field DATATYPE is SERV, datafill subfields AUDTRMT, CGNREQD, CGNDELV, CDNDELV, and OPTION.

Table 16-3 Field descriptions for conditional datafill (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	AUDTRMT	Y, N	Audible Treatments. Enter Y (yes) to enable in-band treatment procedures for originating PRI calls with bearer capability (BC) of speech or 3.1kHz audio. Enter N (no) to disable in-band treatment procedures.
	CGNREQD	Y, N	Calling party number required. Enter Y to indicate that the CGN must be provided. Otherwise, enter N.
	CGNDELV	ALWAYS, NEVER, SCREENED	Calling Party Number Delivery. This field indicates when the CGN is delivered to the called interface. Enter one of the following: ALWAYS indicates the actual CGN with the PI is sent. NEVER indicates the CGN with the PI is not sent. SCREENED indicates that when the PI is private, the CGN is not sent (it is replaced with asterisks). The default for this field is SCREENED.
	CDNDELV	NEVER, ALWAYS	Called Party Number Delivery. This field determines whether the called party number is delivered to the called interface.

Table 16-3 Field descriptions for conditional datafill (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	BNS, EDITRN, RNDELV, RNID	Option. Enter one of the following options: Enter BNS and the refinements SBN (special billing number from Table TRKGRP), RN/CPN (user provided redirected number screening), or UPNS RN/CPN (default value). • Enter EDITRN and datafill subfields OVLYRAN, NPI, TON, and OVLYCNT. • Enter RNDELV and datafill subfield DELIVER with redirected number screening refinements. • Enter RNID and datafill refinement SUPPRESS.
	OVLYRN	0–9 (vector of maximum 18 digits)	Overlying Redirected Number. This field converts a partial redirected number to a complete number by associating a partial RN with an overlying RN.
	NPI	E164	Numbering Plan Identifier. Enter the numbering plan identifier associated with field OVLYARN.
	TON	NATL, LOCAL	Type of Number. Enter the type of number associated with field OVYCLI.
	OVLYCNT	0–18	Overlying Count. Enter the number of least significant digits from a partial CLI that are overlaid on the least significant digits of the field OVLYRN. A value of 0 (zero) indicates all the digits from the partial RN are overlaid.

Datafill example for Table LTDATA

The following example shows sample Datafill for Table LTDATA.

Figure 16-7 MAP display example of Table LTDATA

```
LTKEY
                                                    LTDRSLT
-------------------------------------------------------------

ISDN 20 SERV                        SERV N Y ALWAYS ALWAYS RNID BNS $

ISDN 20 RN                              RN EDITRN 613 E164 NATL 0 $
```

Datafilling Table DNSCRN

The following table shows the datafill specific to PRI Call Screening for Table DNSCRN. Only those fields that apply directly to PRI Call Screening are shown.

Table 16-4 Datafilling Table DNSCRN (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanatin and action
DN		See subfield	Directory Number. This field consists of subfield DNDIGS.
	DNDIGS	Up to 24 digits	Directory Number Digits. Enter the DN that represents the calling line number or the called line number.

Table 16-4 Datafilling Table DNSCRN (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanatin and action
ATTROPTS		NIL, CLILTID1, CLILTID2, CLISI	Screening Attribute Options. Enter the screening attributes. CLILTID1 and CLILTID2 attributes are used by call processing for screening purposes. Each of these attributes can accommodate up to six LTIDs for each DN. For North American PRI, the LTID has to be datafilled in Table LTDEF with the variant NIPRI (NI-2 PRI) or NTNAPRI (Nortel North American PRI) before it can be datafilled in Table DNSCRN. When the entry is CLILTID1 or CLILTID2, datafill subfields LTGRP and LTNUM. CLSI indicates the DN can be used to identify the origin of the call.
	LTGRP	Up to 8 characters	Logical Terminal Group. Enter the logical terminal group of the user. Valid group names are listed in field GROUP of Table LTGRP. For ISDN terminals, the name of the group is ISDN.
	LTNUM	Numeric (1–1022)	Logical Terminal Number. Enter the logical terminal number within the group.

Datafill example for Table DNSCRN

The following example shows sample datafill for Table ATTROPTS.

Figure 16-8 MAP display example of Table DNSCRN

```
DN
                                                    ATTROPTS
-------------------------------------------------------------

7751639                          (CLSI CLILTID1) CKT PRAOG 18 $
```

Translation verification tools

PRI Call Screening does not use translation verifications tools.

SERVORD

PRI Call Screening does not use SERVORD.

DNSCRNCI CI command level

In order to simplify datafill and attribute modification for large groups of DNs, the CI command DNSCRNCI allows the craftsperson to enter the following subcommands under DNSCRNCI: HELP, ADDRANGE, DELRANGE, UPDATTR, FINDATTRS, and QUIT.

WARNING

The ADDRANGE and DELRANGE commands write to the journal file and can cause it to overflow, hence entries will be lost in the journal file. To ensure this does not occur, please verify sufficient disk space for the journal file volume exists before using these commands.

The sections below provide detailed information on these subcommands

ADDRANGE

The ADDRANGE command allows the craftsperson to datafill a range of digits to the specified attributes in Table DNSCRN. The FROM D TO D parameters must be the same length.

Figure 16-9 ADDRANGE command for DNSCRNCI

```
>DNSCRNCI

DNSCRNCI:

>ADDRANGE
FROMD: 6137221015
TOD: 6137221020
ATTROPTS: CLISI
WRITEMODE: NOREPLACE
>
```

The example in Figure 16-9 demonstrates the ADDRANGE command in the prompt mode where each parameter is queried by the system. This example will set the DNs in the range from 6137221015 to 6137221020 inclusive, with the same length DN of 10, to CLISI. Specifically, DNs 6137221015, 6137221016, 6137221017, 6137221018, 6137221019, and 6137221020 will be datafilled in Table DNSCRN with screening attribute CLISI.

If tuples in the specified range already exist in Table DNSCRN, the existing tuples will not be overwritten. In order to overwrite existing tuples in the range, the REPLACE option must be used as part of the ADDRANGE command.

Figure 16-10 ADDRANGE command with no prompt

```
>DNSCRNCI

DNSCRNCI:

>ADDRANGE 6137221015 613722020 (CLISI) $ REPLACE
```

The example in Figure 16-10 demonstrates the ADDRANGE command in the non-prompt mode.

This example will set the DNs in the range from 6137221015 to 6137221020 inclusive, with the same length DN, to CLISI. Tuples which have already been defined in this range will be overwritten.The craftsperson is prompted with a warning message when the REPLACE option is specified.

DELRANGE

The DELRANGE command will delete all the defined tuples within the specified range of the same length DNs.

Figure 16-11 DNSCRNCI command DELRANGE

```
>DNSCRNCI

DNSCRNCI:

>DELRANGE 6137221010 6137221020
```

The example in Figure 16-11 demonstrates the DELRANGE command in the non-prompt mode.

This example will delete all the tuples defined in the range 6137221010 and 6137221020 inclusive which have a DN length of 10 (i.e. if DN 10101 is defined it will not be deleted). The craftsperson is prompted with a warning message when the DELRANGE command is specified

UPDATTR

The UPDATTR command is used to update a single attribute over a range of DNs in Table DNSCRN. It can perform three basic tasks over a specified range. It can modify an existing attribute in a tuple, it can add an attribute to a

tuple, or it can delete an attribute from a tuple. There are four parameters associated with the UPDATTR command. They are:

- <FROMD> - specifies the beginning of the DN range that is to be considered (inclusive)
- <TOD> - specifies the end of the DN range that is to be considered (inclusive)
- <OLDATTR> - specifies the attribute to be updated
- <NEWATTR> - specifies the new attribute that will replace the old one

To delete an attribute over a range of tuples, the attribute to be deleted is specified in <OLDATTR> and a $(or NIL) is specified in <NEWATTR>. To add an attribute over a range of tuples, the attribute to be added is specified in <NEWATTR> and a $(or NIL) is specified in <OLDATTR>.

The UPDATTR command allows the craftsperson to update a single attribute over a range of DNs in table DNSCRN. The DN is not affected, only an attribute associated with it. The FROMD and TOD parameters must be the same length. The attribute to be changed is specified by OLDATTR. The new attribute that is to replace the old one is specified by NEWATTR. If the attribute that is to be updated has any data associated with it, then the attribute will be changed only if the attribute and its data match what is specified by the user in OLDATTR.

Figure 16-12 DNSCRNCI comand UPDATTR

```
Assume the following DNs exist in Table DNSCRN

    6137222000 (CLISI) $
    6137222001 (CLISI) $
    6137222002 $

 >DNSCRNCI

DNSCRNCI:

>UPDATTR

FROMD: 6137222000
TOD: 6137222002
OLDATTR: CLISI
NEWATTR: NIL

SPECIFIED ATTRIBUTE IN TUPLE RANGE WILL BE
MODIFIED.

DO YOU WISH TO CONTINUE?
PLEASE CONFIRM ("YES" OR "NO")

>YES
```

The above example demonstrates the UPDATTR command in prompt mode. The range is from 6137222000 to 6137222002, inclusive. The above example removes the CLISI attribute from all the numbers in the range specified.

FINDATTRS

The FINDATTRS command will search table DNSCRN based on the given attributes. It is a general tool that works for all the attributes in table DNSCRN. The FINDATTRS command contains the following subcommands:

- HELP
- SEARCH
- SEARCHALL
- SET
- QUIT

Figure 16-13 shows the syntax of the FINDATTRS command.

Figure 16-13 The syntax of the FINDATTRS command

```
HELP           - Prints a list of FINDATTRS commands
                        and a description of each command
SET             - Sets up environment for the SEARCH command
                     Displays current environment when no parameters
                        specified
Parms: [<OPTIONS>... {FINDMODE <MODE> {EXACT,

                      STARTAT <DN> STRING,
                      STOP <OPT> {AT <DN> STRING,
                     AFTER <NUM_OF_TUPLES> {1 TO 8000000}},
                     DISPLAY <NUM_OF_TUPLES> {1 TO 8000000},
                     SHOW <DN/TUPLE> {DN,
                                      TUPLE}}]
DEFAULTS  - Initializes the options for the SEARCH
                         command with default values
SEARCH      - Searches table DNSCRN for specified attributes
                       <ATTROPTS> - vector of up to 25 attributes
SEARCHALL - Searches table DNSCRN for attributes CLILTID1
                           CLILTID2, SCRGRP1, and SCRGRP2
Parms: <LTGRP> STRING
      <LTNUM> {1 TO 1022}
QUIT - Quits FINDATTRS increment
```

HELP subcommand

This command prints a list of FINDATTRS commands and a description of each command.

SEARCH subcommand

This command accepts as a parameter the attributes to search for in table DNSCRN. The SEARCH command will scan table DNSCRN and display tuples datafilled with the attributes specified in the ATTROPTS parameter of the command. Figure 16-14 shows an example of the SEARCH command.

Figure 16-14 Example of the SEARCH subcommand

```
dnscrnci
WARNING: ADDRANGE and DELRANGE commands write to the
         journal file and can cause it to overflow,
         hence entries will be lost in the journal
         file. To ensure this does not occur, please
         verify sufficient disk space for the journal
         file volume exists before using these commands.
DNSCRNCI:
>findattrs
FINDATTRS:
>SET
FINDMODE - EXACT
STARTAT  - 1
STOP     - AFTER 5
DISPLAY  - 5
SHOW     - TUPLE
>search cliltid1 isdn 1 $ $
DN ATTROPTS
-----------
6137221234 (CLISI ) (CLILTID1 (ISDN 1)$) $

SEARCH summary
--------------
Reason for Stopping - Requested number of tuples scanned (STOP AFTER)
Number of tuples displayed   -   1
Last search attempted on DN  -   6137221234
```

SEARCHALL subcommand

This command accepts an LTID to search all the attributes of table DNSCRN. The user is prompted for the LTID, and the command will scan all attributes of table DNSCRN. Figure 16-15 shows an example of the SEARCHALL command.

Figure 16-15 Example of the SEARCHALL command

```
>SEARCHALL isdn 1
DN ATTROPTS
-----------
1 (CLISI ) (CLILTID1 (ISDN 1) (ISDN 3) (ISDN 7) (ISDN 8) (ISDN 26)
(ISDN 51)$) (CLILTID2 (ISDN 104) (ISDN 105) (ISDN 106) (DWS 2) (DWS 4)
(DWS 6)$) $

6134557045 (CLISI ) (SCRGRP2 (TEST)$) $

6134559898 (CLISI ) (SCRGRP1 (PRITEST)$) $

6137221111 (CLISI ) (CLILTID2 (ISDN 1) (ISDN 105)$) $

6137221234 (CLISI ) (CLILTID1 (ISDN 1)$) $

SEARCH summary
--------------
Reason for Stopping  -   Requested number of tuples displayed (DISPLAY)
Number of tuples displayed   -   5
Last search attempted on DN  -   6137221234
```

SET subcommand

The SET subcommand sets up the search environment. Parameters of the SET subcommand are:

- FINDMODE
- STARTAT
- STOP
- DISPLAY
- SHOW
- QUIT

FINDMODE These are the two modes for searching. An EXACT search takes the data associated with an input attribute literally and search the table. The sequence of given data under its attribute is significant. A WILD search finds all the combinations based on the given attribute data. For example, consider the following two tuples in table DNSCRN:

Table 16-5 Table DNSCRN datafill examples

DN	ATTROPTS
1234567	(**CLILTID1** (ISDN 5) (ISDN 6) (ISDN 8) $)$
7654321	(**CLILTID1** (ISDN 5) (ISDN 8) $) $

For a search command: SEARCH CLILTID1 ISDN 5 ISDN 8,

- An EXACT search would only find the second tuple, but not the first one.
- A WILD search would find both tuples.

For EXACT search, the sequence of (ISDN 5, ISDN 8) under attribute CLILTID1 is significant. The sequence of attributes given in the SEARCH command is not significant for both EXACT search and WILD search.

Note: This parameter is only applicable to the SEARCH subcommand.

STARTAT This command is used to specify the DN to start the search at. The given DN does not have to be present in the table.

STOP This command is used to specify how to stop the search. AT specifies which DN to stop at. AFTER specifies how many tuples in the table to search for.

Note: This parameter will be valid only when STARTAT has been defined.

If AT is specified, the search would stop after the given DN is searched. For AT, the given DN does not have to be present in the table. In this case, no tuple after the given DN, if any, would be searched.

If AFTER is specified, the search stops after the specified number of tuples are searched.

DISPLAY This command specifies how many found tuples to display,

SHOW This command specifies what to display for a found tuple. DN indicates only DN is displayed. TUPLE indicates the entire tuple is displayed.

