Critical Release Notice

Publication number: 297-8021-350
Publication release: Standard 19.05

The content of this customer NTP supports the SN09 (DMS) software release.

Bookmarks used in this NTP highlight the changes between the NA015 baseline 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 NA015 baseline remains unchanged and is valid for the current release.

Bookmark Color Legend

Black: Applies to content for the NA015 baseline 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.

Purple: Applies to new or modified content for SN07 (DMS) that is valid through the current release.

Pink: Applies to new or modified content for SN08 (DMS) that is valid through the current release.

Orange: Applies to new or modified content for SN09 (DMS) that is valid through the current release.

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

Publication History

Note: *Refer to the NA015 baseline document for Publication History prior to the NA017 software release.*

January 2006

Standard release 19.05 for software release SN09 (DMS). Updates made for this release are shown below:

Volume 1-3

No changes

Volume 4

Section Channelized access on LPP/LIS, Datafilling table TRKMEM (Sheet 6 of 6), removed (TBD) from remote unit as required by CR Q01256730.

Volume 5-16

No changes

Volume 17

Section Universal Access to CLASS Features, RESOFC field, note added as required by CR Q01218960.

Section Call Forwarding Remote Activation, Limitations and Restrictions, bullet added as required by CR Q01168869.

Volume 18-25

No changes

September 2005

Standard release 19.04 for software release SN08 (DMS). Updates made for this release are shown below:

Volume 1

Section PRI trunk groups, Datafilling table TRKSGRP, L1Flags description corrected for Q01112597.

Volume 10

Section DMS-100 and Meridian 1 Options 11-81 datafill correlation, Table 15-2, L1Flags description corrected for Q01112597.

Volume 17

Call Forwarding Remote Activation, Speed Calling description corrected for Q01095576.

August 2005

Standard release 19.03 for software release SN08 (DMS). Updates made for this release are shown below:

Volume 9

Documentation correction in Call Forward/Interface Busy. CR Q01038988 was incorrectly referred to as CR Q01038999 in the March 2005 documentation release. This has been corrected in the History section for Call Forward/Interface Busy, and in this Critical Release Notice.

Volume 14

Changes made to Residential Call Hold. "Table flow for Residential Call Hold (RCHD)" amended. (Q01038649)

June 2005

Standard release 19.02 for software release SN08 (DMS). Updates made for this release are shown below:

Volume 14

Changes made to Group Intercom All Call (Q00100917)

Volume 16

Changes made to Automatic Call Distribution (Q01091391)

March 2005

Preliminary release 19.01 for software release SN08 (DMS). Updates made for this release are shown below:

Volume 1-8

No changes

Volume 9

Modified – Call Forward/Interface Busy by CR Q01038988

Volume 10-25

No change

December 2004

Standard release 18.02 for software release SN07 (DMS). Updates made for this release are shown below:

Volume 1-12

No changes

Volume 13
Added Virtual Office Worker (VOW) by A00002011

Volume 14-16
No changes

Volume 17
Universal Access to Call Forwarding (UCFW) changes to AMA billing by CR Q00982215

Volume 18-23
No changes

Volume 24
Added OSSAIN XA-Core Data Messaging Capacity Enhancements by A00005160

Volume 25
No changes

September 2004

Preliminary release 18.01 for software release SN07 (DMS). Updates made for this release are shown below:

Volume 1
Modified – Introduction to trunk tables (ES trunk groups) by CR Q00838215-1

Volume 2-3
No changes

Volume 4
Modified – Datafilling Trunk Signaling (ISUP Hop Counter) by CR Q00760514-10

Volume 5-10
No changes

Volume 11
Modified – Datafilling MDC Minimum (Call Pickup) by CR Q00879738

Volume 12
Modified – Datafilling MDC MSAC (Do Not Disturb) by A00002196

Volume 13-15
No changes

Volume 16
Modified – Datafilling ACD Base (Base automatic call distribution) by CR Q00812364

Volume 17
Modified – Datafilling RES Advanced Custom Calling (900 FP) by CR Q00834222
Modified – Datafilling RES Advanced Custom Calling (CSMI) by CR Q00683891
Modified – Datafilling RES Advanced Custom Calling (CWAS) by CR Q00891675-01
Modified – Datafilling RES Advanced Custom Calling (Enhanced CSMI) by CR Q00683891