DEFAULTS subcommand

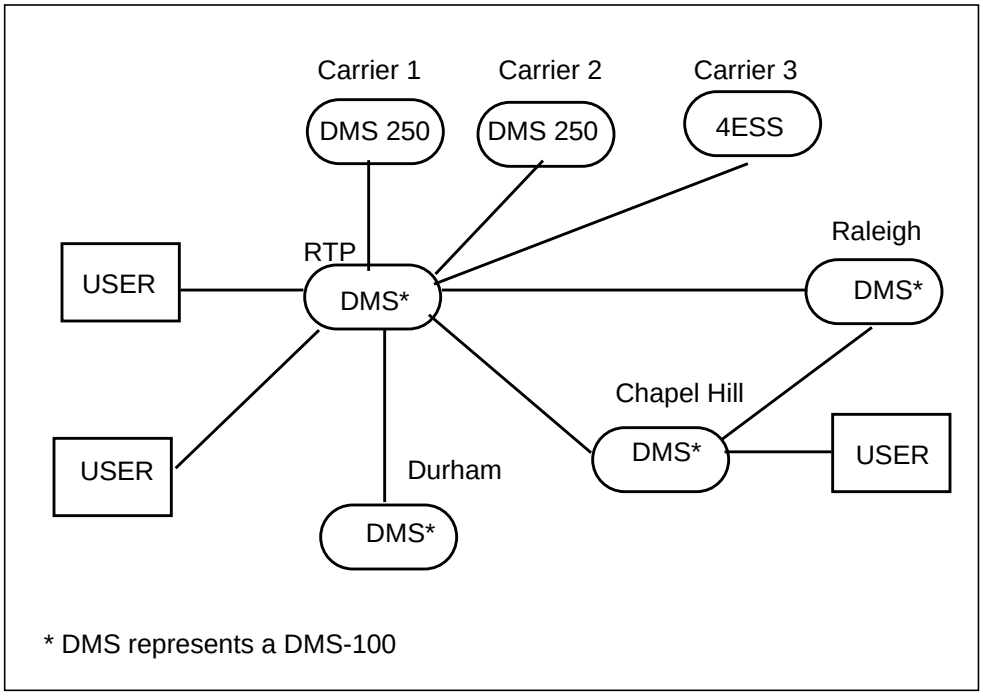
Different from the SET command, the FINDATTRS command DEFAULTS sets the search environment to system defaults. They are:

- FINDMODE: exact
- STARTAT: NIL (if the table is empty) or the DN of the first tuple
- STOP: AFTER 0 (zero, if the table is empty) or the total number of tuples in the table
- DISPLAY: the lesser of 10 and the total number of tuples in the table. If the table if empty, DISPLAY is set to 0.
- SHOW: tuple

17 PRI Service Identifier Routing

The Service Identifier (SID) identifies a preferred route to the customer. Any call type, except PUB, can use a SID routing. The PBX routes the call by sending a specific SID in the Setup message via the NSF IE. The example shown below is used for a foreign exchange scenario, although it can also be used with long distance to access carriers.

Figure 17-1 Public-switched network

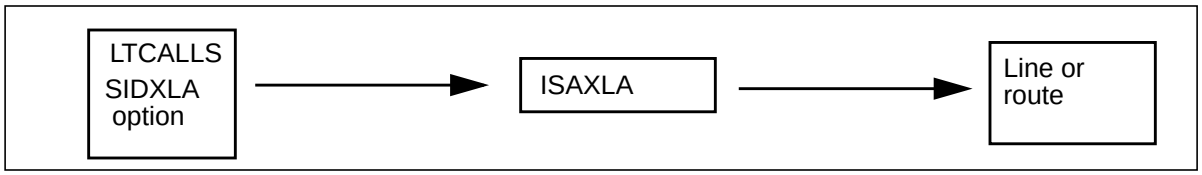


SID sends a call directly to a specific trunk with minimal call processing. This is especially useful with TIE and FX call types for which the subscriber knows the destination. DIS routing allows subscribers to do their own routing.

With the SIDXLA option selected in Table LTCALLS, the DMS switch takes the incoming SID and determines the route in Table ISAXLA. The diagrams

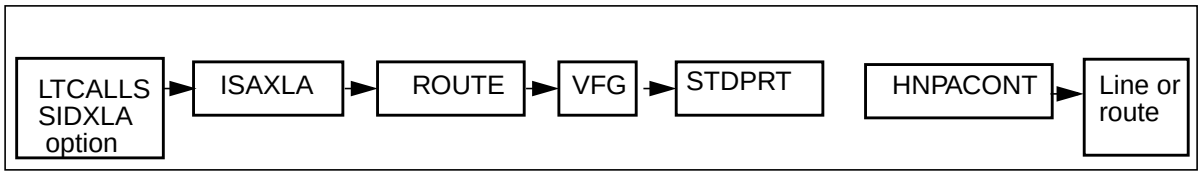
also show sizing through virtual facility groups. The following figure shows the table flow for Service Identifier Routing.

Figure 17-2 Table flow for Service Identifier (SID) Routing



The following figure shows the table flow for routing with sizing.

Figure 17-3 Table flow for (SID) routing with sizing



The following figure shows the table flow for routing with or without sizing.

Figure 17-4 Table flow for (SID) routing with or without sizing

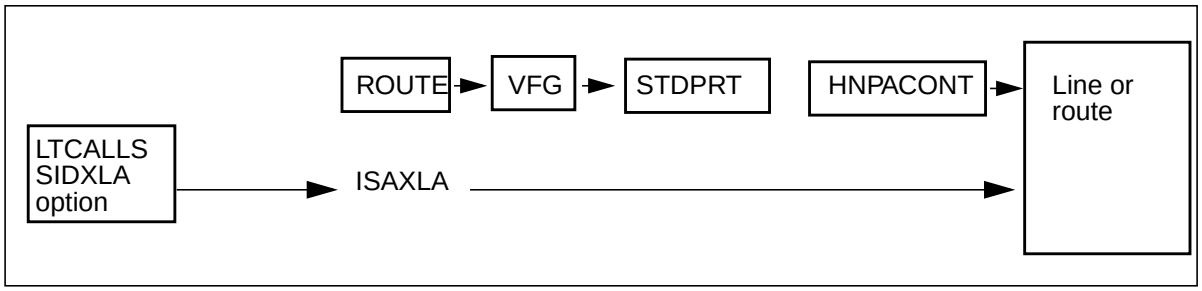


Table ISAXLA

Table ISAXLA reviews the incoming SID and sends the call directly to a route. Figure 17-5 shows an example of Table ISAXLA.

Figure 17-5 Example of Table ISAXLA

```
IRTRNAME  SIDFROM   SIDTO          RTEID
------------------------------------------------
PRIFX     0    0              (IBNRTE    7)$
PRIFX     4    4              (IBNRTE  505)$
PRIFX     5    5             (IBNRTE 1004)$
PRIFX     6    6              (IBNRTE 1005)$
PRIFX     7    7              (IBNRTE 1006)$
```

Table 17-1 shows a description of the fields and settings in Table ISAXLA.

Table 17-1 Description of Table ISAXLA

Field	Subfield	Entry	Description
IRTRNAME		Alphanumeric (up to 128 8-character names)	Router name. Enter the router name to be used in Table LTCALLS under the XLAISA selector, or in field IRTRNAME in Table MBGXLA.
SIDFROM		0–1,023	SERVICE ID FROM. Enter the lower boundary of the service identifiers (SID) .
SIDTO		0–1,023	SERVICE ID TO. Enter the upper boundary of the service identifiers (SID).
RTEID		ROUTE ID.	TABNAME - IBNRTE (Enter IBNRTE or OFRT to indicate the table name to which translations will route.)
	TABNAME	IBNRRT2, IBNRT3, IBNRT4, IBNRTE, OFR2, OFR3, OFR4, OFRT, ITOPS	Table name. Enter the routing table name. If no route identifier is used, enter $.
INDEX		0–1,023	Index. Enter the index into the routing table.

SID route TRAVER example

When Table LTCALLS is datafilled with option SIDXLA, every call that arrives at the DMS switch with the specified call type avoids normal translations. The call is sent directly to a specified trunk. The DMS switch can only access normal translations when no SID or invalid SID is present. When a subscriber does not send a SID, Treat_No_SID defines what action is taken. When Y is selected, the call is sent to treatment. When N is selected, the translation continues using information from the NPI, NSF, XLARTE, and called digits. In some cases, a default SID that is not intended for SID routing, typically SID = 0, is transmitted. Nortel recommends that SID = 0 route to normal translations.

In the following TRAVER example, IBNRTE 7 directs the call to normal translations.

Figure 17-6 TRAVER Example

```
>traver tr pri14 n cdn e164 2222104 fx 4 b rtevfg all
TABLE TRKGRP
PRI14 PRA 0 NPDGP NCRT ASEQ N (ISDN 150) $ $
TABLE LTCALLS
ISDN 150 FX XLAIBN 300 PBXGROUP 0 0 (SIDXLA PRIFX Y Y N) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE ISAXLA
PRIFX 4 4 (IBNRTE 505) $
TABLE IBNRTE
 505 ISA N N N SPRINTPRI PUB NONE N N 0
 . TABLE TRKGRP
 . SPRINTPRI IBNT2 0 NPDGP NCRT ISDN2 0 MIDL 0 N ANSDISC 0 Y N
N N N Y N 0 0 N 0
 .     0 0 N N N N N N N N N NATL (CALLCHR DIGDATA) (LTID ISDN
1018)
 .     (BCNAME 3_1KHZ) (SMDRITC ) $
 . TABLE LTCALLS
 . ISDN 1018 PUB XLALEC 10 $
EXIT TABLE IBNRTE
+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES
BC SPEECH
```

Figure 17-6 TRAVER Example

```
1 SPRINTPRI                  N CDN  E164  L  2222104 NIL_NSF


TREATMENT ROUTES.  TREATMENT IS: GNCT

1 120TONE
```

18 PRI Calling Line Identification

PRI Calling Line Identification ordering codes

Functional group ordering codes: NI000022

Functionality ordering codes: Not applicable

Release applicability

BCS36 and up.

Description

Table LTCALLS controls Calling Line ID Incoming (CLID). The default allows presentation. Option CLID SUPPRESS suppresses presentation. This is shown in the Table LTCALLS example.

Table LTDATA controls outgoing CLID. The default (ALWAYS) allows presentation, NEVER restricts presentation, and SCREENED checks the far end PI (presentation indicator) to see if presentation is allowed. When the PI is set to allowed, the number is sent marked as Presentation Allowed. When the PI is set to restricted, the CLI information is omitted.

Datafilling Table LTDATA

The following table shows the datafill specific to PRI Calling Line Identification Blocking for Table LTDATA.

Table 18-1 Datafilling Table LTDATA (Sheet 1 of 2)

Field Name	Description	Setting
LTDKEY	Logical Terminal Group	LTGRP - Name of the PRI group of logical terminals.
	Logical Terminal Number	LTNUM - Enter a number to identify the logical terminal.
	Logical Terminal Data Type	DATATYPE - SERV (SERV for service related data.)
LTDRST	Data Type	DATATYPE - SERV (SERV for service related data.)

Table 18-1 Datafilling Table LTDATA (Sheet 2 of 2)

Field Name	Description	Setting
	Audible Treatments	AUDTRMT - N
	Calling Party Number Required	CGNREQD - Y This field is populated, but is not used.
	Calling Party Number Delivery	CGNDELV . NEVER (NEVER indicates that the CGN information is not delivered to the PRI). ALWAYS. Indicates that the CGN will always be delivered irrelevant of the presentation indication of the calling party. SCREENED. Indicates that the CGN information will be screened (the CGN information element will be delivered, but the digits will only be included if the presentation indication of the number is allowed.)
	Called Party Number Delivery	CDNDELV - ALWAYS DFLTCGN. Enter the ten-digit directory nymber to be used as the default calling party number. The call defaults to a ten-digit CGN if it is not sent from PBX.

Datafill example for Table LTDATA

The following example shows sample datafill for Table LTDATA.

Figure 18-1 MAP display example for Table LTDATA

```
LTDKEY                                              LTDRSLT
_____________________________________________________________

  ISDN   1002 SERV
SERV Y N ALWAYS ALWAYS (TBO 899 N)$
```

Datafilling Table LTCALLS

Datafill example for Table LTCALLS

The following example shows sample datafill for Table LTCALLS.

Figure 18-2 MAP display example for Table LTCALLS

```
LTID                      XLARTSEL
                                                OPTIONS
____________________________________________________

ISDN  1008  PUB XLALEL 0         (INCLID SUPPRESS) $

ISDN  1009  PUB XLALEL 0                           $
```

19 PRI Calling Name Delivery

Ordering codes

Functional group ordering code: NI000030

Functionality ordering code: not applicable

Release applicability

NA009 and up.

Prerequisites

This document includes all the data table information for this functionality. Complete use of this functionality can require software and hardware not described in this document.

Description

The ISDN PRI Calling Name (I-CNAM) Delivery feature provides the ISDN PRI called party with the name of the calling party. The switch retrieves the calling party name from the ISDN user part (ISUP) initial address message (IAM), local lookup table, or a central name database using transaction capabilities application part (TCAP) messaging. This feature only affects the public network and is supported within the National ISDN PRI (NIPRI) variant.

Operation

ISDN PRI I-CNAM allows the called party to retrieve the calling party name from a central name database using TCAP messaging.

Terminating TCAP queries based on the calling party DN occurs for both intra-switch and inter-switch calls. The calling party name is supplied to the customer premises equipment (CPE), provided the presentation status is "allowed" and the calling name is retrieved.

The calling name privacy indicator is disregarded when determining whether to present the calling name to the CPE. The linking of the calling number privacy and the calling name privacy is required by Federal Communications

Commission (FCC) regulations. To obtain the calling party name, a 10-digit DN must be known.

Transporting calling name information for inter-switched calls is dependent on common channel signaling 7 (CCS7) connectivity between the originating and terminating offices. If the calling name text is in the IAM and the office parameter IAM_USE_NAME_CHAARS in Table OCFENG is set to Y, it is used.

If in Table CUSTNTWK, suboption TCAPNM is datafilled with the LOCAL option, the local name lookup feature is active. The switch searches the local DMS database (Table DNATTRS) for a name for a specific calling DN. If a local name is not found, a TCAP name query can be sent to obtain the calling name from a central name database.

The central residence name database provides a name of up to 15 characters and a permanent privacy indicator. The information retrieved by the database is passed to the terminating switch in a TCAP response package.

If the name cannot be obtained from the TCAP central residence database and there is no entry for the DN or the TCAP query is lost and a timeout occurs, a "not available" indication is delivered to the called party in a facility information element (IE). The privacy indicator from the central name database is ignored.

Translations table flow

The PRI Calling Name Delivery translations tables are described in the following list.

- Table LTDATA TCAP_CNAME option enables the feature.
- Table OFCENG IAM_USE_NAME_CHARS allows the name to be retrieved from ISUP IAM.
- Table TCAPTRID defines the number of TCAP transaction identifiers (TRID) to support I-CNAM.
- Table CUSTNTWK. The suboption TCAPNM in Table CUSTNTWK can be datafilled with LOCAL or NONLOCAL. When set to LOCAL, the TCAPNM local lookup feature is in effect and searches for local DMS database for the calling name, or gets the calling name from the party information parameter (PIP) of the ISUP IAM. The NONLOCAL setting turns off the local lookup feature. The local lookup is turned off to allow TCAP queries for the calling name. The default value of suboption TAPNM is NONLOCAL.

- Table CUSTHEAD. The TCAP timer is assigned on a customer group basis. The TCAP timer NDTIMEOUT is set from 1-6 seconds. The default is 3.
- Table LTCALLS provisions the customer group.

The following table lists the datafill content used in the flowchart in translation and datafill order.

Table 19-1 Datafill used for the flow chart

Datafill table	Example of data
LTDATA	ISDN 10 SERV SERV Y Y ALWAYS ALWAYS (TCAP_CNAM) $
OFCENG	IAM_USE_NAME_CHARS Y
TCAPTRID	CNAM 100 0 N
CUSTNTWK	PRADEFAULT PUBLIC 0 $ TCAPNM NONLOCAL
LTCALLS	ISDN 10 PUB XLAIBN 601 PRADEFAULT 0 0 $
CUSTHEAD	PRADEFAULT PRAXLA NDGT NIL (NDTIMOUT 6)

Limitations and restrictions

The following limitations and restrictions apply to PRI Calling Name Delivery:

- This feature applies to the NIPRI variant only.
- The privacy status is always determined from the calling number privacy indicator.
- The blocking toggle parameter of the calling number privacy indicator is not supported in I-CNAM and is not used.
- All necessary datafill for providing the residential and MDC TCAP CNAM (and BRI I-CNAM) functionality are required.
- The central name database requires a 10-digit DN in the TCAP query. Otherwise, an "unavailable" indication is sent to the called party.

Interactions

In the NA010 release, the PRI SUSP for CNAME feature allows the PRI I-CNAME feature to support interactions with the following:

- Advanced intelligent network (AIN) features
- Calling number screening and editing features
- Redirection (call forwarding) features

Activation/deactivation by the end user

PRI Calling Name Delivery requires no activation or deactivation by the end user.

Billing

In the NA010 release, the PRI SUSP for CNAME feature allows the PRI I-CNAM feature to support subscriber usage-sensitive pricing (SUSP) billing.

Datafilling office parameters

The following table shows the office parameters used by PRI Calling Name Delivery.

Table 19-2 Office parameters required for PRI Calling Name Delivery

Table name	Parameter name	Explanation and action
OFCENG	IAM_USE_NAME_CHARS	This parameter delivers the functionality of PRI Calling Name Delivery. The IAM information element of ISUP contains the GN parameter. The GN contains the calling name and the presentation indicator. This office parameter controls whether to use the calling name from the IAM.

Datafilling Table CUSTNTWK

The following table shows the datafill specific to PRI Calling Name Delivery for Table CUSTNTWK. Only those fields that apply directly to PRI Calling Name Delivery are shown.

Table 19-3 Datafill tables required for PRI Calling Name Delivery

Field	Subfield	Entry	Explanation or action
	TCAPNM	LOCAL, NONLOCAL	Enter LOCAL to activate the TCAPNM local lookup feature and search the local DMS database for the calling name. Enter NONLOCAL to disable the feature and perform only TCAP queries. The default value is NONLOCAL.

20 PRI Network Ring Again

Ordering code

Functionality group ordering code: NI000013

Functionality ordering code: Not applicable

Release applicability

BCS36 and up.

Prerequisites

To operate, PRI Network Ring Again (NRAG) requires the NI000011 functional group.

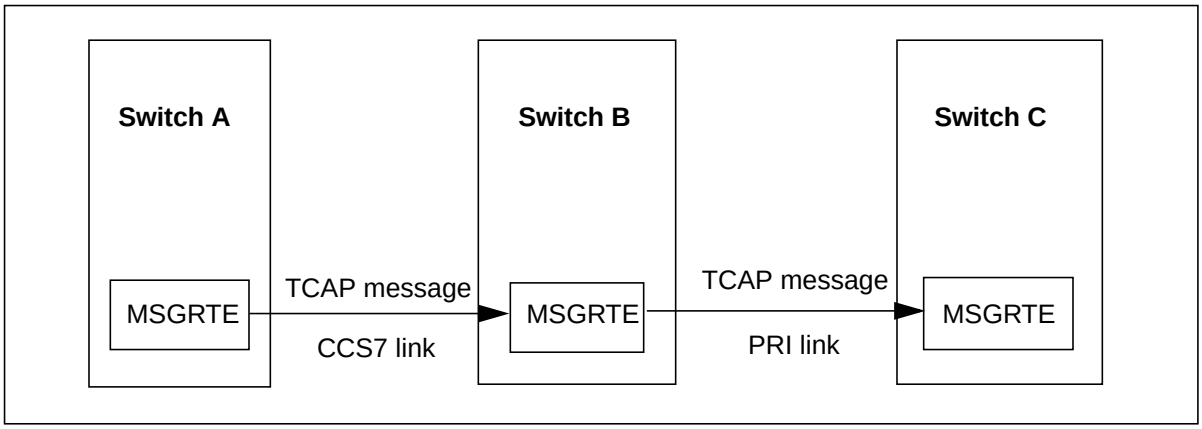
Description

The PRI Network Ring Again capability allows the ring again feature to work when the calling and called parties are on different switches connected by PRI trunks or by a combination of PRI and common channel signaling 7 (CCS7) links. An end user located in any of the switching nodes in the combined PRI/CCS7 network can apply NRAG against a busy station located in any of the nodes in the same network and customer group.

This feature allows an end user who calls a busy station to queue against that station and be recalled when it becomes idle. When the end user accepts the recall, the original call is automatically set up again.

NRAG is implemented through messages that are passed back and forth between the originating and terminating switch. There can be intermediate switches between the originator and terminator. All switches must be connected by either PRI or CCS7. The party who activates NRAG is at the originating switch. The party who is busy is at the terminating switch. The NRAG messages are passed (interworked) from one switch to another using the message routing Table MSGRTE. The messages contain the transaction capability application part (TCAP) information required by NRAG. The following figure illustrates how TCAP messages are routed over a PRI/CCS7 network using NRAG.

Figure 20-1 Routing TCAP messages thorough Table MSGRTE



Operation

Table NETNAMES is used to define the name of the logical network to which the end user belongs. The datafill for each network must be consistent on all switches involved. If routing trough Table MSGRTE is not chosen, the TCAP messages are routed through the signaling connection control part (SCCP) NRAG subsystem.

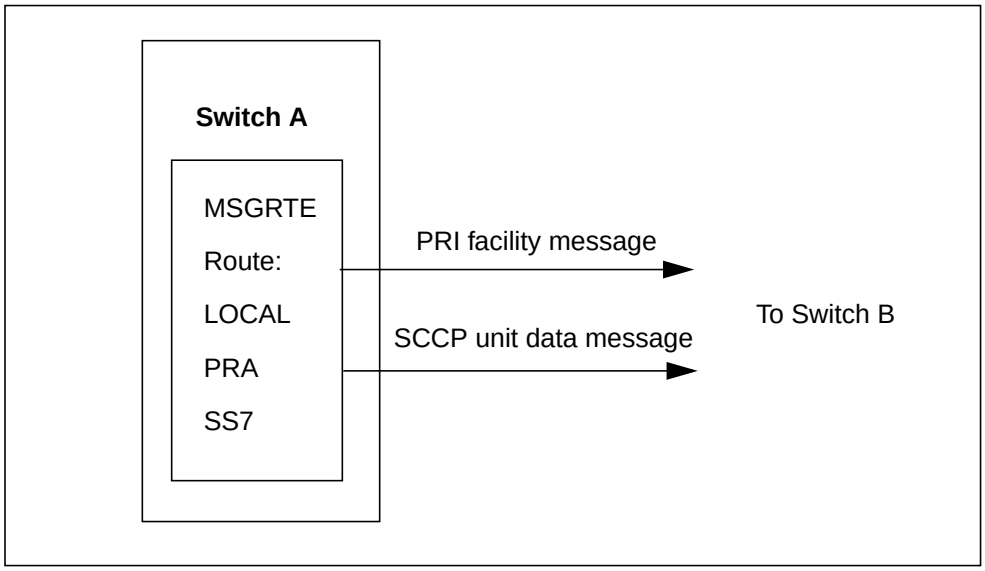
NRAG does not require a value in subfield OPTION in Table NETNAMES to cause the TCAP messages to route through Table MSGRTE. The options NINTNRAG and NMRTNRAG are required to prevent NRAG messages from being sent through Table MSGRTE.

Table CUSTNTWK is used to associate the customer group with its logical networks and to specify NRAG.

Table MSGRTE determines where a message is routed. The table is concerned with routing messages and not with establishing call connections. All switches in the path must have appropriate datafill in Table MSGRTE.

Table MSGRTE must be datafilled for NRAG to function. The table is indexed by a three subfield key consisting of a network identifier (NETID) and two, digit subfields (FROM DIGS and TODIGS). The data in the table is a list of routes made up of one to four route elements. Each route element in the route list requires a LOCAL, PRA, or SS7 route selector. When the selector is PRA, a PRI facility message is created and sent to the PRI facility process in the next switch. When the selector is SS7, an SCCP unit data message is created and sent to the SCCP interwork system in the switch. These messages contain the TCAP information needed by NRAG. The NRAG capability also uses Table MSGRTE. The following figure illustrates the NRAG routing process using Table MSGRTE.

Figure 20-2 MWI routing using Table MSGRTE



Limitations and restrictions

The following limitations and restrictions apply to PRI Network Ring Again:

- The original call must be entirely over PRI and/or SS7 trunks. NRAG is disallowed if any per trunk signaling (PTS) trunk is encountered.
- Subfield CALLTYPE in Table LTCALLS must be either PVT or TIE for the logical terminal identifier (LTID).
- Tables DNATTRS and DNGRPS may alter the digits in the orientation information element (IE). When either table has an entry for the calling directory number (DN) and network, and the ADDRESS option is datafilled with alternate address digits, these digits are sent in the origination IE. Table MSGRTE must be datafilled accordingly at the destination switch with the alternate digits.
- The calling and the called party must be members of the same network customer group. That is, the parties must belong to customer groups that have the same network customer group identifier infield NETCGID in Table CUSTNTWK. The actual names of the customer groups need not be the same at each switch.
- NRAG does not work between two switches that have different options datafilled in Table NETNAMES.
- Field NETNAME datafilled in each switch does not have to be the same. However, field EXTNETID must be the same at each switch. The EXTNETID entry is the external network identifier that is passed from switch to switch for NRAG. The DMS-100 switch converts the external

identifier to a network name at each switch and uses the network name to access Table MSGRTE.

- In order for NRAG to interwork between PRI and CCS7, the CCS7 SCCP tables must have additional datafill. Use the new subsystem (SS) name INTERWRK and the new global title (GT) name PRAGT. Also, Table TCAPTRID must have NRAG datafilled in the TCAP application field (TCAPAPPL).

Datafill sequence

The following table lists the tables that require datafill to implement PRI Network Ring Again. The tables are listed in the order in which they are to be datafilled.

Table 20-1 Datafill tables required for PRI Network Ring Again

Table	Purpose of table
NETNAMES	Defines the internal network names and their corresponding external network identifiers. Assigns the capability to the logical network to which the end user belongs.
CUSTNTWK	Associates an internal customer group name with a network name and calling line identification (CLID) used for the customer group throughout the network.
MSGRTE	Defines the routing of messages between switches.

Datafilling Table NETNAMES

The following table shows the datafill specific to PRI Network Ring Again for Table NETNAMES defines the internal network names and their corresponding external network identifiers and assigns the capability to the logical network to which the end user belongs. Only those fields that apply directly to PRI NRAG are shown.

Table 20-2 Datafilling Table NETNAMES (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
NETNAMES		Alphanumeric (up to 32 characters)	Network Name. Enter the name of the network to which the customer group belongs.
EXTNETID		Numeric (0 to 32 767)	External Network Identifier. Enter the unique number used to identify the network externally.
NETDIGS		Numeric (0 to 10)	Network Digits. Enter the number of digits used to identify field EXTNETID.

Table 20-2 Datafilling Table NETNAMES (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
NETOPTS		See subfield	Network options. This field consists of subfield OPTION.
	OPTION	FACREJ, NINTNRAG, NMRTNRAG	Option. Enter FACREJ for facility reject. The facility reject message is sent to the originator when the facility message cannot be routed for some reason. Enter NINTNRAG for no interworking NRAG. The network sends its NRAG connectionless SS7 message to the feature specified by the TCAP application field (TCAPAPPL) in Table TCAPTRID. Enter NMRTNRAG for no message route NRAG. The network routes its NRAG connectionless SS7 message by the digits and point codes returned in the ISDN user part (ISUP) RELEASE message instead of using Table MSGRTE. Enter a $ to end the tuple. ***Note:*** Options NINTNRAG and NMRTNRAG only apply to NRAG when the original call is made over an SS7 trunk. Both options are datafilled together for a NETNAME. If both options are datafilled, Table MSGRTE is not accessed during routing. When NINTNRAG is not datafilled, the network uses the INTERWRK RCAP application. Option NINTNRAG can only be datafilled for a network when MNRTNRAG is datafilled. Not datafilling NMRTNRAG or having a pure PRI network causes the NRAG messages to be routed by Table MSGRTE.

Datafill example for Table NETNAMES

The following example shows sample datafill for Table NETNAMES.

Figure 20-3 MAP display example for Table NETNAMES

```
NETNAME   EXTNETID   NETDIGS
                                                    NETOPTS
_____________________________________________________________

CUSTNET1     1024          7
                                              ( NMSTBRTE) $
```

Datafilling Table CUSTNTWK

The following table shows the datafill specific to PRI Network Ring Again for Table CUSTNTWK. It associates an internal customer group name with a network name and calling line identification (CLID) used for the customer group throughout the network. Only those fields that apply directly to PRI NRAG are shown. For a description of the other fields, refer to the data schema section of this document.

Table 20-3 Datafilling Table CUSTNTWK (Sheet 1 of 2)

Field	Subfield	Entry	Explanation or action
CUSTNAME		Alphanumeric (up to 16 characters)	Customer Name. Enter the internal name of the customer group. ***Note:*** The customer group must be datafilled in Table CUSTHEAD first.
NETNAME		Alphanumeric (up to 32 characters)	Network Name. Enter the internal name of the network assigned in field NETNAME in Table NETNAMES.
NETCGID		Numeric (0-4096)	Network Customer Group Identifier. Enter the number used to identify the customer group throughout the network.
OPTIONS		See subfield	Options. This field consists of subfield OPTION and refinements.
	OPTION	NTWKRAG	Option. Enter NTWKRAG for NRAG. Enter a $ to end the tuple.
	TIMEOUT	Numeric (10-60)	Time-out. Enter the number of seconds of ringing desired to alert the calling party that the called party is now idle.
	ORIGDUR	Numeric (5-30)	Originator During time-out. Enter the number of minutes that the NRAG request at the originating switch is to remain active.