Volume 18
No changes

Volume 19
Modified – Datafilling RES Service Enablers (SLE) by CR Q00760256

Volume 20
Modified – Datafilling Emergency Number Services (E911 Wireless ALI Interface) by CR Q00856825

Volume 21-24
No changes

Volume 25
Modified – Datafilling Unbundling (UNBN OPTRANS and EA) by A00002765

March 2004

Standard release 17.03 for software release SN06 (DMS). Updates made for this release are shown below:

Volume 1- 9
No changes

Volume 10
Changes due to CR Q00757372 that clarify the applicability of the AUDTRMT option. The changes are in sections:

- 7 Datafilling NI0 NI-2 PRI, PRI Call Screening
- 8 Datafilling NI0 ISDN PRI Base, Flexible Digit Analysis
- 8 Datafilling NI0 ISDN PRI Base, PRI ISDN Treatments
- 9 Datafilling NI0 ISDN PRI CNAM, PRI SUSP for CNAME

Volume 11-16
No changes

Volume 17
Modified - Call Screening, Monitoring, and Intercept (CSMI) for Q00659151
Modified - RES Simultaneous Ringing for Q00715967
Modified - Usage Sensitive Three-way Calling (U3WC) for Q00703423-03

Volume 18
Changes to Chapter 1 - Datafilling RES Display Functionality and Privacy, Anonymous Caller Rejection (ACRJ) as follows:

- change to description of interaction with Call Forwarding Don't Answer (CFDA) for CR Q00773476
- change to description of interaction with SOC RES00011 for CR Q00735537.

Volume 19
Changes due to CR Q00735537, which shows the interaction of various services with SOC RES00011. The changes are in Chapter 1 – Datafilling RES non-display services, and the affected services are:

- Distinctive Ringing/Call Waiting (DRCW)
- Selective Call Acceptance (SCA)
- Selective Call Forwarding (SCF)
- Selective Call Rejection (SCJ)

Volume 20
Changes due to CR Q00757372, which clarifies the applicability of the AUDTRMT option. The changes are in section:

- 2 Datafilling Emergency Number Services, E911 PRI PSAP Delivery

Volume 21-25
No changes

September 2003

Standard release 17.02 for software release SN06 (DMS). Updates made for this release are shown below:

Volume 1
New - Panther support for third-party RMs
Modified - E911 trunk groups

Volume 2-11
No changes

Volume 12
Modified - Query Functional Station Grouping

Volume 13-14
No changes

Volume 15
Modified - VMX Interface

Volume 16
No changes

Volume 17
Modified - Call Screening, Monitoring, and Intercept (CSMI)
Modified - Enhanced CSMI
Modified - Long Distance Alerting
Modified - Long Distance Alerting Enhancement (LDAE)
Modified - Service Order Simplification for MADN Extension Bridging

Volume 18
Modified - Call Logging (CALLOG) Modified - Universal Voice Messaging
Modified - Voice Mail Easy Access (VMEA)

Volume 19
Modified - CMS AR Screening of Private Calls (CASOP)
Modified - In-Session Activation (ISA)

Volume 20
Modified - DMS Integrated E911 PSAP Functionality
Modified - E911 Incoming Wireless Calls
Modified - E911 Incoming Wireless Calls (MF)
Modified - E911 ISUP Parameter Enhancements
Modified - E911 ISUP Trunking
Modified - E911 Tandem
Modified - E911 Translations Robustness
Modified - VFG Support for E911 (LOC and/or ISUP/ANI Call)

Volume 21-25
No changes

June 2003

Preliminary release 17.01 for software release SN06 (DMS). Updates made for this release are shown below.

Volume 1-25
New Critical Release Notice added. Otherwise, no changes

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DMS-100 Family

North American DMS-100

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Data, ISDN, and Internet Services Part 3 of 3

LET0015 and up Standard 14.02 May 2001

NORTEL NETWORKS™

DMS-100 Family

North American DMS-100

Translations Guide Volume 10 of 25

Data, ISDN, and Internet Services Part 3 of 3

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NTP Summary Contents

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1 Datafilling MISC ISDN Enhancements

The following chapter describes the MISC ISDN Enhancements, MISC00003, functionality.