Table 20-3 Datafilling Table CUSTNTWK (Sheet 2 of 2)

Field	Subfield	Entry	Explanation or action
	ORIGRTY	Numeric (2-10)	Originator Retry time-out. Enter the number of seconds that the originator waits after sending out a TCAP QUERY message before sending out another message or ending.
	TERMDUR	Numeric (5-31)	Terminator Duration time-out. Enter the number of minutes that the NRAG request at the terminating switch must remain active. ***Note:*** This time-out value must be greater than the entry in subfield ORIGDUR.
	TERMGRD	Numeric (1-6)	Terminator Guard time-out. Enter the number of seconds that the terminator must wait after the receiver goes on hook before sending a message to the originator to indicate idleness.
	TERMQAD	Numeric (5-40)	Terminator Queue Advance time-out. Enter the number of seconds that the terminator switch must wait before sending out called party free messages to different originators.
	NETOPT	ONNET or OFFNET	Network Option. Enter ONNET to enable NRAG for calls that originate and terminate in the same network Enter OFFNET to enable NRAG for calls across different networks.

Datafill example for Table CUSTNTWK

The following example shows sample datafill for Table CUSTNTWK.

Figure 20-4 MAP display example for Table CUSTNTWK

```
CUSTNAME     NETNAME    NETCGID
                                                    DNREVXLA
                                                    OPTIONS
_____________________________________________________________

    FRP1     CUSTNET1   311                                 $
                  (NTWKRAG  10 5  2  5 1  5  ONNET)$
```

Datafilling Table MSGRTE

The following table shows the datafill specific to PRI Network Ring Again for Table MSGRTE and defines the routing of messages between switches. Only those fields that apply directly to PRI NRAG are shown. For a description of the other fields, refer to the data schema section of this document.

Table 20-4 Datafilling table MSGRTE (Sheet 1 of 2)

Field	Subfield	Entry	Explanation or action
MSGRTEKEY		See subfields	Message Route Key. Datafill subfields NETID, FROMDIGS, and TODIGS as one concatenated entry. Separate the three values with blanks. You are not prompted for the subfields individually.
	NETID	Alphanumeric (up to 32 characters)	Network Identification. Enter the network name to which the customer group belongs.
	DIGRANGE	See subfields	Digit Range. This is made up of subfields FROMDIGS and TODIGS.
	FROMDIGS	Up to 11	From Digits. Enter a digit string for the lower bound of the digit range to which the route list applies.
	TODIGS	Up to 11	To Digits. Enter a digit string for the upper bound of the digit range to which the route list applies.
MSGRTRES		See subfields	Message Routes.
	MSGRTSEL	LOCAL, PRA, SS7	Message Route Selector. Enter LOCAL from the message to terminate locally at the DMS-100 switching node. Enter PRA for the message to route over a D-channel on a PRI trunk to the next node. Enter SS7 for the message to route over a CCS7 trunk to the next node. Enter a $ to end the tuple. ***Note:*** LOCAL must be the first and only route in a tuple. There can only be one SS7 selector and it must be the last selector in a tuple.
	TRKCLLI	Alphanumeric (1 to 16 characters)	Trunk CLLI. Enter the trunk calling line identifier. ***Note:*** Use when field MSGRTSEL is PRA.

Table 20-4 Datafilling table MSGRTE (Sheet 2 of 2)

Field	Subfield	Entry	Explanation or action
	DPC	Numeric	Destination Point Code. Enter the valid point code of the switch that the message is to be sent. ***Note:*** Use when field MSGRTSEL is SS7.
	DELDIGS	Numeric (0-15)	Delete Digits. Enter a number to specify the digits to delete from the destination address in the message routing information.
	PREDIGS	Up to 11	Prefix Digits. Enter the digit string to prefix the destination address in the message routing information.
MSGRTRES	OPTION	NEWNET	Option. Enter NEWNET for new network name. Enter a $ to end this subfield. Use when subfield MSGRTSEL is PRA or SS7. For SS7, use NEWNET only. ***Note:*** This subfield is optional.
	NETNAME	Alphanumeric (up to 32 characters)	Network Name. Enter the new network name that is to be used to replace the network identifier in the destination address in the message routing information. ***Note:*** The network name must already exist in Table NETNAMES.

Datafill example for Table MSGRTE

The following example shows sample datafill for Table MSGRTE.

Figure 20-5 MAP display example for Table MSGRTE

```
 MSGRTKEY
                                                    MSGRTRES
 ____________________________________________________________

CUSTNET1  0000001  9999999
           ( PRA   CTOD    0   0 (NEWNET CUST1PVT)$)$
```

21 PRI Subscriber Usage Sensitive Pricing for CNAME

PRI SUSP for CNAME ordering codes

Functional group ordering codes: NI000030

Functionality ordering codes: not applicable

Release applicability

NA010 and up

Description

PRI SUSP for CNAME provides subscriber usage sensitive pricing (SUSP) billing for the ISDN PRI Calling Name Delivery (I-CNAM) feature. PRI SUSP for CNAME allows the I-CNAM feature to support interactions with Advanced Intelligent Network (AIN), calling number screening and editing features, and redirecting (call forwarding) features. This functionality complies with TR-NWT-862, Automatic Message Accounting Generic Requirements, Issue 3, June 1993, Supplement 1.

Operation

The I-CNAM feature provides the ISDN PRI called party with the name of the calling party. The PRI Calling Name Delivery feature implemented this functionality in NA009.

The DMS switch retrieves the calling name from one of the following three sources:

- The ISDN user part (ISUP) initial address message (IAM)
- A local lookup table
- A central name database using transaction capabilities application part (TCAP) messaging

Limitations and restrictions

As of the NA010 release, AMA record generation for calling number delivery is not supported.

Interactions

The following paragraphs describe the interactions between PRI SUSP for CNAME and other functionalities.

Advanced intelligent network

PRI SUSP for CNAME enhances I-CNAM to support AIN.

Assume that AIN is triggered before I-CNAM and that AIN creates a new calling party DN. In this example, I-CNAM uses the AIN calling party DN to determine the calling party name. When AIN does not create a new calling party DN, I-CNAM uses the original calling party DN to obtain the name. I-CNAM also uses the presentation indicator (PI) set by AIN.

Currently, the AIN Bellcore specification supports an AIN calling party name. However, DMS-100 switch implementation of AIN 0.2 does not support the retrieval of the calling party name.

Processing for I-CNAM is one of the last steps in routing a call to its destination. Consequently, it is not possible for AIN to be triggered after I-CNAM, so there are no interactions between AIN and I-CNAM in this case.

Calling number screening and editing features

PRI SUSP for CNAME enhances I-CNAM to support calling number screening and editing features.

Calling number screening and editing features can change the calling DN during translations on the originating side of the call. These features change the calling DN by storing the new calling DN in an extension block. I-CNAM is triggered on the terminating side of the call and uses the calling DN from the appropriate extension block.

Redirection features

PRI SUSP for CNAME enhances I-CNAM to support redirection features.

Redirection features can change the DN of the calling party. I-CNAM uses the original calling party DN and PI, not the DN and PI of the redirected party.

Billing

The following paragraphs describe billing associated with the PRI SUSP for CNAME feature.

Overview

PRI SUSP For CNAME enhances I-CNAM to generate an AMA record when one of the following occurs:

- An SUSP audit
- The operating company deletes or changes the billing DN in Table. TRKGRP
- The operating company disables SUSP billing for a PRI LTID by setting refinement CNAM_SUSP for option TCAP_CNAM in Table LTDATA to N

  Note: When the operating company disables SUSP billing for a PRI LTID, a billing record is not immediately generated. The next SUSP audit generates a billing record for the LTID if the calling name delivery AVAIL and UNAVAIL counts are non-zero, to ensure that the counts are not lost.

- The operating company deletes the PRI LTID from Table LTDATA

SUSP pricing allows billing for the I-CNAM feature on a usage basis rather than a flat-rate basis. An office-level control for SUSP pricing in Table AMAOPTS (option SUSP) allows I-CNAM to generate SUSP AMA records.

The DMS switch generates an AMA record for each I-CNAM SUSP display subscriber as scheduled in Table AMAOPTS through option CIDSUSPAUD. The CIDSUSPAUD audit must occur at least once daily to produce the records for all CLASS SUSP display subscribers. Each record provides the calling information available and unavailable counts for the I-CNAM SUSP feature assigned to a PRI LTID. The delivery count fields are read-only fields.

When the DMS switch attempts to deliver the calling-party name, the switch counts the number of times the name is available or unavailable. A scheduled audit occurs at a minimum of once every 24 hours to collect these counts. PRI SUSP for CNAME enhances the existing SUSP audit process to gather the counts for I-CNAM delivery.

The SUSP AMA record includes the calling-name delivery AVAIL and UNAVAIL counts. The AVAIL count stores the number times the switch delivers a calling name to the subscriber. The UNAVAIL count stores the number of times I-CNAM was provisioned but the name was not available for delivery. Separate counts are stored for voice and data-name delivery.

Required provisioning for SUSP billing

The operating company must perform the following provisioning to enable SUSP billing for terminating PRI LTID. Bellcore LAMA and CAMA packages must be present in the office.

- In Table LINEATTR, add a pretranslator name, for example, INCK or P622 to route calls.
- In Table STDPRTCT, position on the pretranslator and access subtable STDPRT, Add the option DD (direct dial).
- In Table TRKGRP, assign the billing DN. Because a PRI LTID does not terminate to a set, the switch uses the trunk group billing DN to generate AMA records.
- Assign I-CNAM to trunk LTID in Table LTDATA. Set refinement CNAM_SUSP for option TCAP_CNAM to Y.
- Enable calling-number (CGN) delivery on the trunk LTID in Table LTDATA by setting subfield CGNDELV to ALWAYS.
- In Table AMAOPTS, set option SUSP to ON to enable SUSP billing.
- In Table AMAOPTS, set option CIDSUSPAUD to specify frequency of the SUSP audit.

Note: Office parameter ISDNBRI_CNAMD_CND_AMA in Table OFCENG determines whether the switch generates separate or combined AMA records for calling-name delivery and calling-number delivery. Because PRI SUSP for CNAME pertains only to calling-name delivery billing, this office parameter does not apply to this feature.

AMA record for SUSP I-CNAM

For PRI trunks with SUSP I-CNAM, the calling-name delivery AMA record has structure code 110, call code 264, and CLASS feature code 082.

The DMS switch appends module code 71 to the SUSP I-CNAM AMA record to indicate the bearer capability (BC). The following BCs are supported: 3_1KHZ and 64KDATA. All voice calls have a BC of 3_1KHZ. All data calls have a BC of 64KDATA. The following figure shows a SUSP I-CNAM AMA record generated with the ALLDUMP command for a voice call. Module 071 is appended to the record to indicate the BC. The release-cause value is 16 (normal clearing).

Figure 21-1 Example of a SUSP I-CNAM AMA record–voice call

```
*HEX ID:AA STRUCTURE CODE:401104 CALL CODE:264C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFFICE TYPE:036 REC OFFICE ID:0000000C
CLASS FEATURE:082C DATE:80601C CONNECT TIME:2116484C NPA:613C
DIR NUMBER:1231234C AVAIL COUNT:00002C UNAVAIL COUNT:0000C
MODULE CODE:071C BEARER CAPABILITY;102C NETWORK INTERWORKING:0C
RELEASE CAUSE INDICATOR:00016C MODULE ODE:000C
```

The figure below shows a SUSP I-CNAM AMA record generated with the CALLDUMP command for a data call. Module code 071 is appended to the record to indicate the BC. The release cause value is 16 (normal clearing).

Figure 21-2 Example of a SUSP I-CNAM AMA record–data call

```
*HEX ID:AA STRUCTURE CODE:401104 CALL CODE:264C SENSOR TYPE:036C
SENSOR ID:0000000C REC OFFICE TYPE:036 REC OFFICE ID:0000000C
CLASS FEATURE:082C DATE:80601C CONNECT TIME:2116484C NPA:613C
DIR NUMBER:1231234C AVAIL COUNT:00000C UNAVAIL COUNT:0000C
MODULE CODE:071C BEARER CAPABILITY;203C NETWORK INTERWORKING:0C
RELEASE CAUSE INDICATOR:00016C MODULE ODE:000C
```

Station Message Detail Recording

PRI SUSP for CNAME does not affect Station Message Detail Recording.

Datafilling Table LTDATA

Error messages for Table LTDATA

The following error and warning message applies to Table LTDATA.

Table 21-1 Error messages for Table LTDATA

Error message	Explanation and action
`SUSP ONLY ALLOWED IN BELLCORE AMA FORMAT OFFICES`	This error message displays if parameter AMA_FORMAT in Table AMAOPTS is not set to ATT_AMA_FORMAT to indicate Bellcore billing.

Translation verification tools

PRI SUSP for CNAME does not use translation verification tools.

SERVORD

PRI SUSP for CNAME does not use SERVORD.

22 PRI Two B-Channel Transfer

PRI Two B-channel Transfer ordering codes

Functional group ordering codes: NI000015

Functionality ordering codes: NI000018

Release applicability

NA009 and up

Prerequisites

PRI Two B-channel Transfer has no prerequisites.

Description

The PRI Two B-channel Transfer (TBCT) capability on National ISDN NIPRI trunks gives the CPE more efficient use of trunk connections for calling traffic. With a PBX, or network of PBXs, multiple call forward and transfers are typical. When a forwarded or transferred call is set up using two B-channels in a PRI trunk, the original channels can be released and made available for future calls. The controller can be an intelligent peripheral (IP), a PBX, or other CPE.

PRI TBCT provides the capability to connect two independent calls. The calls can be on the same or different NI-2 interfaces between the controller and the DMS switch at the request of the controller. The system sends this request to the SSP in the form of a Q.931 FACILITY message containing an invoke component coded with a TBT operation identifier.

All billing, including AMA billing, proceeds as if the TBCT never occurred.

Note: For per trunk signaling (PTS) trunks, the system denies TBCT during the alerting phase. PTS trunks outpulse digits to the far end. TBCT disrupts digit outpulsing, and the call cannot be completed.

Operation

The CPE requests TBCT by sending a facility message with a TBCT invoke component to the service switching point (SSP). If the SSP determines that all

validation criteria pass (for example, bearer capabilities and feature interactions), the SSP performs TBCT. The SSP responds with a facility message that acknowledges the TBCT request.

If requesting TBCT across different D-channels, the D-channel identifier must be present in the FACILITY message for the request.

The SSP processes the request as follows:

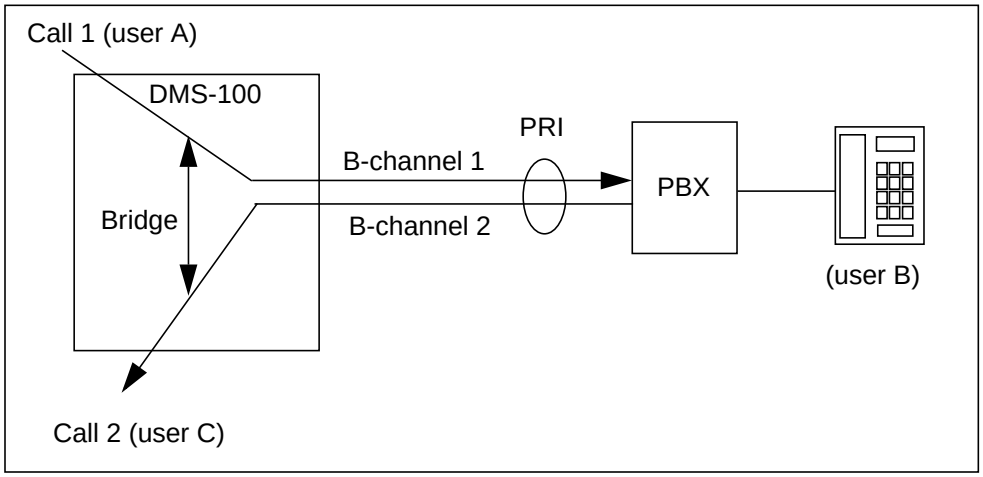
- Validates the request for both calls.
- Bridges the calls (providing a speech path) if validation passes. Otherwise returns an error message and leaves existing calls connected.
- Disconnects the calls to the controller if not already initiated by the controller.

TBCT across D-channels requires the following:

- The controller must provide the D-channel identifier of the second PRI interface to correctly identify the second call to be bridged (the first call being the call that receives the TBCT request).
- The D-channel identifier request (dCIRequest) can be independent of both TBCT and the calls to be bridged. The D-channel identifier can be requested on any call and stored for later use by the controller. The controller requests TBCT to be performed on the call receiving the TBCT request and a second call identified in the TBCT request by its link ID and D-channel identifier.

The following figure shows an example for PRI Two B-channel Transfer.

Figure 22-1 Example of PRI Two B-channel transfer



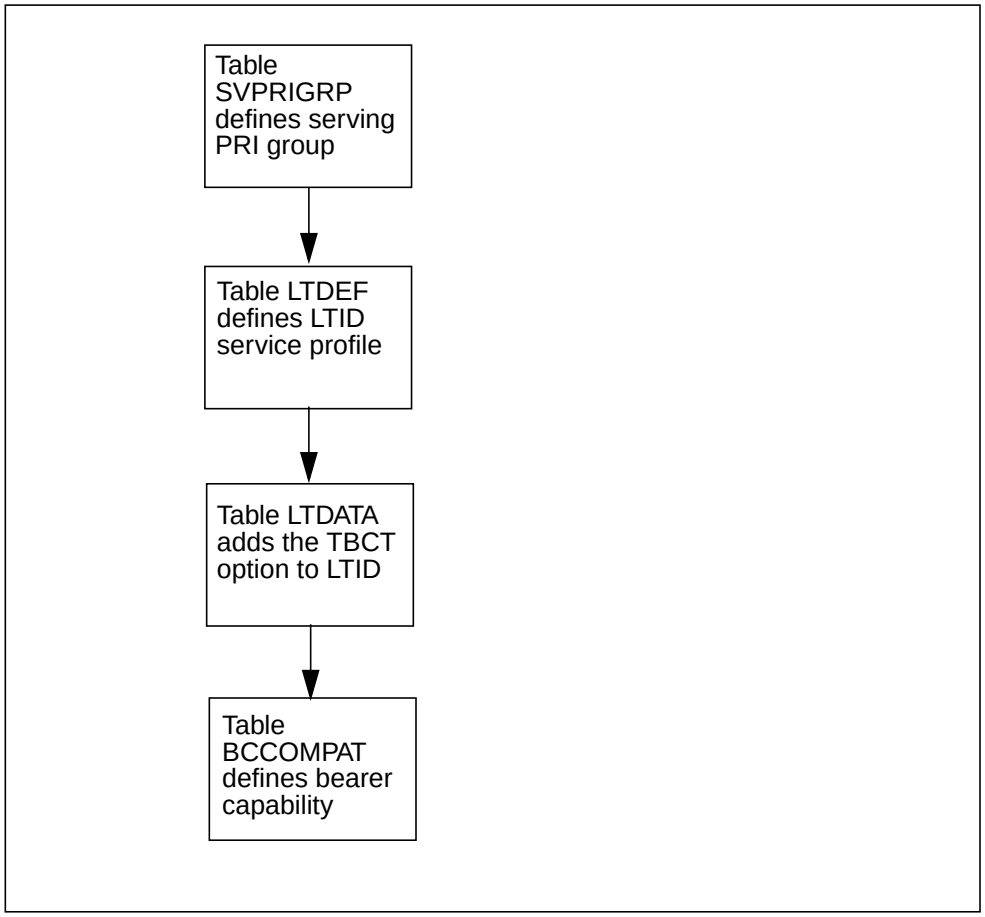
Translations table flow

The PRI Two B-channel Transfer tables are described in the following list:

- Table SVPRIGRP defines serving PRI groups. All PRIs that belong to the same serving PRI Group are viewed as terminating at the same destination. When requesting TBCT across D-channels (across PRI interfaces), the two PRIs must be in the same service PRI group for the request to be accepted. Using Table SCPRIGRP, the operating company can create up to 1022 serving PRI groups. A serving PRI group is identified through the key PGRPID in Table SVPRIGRP. This key is referenced in Table LTDEF to identify logical terminal identifiers (LTID) that belong to a serving PRI group.
- For the request to be accepted, the TBCT option must be datafilled in Table LTDATA. For TBCT across D-channels, TBCT must be datafilled on both PRIs involved in the transfer.
- Table BCCOMPAT (bearer capability compatibility) defines compatiable bearer capability (BC) pairs. For example, a terminal with a 300-baud modem BC can communicate with a terminal with a 300 to 1200-baud modem BC. TBCT calls are accepted only if the two calls involved in the transfer have compatible bearer capabilities.

The PRI Two B-channel Transfer translation process is shown in the following flowchart:

Figure 22-2 Table flow for PRI Two B-channel Transfer



Limitations and restrictions

The following limitations and restrictions apply to PRI Two B-channel Transfer:

- The calls to be transferred through TBCT must use the public E.164 dial plan as the NPI and LOCAL or NATIONAL as the type of number (TON) in the Called Party Number information element (IE).
- The SSP rejects TBCT requests for agents with the following terminating characteristics:
  - — Terminating MADN calls that are not answered due to possible trace conditions during answer by a MADN member
  - — Terminating multiparty line calls that are not answered due to possible trace conditions during answer by a multiparty member
  - — Attendant console due to limited support on PRI and AIN
- Transfer request is limited to the local SSP, which is the SSP that first receives the TBCT request. The system does not tandem the request to the next office.
- Interactions with ISUP CCTO are not supported. ISUP CCTO is used to release ISUP trunks that are made redundant as a result of the bridging of the two users. For example, if users A and B were on one DMS switch and the controller on another DMS switch, the system does not release the ISUP trunks connecting the two switches.
- The functionality provided by this feature is limited to the North American DMS-100 switch and is supported on standard DMS-100 NI-2 peripherals ISDN DTC and ISDN LTC.
- The SSP processes the first facility information element (FIE) in a facility message (with multiple FIEs) and ignores the rest. TBCT must be in the FIE for the SSP to process it. This characteristic indicates that no facility message with Return Result is sent to the controller if TBCT is not in the first FIE.
- The SSP does not check duplicate invoke IDs.
- The invoke ID length is restricted to one byte.
- TBCT does not support the transfer of AIN primer calls.

  Note: If TBCT is denied, there is no impact to the subscriber. The call remains stable.

The following limitations and restrictions apply to PRI Two B-channel Transfer, Phase 2:

- The number of PRIs in a serving PRI group is limited to 400.
- The number of serving PRI groups is limited to 1022.

- For TBCT notification to controller functionality, the maximum number of calltags in the DMS switch is 1000 and is unique to the DMS switch.
- The PRI Two B-channel Transfer Phase 2 feature supports the same set of feature interactions as AR2401.

Activation/deactivation by the end user

PRI Two B-channel Transfer requires activation by the controller, depending on the type of equipment in use and the office procedures practiced by the controller. The facility message with the embedded invoke component is the trigger for the TBCT. The controller's equipment can be provisioned to automatically initiate TBCT, or manual intervention can be required. The precise nature of manual intervention depends on the equipment in use. The PRI interface needs the TBCT option.

Billing

PRI Two B-channel Transfer does not affect billing. Billing continues as if the calls never transferred.

Datafilling Table SVPRIGRP

The following table shows the data required for Table SVPRIGRP.

Table 22-1 Datafilling Table SVPRIGRP

Field	Subfield	Entry	Explanation and action
PGRPID		Alphanumeric (up to 16 characters)	This is the key that identifies the serving PRI group. It includes all PRIs that connect to this customer's CPE.
NUMMEM		0–400 (automatic update)	This field records the number of LTIDs that are associated with the serving PRI group. The system automatically updates NUMMEM.
MEMBERS		A vector of LTIDs (automatic update)	This field records the PRI LTIDs identifiers that are associated with the serving PRI group. LTIDs are recorded in Table LTDEF.

Datafill example for Table SVPRIGRP

The following example shows sample data for Table SVPRIGRP.

Figure 22-3 MAP display example of Table SVPRIGRP

```
PGRPID                    NUMMEM              MEMBERS

PRI_TO_MTRL               2       (ISDN 381) (ISDN 383) $
```

Datafilling Table LTDATA

The following table shows the data specific to PRI Two B-channel Transfer for Table LTDATA. Only those fields that apply directly to PRI Two B-channel Transfer are shown.

Table 22-2 Datafilling Table LTDATA

Field	Subfield	Entry	Explanation and action
LTDRSLT			Logical Terminal Result. This field consists of subfield DATATYPE.
	DATATYPE	SERV	Logical Terminal Data Type. This field consists of subfield OPTION.
	OPTION	TBCT	The presence of TBCT in the OPTION vector indicates TBCT is provisioned and available.
	PARM	NTC	Enter to identify subscription to the Notification to Controller feature.
	STATUS	ON, OFF	Enter ON to turn on the notification to controller functionality (AF7322). Enter OFF to turn off this functionality. The default is ON. If ON, a message will be sent to the controller when the call is released.

Datafill example for Table LTDATA.

The following example shows sample data for Table LTDATA.

Figure 22-4 MAP display example for Table LTDATA

```
 LTDKEY LTDRSLT

ISDN 381 SERV SERV Y Y ALWAYS ALWAYS (TBCT (NTC OFF)) $
ISDN 383 SEEV SERV Y Y ALWAYS ALWAYS (TBCT (NTC ON)) $
```

23 PRI with Semipermanent Packet

Ordering codes

Functional group ordering code: NI000034

Functionality ordering code: NI000034

Release applicability

NA011 and up.

PRI with Semipermanent Packet was introduced in NA011.

Description

The PRI with Semipermanent Packet (Provisioning and Query Tools) feature provides X.25 primary rate B-channel packet services to meet National ISDN NI-2 requirements. This feature allows operating company personnel to assign a B-channel on the PRI T1 link from the customer premises equipment (CPE) to the packet handler. This feature specifies the capabilities to support a semipermanent (nailed up) X.25 packet connection on PRI. The existing X.25 services on basic rate interface (BRI) are available on PRI.

Operation

This feature addresses the requirements of those individuals who work from home and need their computers continuously connected to the packet network. The following changes occur in the provisioning and query tools to allow continuous connectivity.

The DS1 channels that carry X.25 packet services are defined as trunks for identification and maintenance purposes. The DS1 channels that carry X.25 packet services are viewed as lines for routing and translation purposes. PRI packet services has a seperate LTID, DN, and CLLI. The packet PRI trunks are similar to the X.75 trunk in terms of internal connectivity.

The following diagram shows the tables that datafill for PRI with Semipermanent Packet.

Figure 23-1 Table flow for PRI with Semipermanent Packet

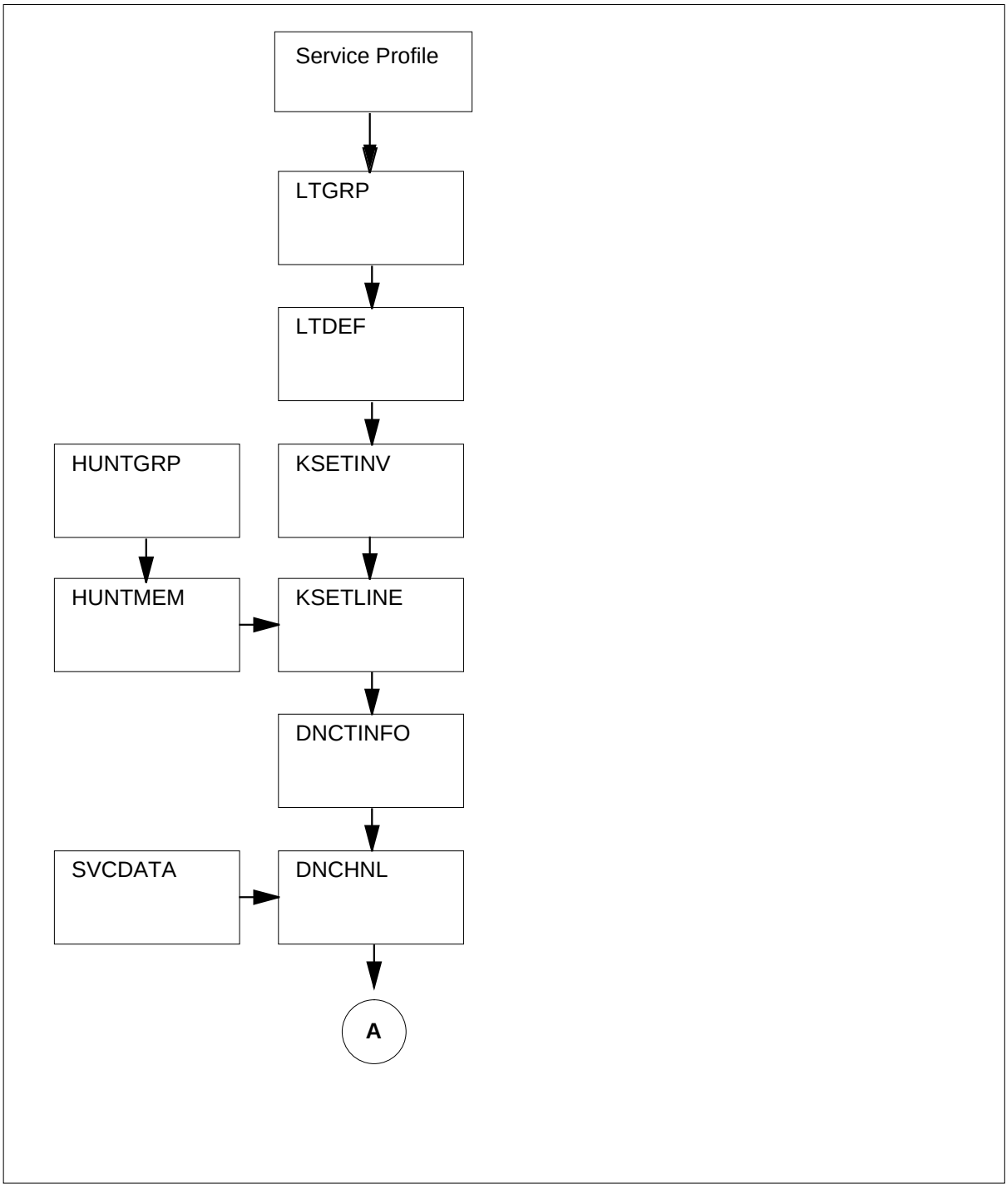


Figure 23-2 Table flow for PRI with Semipermanent Packet (continued)

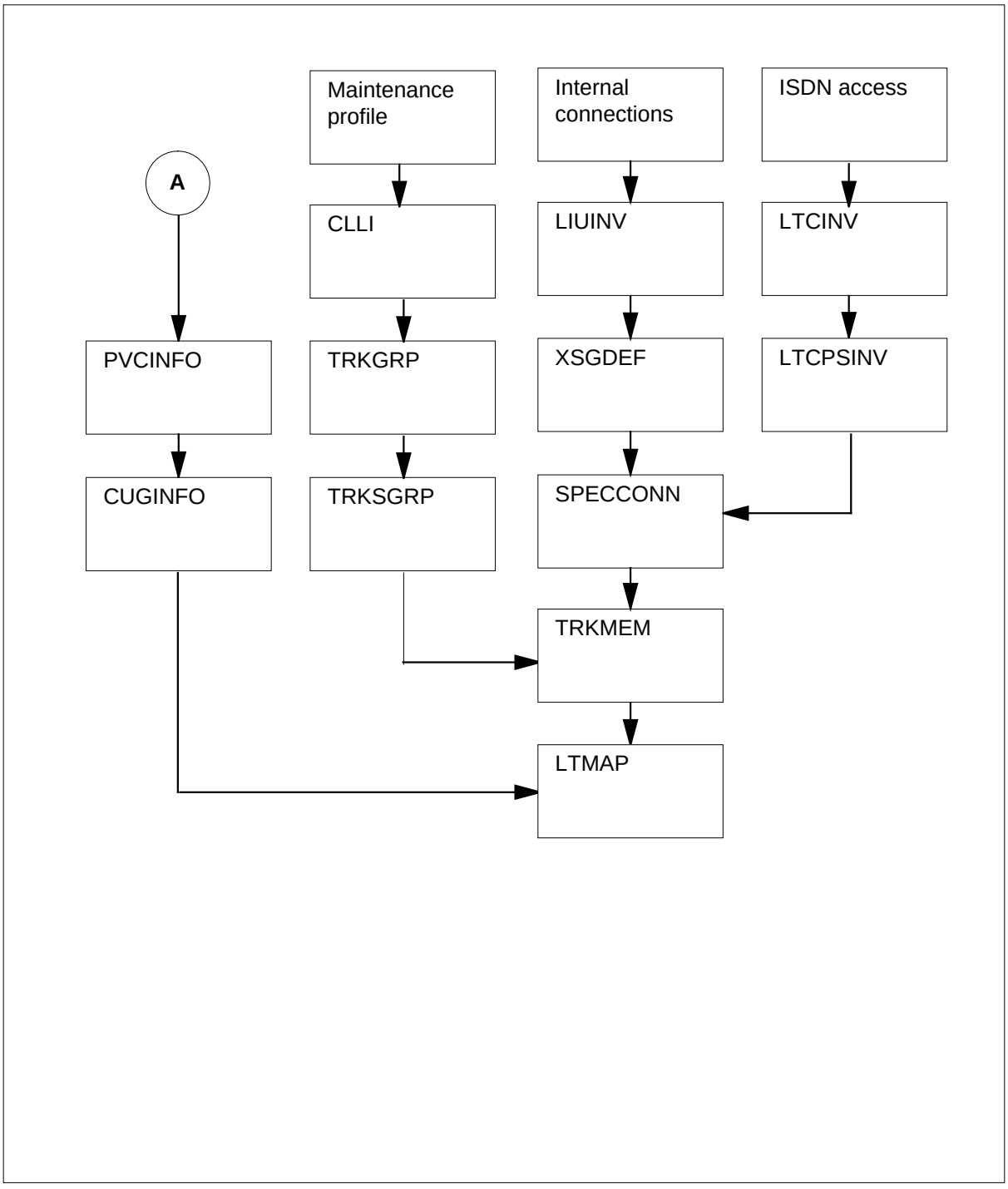


Table 23-1 DATAFILLL EXAMPLE OF PRI with Semipermanent Packet

Datafill table	Example data
LTGRP	PRAPKT 8 (SAPI16) $
LTDEF	PRAPKT 1 PB BRAFS $
KSETINV	PRAPKT 1 ISDNKSET 12 $
KSETLINE	PRAPKT 1 1 DN N 5551001 LONS634 0 0 613 $ BRI PMD
DNCTINFO	6135551001 PMD PMD (NUI N) (FSA N) (RCA N) (ICS N) (CUGS N) (TCN N) (FCPN N) (OCB N) (LCP N) (RPOAB N) $
DNCHNL	6135551001 B B (LLFSQ MOD8) (LLWS 7) 9T1 20) 9T2 2) (T3 5) (N2 3) (LCA (SLCN 1) (NPVC 0) (NOWI 0) (NNRC 1) (NOWO 0) $) (PLSQ MOD8) (NDWS N) (NDPS N) (DTCA N) $
XSGDEF	100 MS 21 0 1 30 Y
SPECCONN	XSGCHNL 100 (9) $ DS1 LTC 0 6 23 CON ACTIVE
CLLI	PKTPRI 56 5 Packet_on_PRI_CLLI
TRKGRP	PKTPRI PRA 0 PRAC NCRT ASEQ N $ $
TRKSGRP	PKTPRI 0 DS1SIG X25
TRKMEM	PKTPRI 1 0 LTC 0 623
LTMAP	PRAPKT 1 CLLIPKTPRI (MEM 1) $

Query tools

The QPHF and QLT modified commands query LT, DNs, and Line Eq for this feature on PRI.

QPHF

Use the non-menu QPHF (query packet handler function) command to display provisioning information about DNs, channels, and links. The following additional information displays with the QPHF commands:

- The QPHF LTID command shows that the LT is on an X.25 B link and is assigned to a PRI B-channel. The CLLI and MEMBER also display.
- The QPHF XSG command shows that the channel on the XSG is a PRI channel with X.25 service.
- The QPHF CHNL command shows that the channel type is PRI.

- The QPHF CLLI command shows a DN instead of a CLLI and MEMBER. The display also shows X.25 PRI for the channel type and X.25 B for the link type.
- The QPHF DN command shows X.25 PRI for the channel type.

QLT

Use the non-menu QLT (query logical terminal) command to display information about an LTID. This feature on PRI includes the following information:

- All DNs assigned to the keys on an LTID.
- Access privileges and the LTCLASS of the LTID.
- DS0 endpoint. Notice the DS0 endpoint displays for PRI instead of a LEN, which displays for BRI.

Limitations and restrictions

The following paragraphs describe the interactions between PRI with Semipermanent Packet (Provisioning and Query Tools) and other functionalities.

- The feature does not support the SERVORD SLT ATT and SLT DFT commands.
- This feature on PRI works only on ISDN DTCI and LTCI.

Interactions

The following paragraphs describe the interactions between PRI with Semipermanent Packet (Provisioning and Query Tools) and other functionalities.

- This feature can share a DN with BRI VI and CMD. PKT BRI and PKT PRI can reside in the same hunt group.

Datafilling Table TRKMEM

The datafill for Table TRKMEM does not change the PRI with Semipermanent Packet feature.

Error messages for Table TRKMEM

The following error messages apply to Table TRKMEM.

Table 23-2 Error message for Table TRKMEM

Error message	Explanation and action
DS0 must be nailed up in SPECCONN for X.25 PRA	While tables CLLI, TRKGRP, and TRKSGRP datafill, Table SPECCONN does not datafill. When Table TRKMEM datafills, Table TRKMEM searches for a DS0 connection on Table SPECCONN. If the DS0 connection is absent on Table SPECCONN, this error message displays. Datafill Table SPECCONN before Table TRKMEM.
Delete the LTMAP entry first	All the tables datafill for PKTPRI. This error message displays when operating company personnel try to change or delete a tuple in Table TRKMEM. Delete the tuple in Table LTMAP, then try to change the tuple in Table TRKMEM for the corresponding DS0.
Cannot use time slot 24 on DS1 for Packet on PRI	Timeslot 24 is reserved for the D-channel for the ISDN PRI trunk. This error message displays if the operating company personnel try to use timeslot 24. Use a timeslot other than 24 in Table TRKMEM.

Datafilling Table LTMAP

The following table shows the datafill specific to PRI with Semipermanent Packet for Table LTMAP. Only those fields that apply directly to PRI with Semipermanent Packet are shown.

Table 23-3 Datafilling Table LTMAP

Field	Subfield	Entry	Explanation and action
OPTION		MEM (values 0 -19)	Member number. This option prompts operating company personnel to enter the member number of the trunk group. Option MEM specifies that the LTID is a packet on PRI LTID. (MEM is only valid for packet on PRI.)

Datafill example for Table LTMAP

The following example shows sample datafill for Table LTMAP.

Figure 23-3 MAP display example for Table LTMAP

```
OPTION
-----------------------------------------------------
PRAPKT 1 CLLI PKTPRI (MEM1)$
```

Translation verification tools

PRI with Semipermanent Packet does not use translation verification tools.

SERVORD

PRI with Semipermanent Packet does not use SERVORD.

Directories and commands

The following table shows the modified directories that support PRI with Semipermanent Packet. The table also shows the modified commands that support this feature. Access these directories using commands at the CI level.

Table 23-4 Directories and modified commands required for PRI with Semipermanent Packet (Sheet 1 of 2)

Directory	Command
PROGDIR	QLT The QLT command displays all the information for an LTID. All of this information also displays for PRI with Semipermanent Packet with one exception: the DS0 endpoint displays instead of the LEN.
DMSCI	QPHF The QPHF command displays the provisioning information on all objects (DNs, channels, links) involved in the service for PRI with Semipermanent Packet. QPHF LTID The QPHF LTID command displays all the information for an LTID. The display shows that the logical terminal (LT) is on an X.25 B link type and is assigned to a PRI B-channel. The CLLI and MEMBER information also display. QPHF XSG The QPHF XSG command displays all the information for an XSG. The display shows that a channel on the XSG is a PRI channel with X.25 service by displaying channel type X.25.

Table 23-4 Directories and modified commands required for PRI with Semipermanent Packet (Sheet 2 of 2)

Directory	Command
	QPHF CHNL The QPHF CHNL command displays all the information for a channel with one exception: the display shows that the channel type is PRI. QPHF CLLI The QPHF CLLI command displays all the link information (CLLI and MEMBER) with one exception: the display shows a directory number instead of a CLLI and MEMBER. The display also shows X.25 PRI as the channel type and X.25 B as the link type. QPHF DN The QPHF DN command displays all the information for a directory number with one exception: the display shows X.25 PRI as the channel type. QPHF X.75 If the operating company personnel enter an X.25 PRI CLLI using the QPHF X.75 command, the following error message displays: This is a PRI CLLI. Use QPHF CLLI.

Part VIII
Maintenance

Part VIII: “Maintenance” contains the chapter, “Maintenance.”

24 Maintenance

ISDN is a layered protocol. Layer 1 is the physical T1 span. It carries the messages. Layer 2 is the messaging D-channel. It has a structured format for delivery. Layer 3 is the actual messages. For example, if we consider the postal system, the mail carrier is layer 1, the envelope is layer 2, and the letter is layer 3. We can perform maintenance on Layers 1 and 2. The following will describe the maintenance commands initiated from a Maintenance Access Position (MAP), Operation Measurements (OMs), also referred to as pegs, and associated logs. This guide is an abbreviated version that addresses most simple issues. For an exhaustive maintenance guide refer to NTP 297-2401-502.

To bring the ISDN PRI trunk into service, first bring the carrier into service, (Layer 1), then bring the D-channel into service (Layer 2), and then the B-channels into service.

Once a PRI trunk group has been placed into service, it typically runs trouble-free. Beyond initially bringing the groups into service, there is no need to access the maintenance screens described below. Any fault recovery is done automatically. The OMs will only be used when troubleshooting a problem. The logs will be used to point out potential trouble.

Carrier Maintenance

To access from a MAP position:

- >MAPCI;MTC;TRKS; CARRIER
- >POST DTCI 0

Figure 24-1 Carrier Maintenance Access Position (MAP) Display

```
CM        MS       IOD       NET      LNS     TRKS      EXT       APPL

POST   CLASS          ML        OS     ALRM    SYS13      MAN13       UNEQ     OFFL
0 QUIT    TRUNKS      0         0        0        0          0          0        0
2 POST    REMOTE      0         0        0        0          0          0        0
3         TIMING      0        .0        0        0          0          0        0
4           DS1
5 LOOP N CLASS SITE DTCI CK D ALRM SLIP FRME BER ES SES STATE
6 TST     0 TRUNKS HOST 0  0 C                  0      0     <7     0    0     INSV
7 BSY
8 RTS
9 OFFL
10 DispOpt
11 Disp      SIZE OF POSTED SET --1
12 Next      TRKS:
13           CARRIER:
14 Detail    POST:
15
16
17
18
   LAP2046
Time 08:58 >
```

The Carrier is Layer 1, the physical layer. The thresholds set in Table CARRMTC are listed and updated continuously on this screen and are pegged in the CARRIER OMs shown below. During normal use these pegs should be clear, as shown.

Table 24-1 Description of Carrier Maintenance Commands

Command	Results
7 or Busy	Manually busy the span or take it out of service
8 or RTS	Return the span To Service.
9 or Offl	Off-line the span. The system will not send alarms.

Table 24-2 Description of Carrier Maintenance States

States		
OFFL	Off-Line	This is how the span will come up on installation.
MANB	Manually Busy	An operator has BSY the space.
INSV	In Service	Normal operation.
SYSB	System Busy	The DMS recognizes it as non-operational.
CSBY	C-Side Busy	The peripheral C-Side links are busy.

Table 24-3 Description of Normal Carrier Maintenance Actions

Carrier	Action	Result
OFFL	7 or Busy	MB
MB	8 or RTS	INSV
SYSB	7 or Busy	MB

Carrier Operational Measurements

To access from a MAP position:

- >OMSHOW DS1CARR ACTIVE 'HOST DTCI 0 10 C
- >OMSHOW DS1CARR ACTIVE 18
- >OMSHOW DS1CARR HOLDING 'HOST DTCI 0 10 C
- >OMSHOW DS1CARR HOLDING 18

The active register is the currently updating register and the holding register is the last 15 minutes. The span can be accessed from the index number or the span location as shown.

Figure 24-2 DS1CARR Operational Measurements (MAP) Display

```
DS1CARR


                        DS1LCGA          DS1RCGA          DS1LOF          DS1SLP
                         DS1SBU           DS1MBU          DS1PBU          DS1CBU
                         DS1BER            DS1ES          DSISES          DS1UAS
                         DS1AIS           DS1ECF

 18 HOST DTCI 0      10 C
                                0                0               0               0
                                0                0               0               0
                                0                0               0               0
                                0                0
```

Table 24-4 Description of DS1CARR OM Registers

Register	Explanation
DS1AIS	DS1 Alarm Indication Signal: PM has received an alarm
DS1BER	DS1 Bit Error Rate: (C)
DS1CBU	DS1 C-Side Busy Usage: 100 second scan interval

Table 24-4 Description of DS1CARR OM Registers

Register	Explanation
DS1ECF	DS1 Echo Canceller Failure: 10 minute audit interval
DS1ES	DS1 Error Seconds: (C) (U)
DS1LCGA	DS1 Local Carrier Group Alarm: Received framing lost for 2.5 sec.
DS1LOF	DS1 Loss Of Frame: incoming LOS in 10 minute intervals
DS1MBU	DS1 Manual Busy Usage: 100 second scan interval
DS1PBU	DS1 Peripheral Busy Usage: 100 second scan interval
DS1RCGA	DS1 Remote Carrier Group Alarm: Far end is not receiving signal
DS1SBU	DS1 System Busy Usage
DS1SES	DS1 Severe Error Seconds (C) (U)
DS1SLP	DS1 Frame Slips (U)
DS1UAS	DS1 Unavailable Seconds (U) Unavailable for any reason

Carrier Troubleshooting

Verify that the physical connection exists. The physical connection may be as simple as a copper wire running between a CO patch panel and a device in the same building. On the other hand, the physical connection may be as complex as originating on an OC3, run through a digital cross connect, OC192, repeaters, and drop insert to custom equipment. In either case there is a physical path for a clear channel DS1 that can be traced from the DMS to the CPE.

Verify that the transmit pair is connected to the receive pair. The DS1 is a four-wire circuit, two wires for transmit and two wires for receive. In many cases the pairs can be flipped, which may be the case if the physical connection exists. If so, simply flip the pairs at the most convenient location.

Verify that the frame format is correct. Even with a correct connection, the carrier may still be SYSB because the frame format is incorrect. Ensure that the frame format is ESF. Refer to Table CARRMTC for an XPM or Table MNHSCARR for a SPM.

Verify that the DS1 facility is error free. A BERT (Bit Error Rate Test) is usually run during installation to determine the integrity of the facility. The DS1CARR OM provides ongoing statistics on facility integrity. All OMs should read "0", indicating there are no errors.

Once the carrier is INSV, the DMS will automatically bring it back into service if communication is lost. Instances where a carrier has been SYSB for some time may require MB and RTS to bring it back into service.

D-channel Maintenance

To access from a MAP position:

- >MAPCI;MTC;TRKS;TTP;PRADCH
- >POST GD PRATEST3 (Post Trunk-Group D-channel for PRATEST3)

Figure 24-3 PRADCH MAP Display

```
_CM       MS          IOD         NET        LNS        TRKS       EXT         APPL

PRADCH

0 QUIT    POST                    DELQ                             BUSYQL                DIG
2 POST    TTP                     6-030
3         CKT TYPE                PM NO.                COM LAN STAT SR DOT TE RESULT
4         2 W IS IS DTCI    0     0    24   PRATEST3                         D1          INS
5                    DTCI   0     0    24   PRATEST3                         D2          STB
6
7 BSY
8 RTS
9
10
11 HOLD
12 Next
13 SWACT
14
15 Cont
16 LOOPBK
17
18
          LAP2046
TIME 08:58>
```

The only difference between the TTP and the PRADCH layers is that the D-channel cannot be performed or looked at in TTP. It can be in PRADCH. PRADCH is accessed through TTP but is hidden in that it does not show on the menu.

Table 24-5 Description of D-Channel Maintenance Commands

Command	Results
7 or Busy	Manually busy the D-channel or take it out of service.
8 or RTS	Return the D-channel To Service.

Table 24-6 Description of D-Channel Maintenance States

States		
INB	Installation Busy	This is how the B-CH will come up on installation.
MB	Manually Busy	An operator has BSY the channel.
INS	In Service	Normal operation.
LO	Locked-Out	The user has not responded to requests on this channel.
PMB	PM Busy	The XPM is Out of Service.
CFL	Carrier Failure	Carrier Failure.

When using a backup D-channel a new state appears as Stand-By (STB).

D-channel Operational Measurements

To access from a MAP position:

- >OMSHOW PRADCHL2 ACTIVE DTCI0001024
- >OMSHOW PRADCHL2 ACTIVE 0
- >OMSHOW PRADCHL2 HOLDING DTCI0001024
- >OMSHOW PRADCHL2 HOLDING 0

The active register is the currently updating register and the holding register is the last 15 minutes. The D-channel can be specified by the OMs index number (0) or list PM (DTCI), PM # (000), Span (10), Circuit (24) DTC10001024.

Figure 24-4 Operational Measurements PRADCHL2 MAP Display

```
                                   PRDDISCT     PRDCRC     PRDDISCR     PRDSOTX
                                   PRDSORX    PRDSBMTX    PRDSBMRX    PRDRNRTX
                                  PRDRNRRX    PRDREJTX    PRDREJRX    PRFLSHED
 0 DTCI0001024
      0      10      24      (DTCI, SPAN, CIRCUIT)
                                         0           0           0           0
                                         0           0           0           0
                                         0           0           0           0
```

Table 24-7 Description of PRADCHL2 OM Registers

Register	Explanation
PRDCRC	Cyclic Redundancy Check
PRDDISCR	Received Frames Discarded due to errors other than CRC
PRDDISCT	Transmit Frames Discarded due to errors other than CRC
PRDREJRX	Reject Frames Received
PRDREJTX	Reject Frames Transmitted
PRDRNRRX	Receiver Not Ready Frames Received
PRDRNRTX	Receiver Not Ready Frames Transmitted
PRDSORX	Successfully received Service Access Point Identifier (SAPI) Frames
PRDSOTX	Successfully Transmitted (SAPI) Frames
PRDSBMRX	Link Resets Received from Far-end
PRDSBMTX	Link Resets Transmitted to Far-end
PRFLSHED	Flow Shed Q931 messages shed due to flow control queue full

Notes:

- One-minute accumulation for all registers.
- These pegs are zeros during normal operation.

Each of these messages provides clues into possible protocol problems.

Table 24-8 OM Pegs Related to Possible Problems

Type of Peg	Possible Problem
Discarded frames	Layer 2 coding differences
Rejected Frames	Layer 3 coding differences
Resets	Layer 3 Maintenance coding mismatch
Shed messages	D-Channel is being overloaded. Break up the trunk group between two trunk groups on different peripherals.
Not Readies	Window size mismatch

D-channel troubleshooting

When RTSing the D-channel from an MB state, there are four states to which it may move:

- INS - Operating as expected.
- CFL - Go to carrier troubleshooting.
- RNR - Receiver Not Ready. This indicates that the CPE is not ready for traffic. This may be due to an overload at the CPE or a malfunction at the CPE. In either case, it must be cleared at the CPE.
- LO - This indicates there is no communication between the CPE and the DMS. This may or may not be a DMS issue. If this occurs:

  1. Verify the network to user connection. Table TRKSGRP class is set to network. Verify that CPE is set to user.

  2. Verify the protocol. Table LTDEF PROTOCOL is set to NIPRI ISDN, or NTNAPRI . If NTNA connects to M1, SLIPROFL is also set in LTDEF. Verify the CPE Admin end matches.

B-channel Trunk Maintenance

To access from a MAP position:

- >MAPCI;MTC;TRKS;TTP
- >POST G PRATEST1 (Post Trunk-Group for PRATEST1)

Figure 24-5 TTT MAP Display

```
CM        MS        IOD        NET       LNS      TRKS       EXT        APPL


0 QUIT    POST                        DELQ                          BUSYQL            DIG
2 POST    TTP                           6-030
3         CKT TYPE                      PM NO.       COM LAN STAT SIR DOT TE   RESULT
4         2 W IS IS DTCI  0 0 23 PRATEST3                                        INS
5
6
7 BSY
8 RTS
9
10
11 HOLD
12 Next
13 SWACT
14
15 Cont
16 LOOPBK
17
18
    LAP2046
Time 08:58 >
```

Table 24-9 Description of Trunk Maintenance Commands

Command	Results
5 or Busy	Manually busy the B-channels or take it out of service
6 or RTS	Return the Group of B-channels To Service.

Table 24-10 Description of Trunk Maintenance States

States		
INB	Installation Busy	This is how the B-CH will come up on installation.
MANB	Manually Busy	An operator has BSY the channel.
IDL	In Service Idle	Normal operation.
LO	Locked-Out	User has not responded to requests for this channel.
DMB	D-CH Man Busy	D-channel is Manually Busy.
PMB	PM Busy	The XPM is Out of Service.
CFL	Carrier Failure	Carrier Failure
DFL	D-CH Failure	D-channel Failed
CPB	Call process Busy	Channel is being used on a call.
CPD	Call processing Deload	Channel will go into maintenance when call is completed

Table 24-11 Description of Normal Trunk Maintenance Actions

Carrier	Action	Result
INB	7 or Bsy	MB
MB	8 or RTS	INSV
SYSB	7 or Bsy	MB

B-channel Trunk Operation Measurements

To access from a MAP position:

- >OMSHOW TRK ACTIVE PRI10
- >OMSHOW TRK ACTIVE 75
- >OMSHOW TRK HOLDING PRI10
- >OMSHOW TRK HOLDING 75

The active register is the currently updating register and the holding register is the last 15 minutes. The Trunk Group can be specified by the Administration number (Table CLLI) or the CLLI name. (75 or PRI 10)

Figure 24-6 TRK Operational Measurements MAP Display

```
          INCATOT   PRERTEAB   INFAIL   NATTMPT

          NOVFLATB  GLARE      OUTFAIL  DEFLDCA

          DREU      PREU       TRU SBU

          MBU       OUTMTCHF   CONNECT  TANDEM

          AOF       ANF        TOTU


75 PRI10  (Carrier ADMIN. number, CLLI)
2W        23    23     (Two-way trunk, # of B- CH, # avail to report)

0         0                      0        0
0         0                      0        0
0         0                      0        0
0         0                      0        0
0         0                      0
```

Table 24-12 Description of TRK OM Registers

Register	Explanation
ANF	Bad ANI Signal, AMA, or area code for trunk.
AOF	Incoming calls where far end sends bad ANI.
CONNECT	Successful connections.
DREU	Direction.
DEFLDCA	Network management.
GLARE	B-channel was simultaneously requested by network and user.

Table 24-12 Description of TRK OM Registers

Register	Explanation
INCATOT	Total Incoming Call Attempts.
INFAIL	Termination Failure.
NATTMPT	Number of Attempts Incriminated when call is routed to trunk.
NOVFLATB	Number of Overflows (ALL TRUNKS BUSY).
OUTFAIL	DMS Origination failures.
PRERTEAB	Pre-route Abandon.
PREU	Protective Reservation Usage.
SBU	System Bust Usage when not IDL or CPB.
TANDEM	Incoming calls pre-routed to specific trunk.
TOTU	Total Usage.
TRU	Traffic Busy Usage CPB or LO.
OUTMTCHF	Outgoing Matching Failure.
MBU	Maintenance Busy Usage.

Note: During normal operation all pegs are zero except for NATTMPT = CONNECTS and TRU.

B-channel Trunk Troubleshooting

PRI Trunks are virtually trouble free because they are simply 64K timeslots. Therefore the only issues with a B-channel is one that originated with a D-channel message. The messages of concern are service messages. If the D-channel is INS, the only undesirable B-channel state is LO. Verify the IID in Table LTCPSINV for XPM or Table MNPRIIID for SPM. Match the CPE's IIDs as described in the provisioning section of this document.

If a trunkgroup exhibits outgoing call failures indicating trunks are not available when in fact there are idle trunk group members there may be an issue where the CPE is not responding to Q.931 Disconnect messages within a 750 MS time frame. The CM waits 750 milliseconds after it releases a call before it will attempt to terminate another call on that same trunk member. This is the amount of time the trunk member is on the guard_queue.

If a PRI trunk problem is suspected to be the trunk state mismatch, investigation of the REL response time from the far end equipment is required,

as well as verification that calls are terminating to treatment even though the DMS CM is showing the trunks as IDLE.

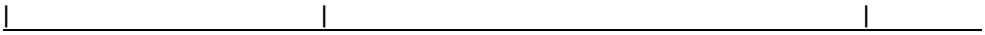
Option 'SZGRDTM - Seize Guard Time' in table LTDEF. Addresses this issue. The option has a sub-field called "INC_250MS" which stands for 250 millisecond increments. The new CM seize guard time is specified in increments of 250ms, with a minimum value of 3 (0.75s) and a maximum value of 60 (15s). This option will allow the user to specify the CM trunk guard time for an individual LTID (Logical Terminal Identifier). This seize guard time will guard a trunk circuit to prevent the CM from attempting to terminate on that trunk circuit for the time specified in the INC_250MS field after the CM clears the previous call.

Please be aware the SZGRDTM option should not be added to an LTID of a PRI trunk group without investigation of the specific problem. Careful consideration and input from a translations/provisioning group is recommended. Specialized applications may require a trial and error approach to arrive at the appropriate SZGRDTM timer value.

The following are example timer value settings and possible effects on the trunk circuit. Recall the DISC message has already been sent down the PRI and the XPM is waiting for a REL message.

T3 (TRKGRDTM + PSPDSEIZ) lowered to equal the SZGRDTM value:

These are the suggested timer settings for this problem since the trunks will be guarded for the least amount of time while at the same time will allow for the trunks to go into a LO state as soon as the trunk is taken off of the guard queue to prevent a state mismatch opportunity. In order to lower the value of T3 both the TRKGRDTM & PSPDSEIZ will be manipulated.



T1 *T2=T3* *T4*

T1 = 0 sec = Disconnect event is sent from the CM. Trunk state is IDLE but not available.

T2 = New CM trunk guard time = SZGRDTM. CM will make the trunk available at this time.

T3 = (TRKGRDTM + PSPDSEIZ). Time the XPM will wait prior to automatically changing the CM trunk state to LOCKOUT if the REL has not arrived.

T4 = Elapsed time for the PBX (IVR) to respond with a RELEASE message in response to the DISCONNECT.

Example

- New SZGRDTM = 10 (250ms increments = 2.5 sec
- TRKGRDTM = 50ms
- PSPDSEIZ = 2sec

Note: The DMS may experience an increased number of lockout (LO) messages - TRK110/112 logs - if the timers are set considerably lower than the average time it takes for the far end to send a RELEASE message.

The trunk guard time will default to the hard coded CM trunk guard time of 0.75 seconds if the SZGRDTM option is not used in Table LTDEF.

List of terms

This document contains a list of terms used exclusively for ISDN Primary Rate Interface (PRI).

Other DMS-100 switch related terms can be found in the reference manual, NTP 297-1001-825, *Glossary of Terms and Abbreviations*.

access module (AM)

The unit that provides access to the network modules (NM) of a digital packet network switching system from a local end user packet data line or the digital interworking unit (DIU).

access termination (AT)

The functional term to describe the part of the exchange termination which terminates the access interfaces (BRI and PRI). It defines the access privileges of the terminals on an interface, and provides the terminals on an interface with access to ISDN circuit- and packet-switching services.

AMA

See automatic message accounting (AMA).

AP

See access privilege (AP).

Automatic message accounting (AMA)

An automatic recording system that documents all the necessary billing data of end user-defined long distance calls.

BC

See bearer capability (BC).

B-channel

A 64kbit/s digital bidirectional channel used by ISDN for carrying either circuit-switched voice or data, or packet-switched data.

bearer capability (BC)

A characteristic associated with a directory number (DN) to indicate the type of call (voice or data) and the rate of transmission that is allowed. Bearer capability is also an information element that is carried in the setup message for functional signaling to indicate the type of call (voice or data) and the rate of transmission required (for ISDN). *See also* authorized call type, bearer services.

bearer services

Characteristic that is associated with a logical terminal (service profile) in functional signaling. It offers a pool of bearer capabilities to a logical terminal. Also called authorized call type.

B-packet

Packet data that is transmitted over a B-channel.

calling line identification (CLI)

In data transmission, a feature provided by the network that allows a called terminal to be notified by the network of the address from which the call has originated. Screening of CLI is performed during call setup only.

call processing

The software that handles the processes involved in setting up connections through the DMS-100 Family network between calling and called parties.

call reference

This identifies the call on the local ISDN interface to which the message applies. Stimulus call control messages have dummy call references because the network controls the call. Functional call control messages are used by the ISDN terminal to distinguish between call appearances of the same directory number, and to selectively control a number of simultaneous calls (for example, an active call, calls on hold, calls waiting).

call type

See authorized call type *and* bearer services.

CCITT

See Consultative Committee on International Telephony and Telegraphy (CCITT).

CCS7

See Common Channel Signaling 7 (CCS7).

central office (CO)

A switching office (SO) arranged for terminating end user lines and provided with switching equipment and trunks for establishing connections to and from other SOs. Also known as a local office.

CLI

See calling line identification (CLI).

Common Channel Signaling 7 (CCS7)

A digital message-based network signaling standard, defined by the CCITT, that separates call signaling information from voice channels so that interoffice signaling is exchanged over a separate signaling link.

central side (C-side)

The side of a node that faces away from the peripheral modules (PM) and toward the central control (CC). Also known as control side. *See also* peripheral side (P-side).

circuit-switched network

Synonym for the telephone network.

CO

See central office (CO).

Consultative Committee on International Telephony and Telegraphy (CCITT)

The CCITT is one of the four permanent groups within the International Telecommunication Union (ITU). The CCITT is responsible for studying technical, operating, and tariff questions. This organization also prepares recommendations relating to telephony and telegraphy, including data and program services.

CPE

See customer premises equipment (CPE).

customer premises equipment (CPE)

Equipment, such as ISDN terminals, that is located on the customer's premises.

data link layer

Layer 2 in the open systems interconnection (OSI) model that is used to create logical links between ISDN terminals and the services they access. The datalink layer provides error-free, sequenced messaging over a channel.

D-channel

For BRI, the D-channel is a 16 kbit/s, bi-directional channel. A D-channel carries call control messages between a terminal on an ISDN interface and the exchange termination. These call control messages are used to set up, maintain, or clear a circuit-switched call on a B-channel. The D-channel also carries low-speed packet data between a terminal on an ISDN interface and a terminal in the packet data network. For PRI, the D-channel is a 64 kbit/s, bi-directional channel. *See also* Bd channel, BRI, PRI.

directory number (DN)

The full complement of digits required to designate a end user's station within one numbering plan area (NPA)—usually a three-digit central office code followed by a four-digit station number.

DMS PH

DMS packet handler

DNA

See data network address (DNA).

DS0

A protocol for data transmission that is used to represent one channel in a 24-channel DS1 trunk.

DS1

A closely specified bipolar pulse stream with a bit rate of 1.544Mbit/s. It is the standard signal used to interconnect Northern Telecom digital systems. The DS1 signal carries 24 DS0 information channels of 64 kbit/s each.

DS30 link

1. A 10-bit, 32-channel, 2.048Mbit/s speech-signaling and message-signaling link as used in the DMS-100 Family 2. The protocol by which DS30 links communicate.

DS30A link

A 32-channel transmission link between the line concentrating module and controllers in the DMS-100 Family. DS30A is similar to DS30, though intended for use over shorter distances.

DTCI

See ISDN digital trunk controller (DTCI).

DTEI

See ISDN digital trunk equipment frame (DTEI).

E.164

The public network numbering plan in accordance with CCITT Recommendation E.164.

EAEO

See equal access end office.

EISP

See enhanced ISDN signaling preprocessor (EISP).

end office (EO)

A switching office (SO) arranged for terminating end user lines and provided with trunks for establishing connections to and from other SOs. *See also* central office (CO).

enhanced ISDN signaling preprocessor (EISP)

Provides call control messaging and D-channel handler maintenance functions, similar to the ISP, but with memory upgrade from 1Mbyte to 4Mbyte, clock speed upgrade from 16MHz to 20MHz, and data bus upgrade from a 16 bit width to 32 bits.

enhanced line concentrating module (LCME)

A dual-unit peripheral module that terminates ISDN 2B1Q U-type lines, ISDN S/T-type lines, plain ordinary telephone service (POTS), electronic business sets (EBS), and Datapath lines. LCME also provides access to the ISDN B-, D-, and M-channels. The LCME supports 480 POTS, EBS, or ISDN U- lines, or 240 Datapath or S/T- lines.

enhanced service provider (ESP)

A third-party vendor that supplies value-added services to the end user.

enhanced services test unit (ESTU)

A stand-alone test unit that performs metallic and digital line tests at remote or host sites for ISDN services.

EO

See end office (EO).

equal access end office

A central office that provides access to several long distance carriers.

ETSI

European Telecommunications Standards Institute

foreign exchange (FX)

A service that allows a telephone or a PBX to be served by a distant central office (CO), rather than by the CO in the immediate geographical area.

FX

See foreign exchange (FX).

high-level data link control

The channel by which high-level control messages from the central control are carried between the digital carrier module and remote line modules.

IEC

Inter-exchange carrier

integrated bit error rate test (IBERT)

A test that a MAP operator uses with an IBERT card to test the transmission quality of a selected data line. The card resides in the line drawer of a line concentrating module and generates the bit stream for an IBERT.

integrated services access (ISA)

Uses call setup messages and dialed digits to permit access to public and private network services through one bidirectional common access facility. ISA provides the capability to support multiple call types (such as PUBLIC, PRIVATE, OUTWATS, INWATS, FX, and TIE) on a single trunk.

integrated services digital network (ISDN)

A set of standards proposed by the CCITT to establish compatibility between the telephone network and various data terminals and devices. ISDN is a communications network that provides access to voice, data, and imaging services from a single type of connector.

inter-LATA

Telecommunications services, revenues, and functions that originate in one local access and transport area (LATA) and terminate either outside that LATA or inside another LATA.

International Standards Organization (ISO)

The organization responsible for creating a seven-layer protocol model for a data communications network.

intra-LATA

Telecommunication services, revenues, and functions that originate in one local access and transport area (LATA) and terminate either outside that LATA or inside another LATA.

ISA

See integrated services access (ISA).

ISDN

See integrated services digital network (ISDN).

ISDN access controller

A frame used to support ISDN access between a DMS and voice and packet services.

ISDN digital trunk controller (DTCI)

A dual-unit peripheral module that provides access for ISDN primary rate interface to a digital private branch exchange (PBX). The DTCI provides call control for PRI functional signaling, and performs functions similar to the LGC, including D-channel handling and processing, and maintenance and diagnostics.

ISDN digital trunk controller offshore

A peripheral module (PM) that connects DS30 links from the network with digital trunk circuits with ISDN.

ISDN digital trunk equipment (DTEI) frame

A frame containing up to two dual-shelf ISDN digital trunk controllers.

ISDN line trunk controller (LTCI)

A peripheral module that is a combination of the line group controller and the digital trunk controller, and provides all of the services offered by both.

ISDN service group (ISG)

Defines the services that a D-channel handler (DCH) provides and their allocation to the channels within the DCH. ISG allows hardware-independent access to service-related functions at the MAP. The ISG MAP level provides a view of the services and the DCH MAP level provides a view of the hardware.

ISDN signaling preprocessor (ISP)

Provides call control messaging and D-channel handler maintenance functions.

ISDN switch

A DMS switch configured to provide ISDN services. Its main functional components are the exchange termination and the packet handler.

ISDN terminal

A digital telephone or personal computer that is connected to a customer premises loop which forms part of a BRI.

ISDN user part (ISUP)

A CCS7 message-based signaling protocol which acts as a transport carrier for ISDN services. The ISUP provides the functionality within a CCS7 network for voice and data services.

ISG

See ISDN service group (ISG).

ISLC

See ISDN U-line card (ISLC).

ISO

See International Standards Organization (ISO).

ISP

See ISDN signaling preprocessor (ISP).

ISUP

See ISDN user part (ISUP).

kbit/s

See kilobits per second (kbit/s).

kilobits per second (kbit/s)

A bit rate expressed in thousands of bits per second.

LAPD

See link access procedure on the D-channel (LAPD).

LATA

See local access and transport area (LATA).

LCC

See Line Class Code (LCC).

Line Class Code (LCC)

An alphanumeric code that identifies the class of service assigned to a line.

link access procedure on the D-channel (LAPD)

ISDN access protocol that is used with links established on a D-channel.

LIU

See link interface unit (LIU).

local access and transport area (LATA)

A geographic area within which an operating company may offer telecommunications-related services. *See also* inter-LATA and intra-LATA.

logical terminal (LT)

The datafilled instance of an abstract terminal that is provided with a subset of the features and services (service profile) datafilled in the access termination for the abstract terminal.

logical terminal identifier (LTID)

The unique identifier that is assigned to a logical terminal when it is datafilled in the ISDN access termination.

LTCI

See ISDN line trunk controller (LTCI).

LTID

See logical terminal identifier (LTID).

maintenance trunk module (MTM)

In a trunk module equipment (TME) frame, a peripheral module (PM) that is equipped with test and service circuit cards and contains special buses to accommodate test cards for maintenance. The MTM provides an interface between the DMS-100 Family digital network and the test and service circuits.

MAP

The maintenance and administration position. MAP is a group of components that provides a user interface between operating company personnel and the DMS-100 Family systems. A MAP consists of a visual display unit and keyboard, a voice communications module, test facilities, and MAP furniture. MAP is a trademark of Nortel.

MTM

See maintenance trunk module (MTM).

NAS

See network administration system (NAS).

network layer

Layer 3 in the OSI model. In ISDN, the network layer is used to send call control messages.

network modules (NM)

The basic building block of the DMS-100 Family switches. The NM accepts incoming calls and uses connection instructions from the central control complex (CCC) to connect the incoming calls to the appropriate outgoing channels. Network module controllers control the activities in the NM.

open system interconnection (OSI)

A 7-layer protocol model for communications networks developed by the International Standards Organization and adopted by the Consultative Committee on International Telephony and Telegraphy (CCITT) for an Integrated Services Digital Network (ISDN).

OSI

See open system interconnection (OSI).

packet handler (PH)

The CCITT term for the component of an ISDN switch that provides packet switching services.

PCM

See pulse code modulation (PCM).

PCM30 digital trunk controller (PDTC)

A digital trunk interface that has the hardware configuration of an international digital trunk controller (IDTC) but runs the software of a digital trunk controller (DTC).

PCM30

A 32-channel 2.048Mbit/s speech-signaling and message-signaling link used in international trunks.

peripheral module (PM)

A generic term referring to all hardware modules of DMS-100 Family systems that provide interfaces with external line, trunk, or service facilities. A PM contains peripheral processors, which perform local routines, thus relieving the load on the central processing unit.

peripheral side (P-side)

The side of a node facing away from the central control and towards the peripheral modules. *See also* central side (C-side).

permanent virtual circuit (PVC)

A continuously available virtual path between remote applications and DMS applications. The PVC eliminates the need to establish a circuit on an each call basis.

per trunk signaling (PTS)

Conventional telephony method, which multiplexes a call's control signals with voice or data over the same trunk.

PH

See packet handler (PH).

PM

See peripheral module (PM).

PPSN

See public packet-switched network (PPSN).

PRI

See primary rate interface (PRI).

primary rate interface (PRI)

An interface that carries nB+D channels over a PCM30 digital facility (generally 30B+D for ETSI PRI). PRI is used to link private networking facilities, such as private branch exchanges (PBX), local area networks (LAN), and host computers with a standardized architecture acting as the bridge

between private switching equipment and the public network. Formerly known as primary rate access (PRA).

product engineering code

An 8-character code that provides a unique identification for each marketable product manufactured by Northern Telecom.

PSDS

See public switched data service (PSDS).

P-side

See peripheral side (P-side).

PTS

See per trunk signaling (PTS).

public packet switched network (PPSN)

Any common carrier network designed to carry data in the form of packets between public users.

public switched data service (PSDS)

Any common carrier network designed to switch data, not necessarily in packet form, between public users.

pulse code modulation (PCM)

Representation of an analog waveform by coding and quantizing periodic samples of the signal, so that each element of information consists of a binary number representing the value of the sample.

PVC

See permanent virtual circuit (PVC).

Q.921

The CCITT recommendation that defines protocols at the datalink layer.

Q.931

The CCITT recommendation that defines protocols for circuit-switched call control at the network layer.

SAPI

See service access point identifier (SAPI).

service access point identifier (SAPI)

Identifier that is used by datalink layer (layer 2) protocol to define the type of service allowed to an ISDN terminal.

signaling processor (SP)

The interface between a master processor and the control circuits in the line-side of a line module. Through the SP, the line circuits, ringing multiplexers, programmable ringing generators, and the activity circuit are controlled, and their status reported.

switching office (SO)

A node in the Common Channel Signaling 7 (CCS7) network that originates and terminates signaling messages related to the set up and take down of associated ISDN user part (ISUP) trunks.

unified processor (UP)

A processor that replaces the master processor (MP), signaling processor (SP), and the memory cards associated with these processors.

UP

See unified processor.

VC

See virtual circuit.

virtual circuit

In packet switching, a network facility used for transferring data between those data stations emulating physically-connected stations.

X.31

CCITT recommendation for support of terminal equipment by ISDN

X.121

CCITT standard for data network address

XMS-based peripheral module (XPM)

The generic name for peripheral modules (PM) that use the Motorola 68000 microprocessor. An XPM has two processors in a hot-standby configuration: a master processor (MP) and a signaling processor (SP).

XPM

See XMS-based peripheral module (XPM).

XPM Plus

XMS-based peripheral module that uses enhanced hardware and software

DMS-100 Family

National ISDN Primary Rate Interface (PRI) NI-2

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