BRI Layer 2/3 Surveillance Monitoring

Ordering codes

Functional group ordering code: MISC0003

Functionality ordering code: not applicable

Release applicability

NA008 and up

Prerequisites

To operate, BRI Layer 2/3 Surveillance Monitoring has the following prerequisites:

- MISC BRI Layer 3, MISC0003
  - — Feature AF6669, which is required to provide the layer 3 abnormality counts and logging, contains the above functionality.
- MISC Multi Pt EOC, MISC0003
  - — Feature AF6688, which is required to modify the QLAYER and RLAYER commands, contains the above functionality.

Description

Basic Rate Interface (BRI) layer 2/3 surveillance requirements as outlined by section 3.5 of TR821 are supported.

The following is a list of the functional elements of this feature:

- extended functionality of current MAP (maintenance and administration position) commands for on demand accessing to include layer 3 performance data for circuit switched lines
- generation of abnormality log reports including reports of terminal endpoint identifier (TEI) assignment abnormalities, which are detected by the D-channel (DCH) or enhanced D-channel (EDCH) handler and logged by the CM
- generation of log reports for layer 3 signaling abnormalities reported by the integrated services digital network extended peripheral module (ISDN XPM) and logged by the CM
- generation of daily log reports listing ISDN lines experiencing high abnormality rates for both layer 2 and layer 3
- user control of layer 2 and layer 3 abnormality reports on an individual line and office-wide basis

BRI Layer 2/3 Surveillance Monitoring (continued)

Operation

BRI Layer 2/3 Surveillance Monitoring has made changes in several existing user interface commands as well as adding new ones. The user interface commands that have been modified are the LTPISDN MAP level commands QLAYER and RLAYER and the non-resident command ISPGAUD. The two commands that have been added are L2LOGCTL and L3LOGCTL.

The modifications to the existing commands and the syntax and usage of the new commands are described in the following paragraphs.

User interface

Modifications have been made to the MAP commands QLAYER and RLAYER in order to include additional layer 2 and layer 3 abnormality counts. The following modifications have been made:

- display of layer 2 high abnormality count
- display of layer 3 high abnormality count
- display of TEI assignment abnormality total count
- display of two additional frame abnormality counts along with other frame abnormality counts. The two additional abnormality counts are:
  - — tracking when proper response is not received when attempting to establish or reset link after an N200 SABME frame has been sent
  - — tracking all incorrect frames not counted elsewhere

Non-menu commands L2LOGCTL and L3LOGCTL have been added to the LTPISDN MAP level.

The use of the non-resident ISPGAUD command has been expanded to include layer 3 checking.

QLAYER command description

This menu command is used to query the layer 1, 2, and 3 performance and abnormality information for ISDN lines. It is executed from the LTPISDN level of the MAP. The command displays the information to the MAP. This feature increases the information displayed for layer 2, adding one more frame abnormality count, a layer 2 high abnormality count, and a TEI assignment abnormality count total. A layer 3 high abnormality count is also displayed.

If the posted ISDN line is not a 2B1Q line, layer 1 information is ignored.

The new information display introduced by this feature for layer 2 is not applicable to the ISDN line drawer (ILD), the subscriber carrier module-100

BRI Layer 2/3 Surveillance Monitoring (continued)

urban (SMU), and the subscriber carrier module-100 access (SMA). The layer 2 information for the ILD is displayed in the old format.

QLAYER command syntax

A valid ISDN line must be posted in order for the command syntax to be displayed. The syntax for command QLAYER:

QLAYER <layer> <mode>

QLAYER command parameter definitions

Table QLAYER command parameters contains the definition for each of the parameter values.

QLAYER command parameters

Parameter	Value	Description
layer	L1, L2, L3, full	L1 - performance information pertaining to layer 1 for the ISDN line is displayed. This parameter must be followed by the mode parameter. L2 - performance and abnormality information pertaining to layer 2 for the ISDN line is displayed. L3 - abnormality information pertaining to layer 3 for the ISDN line is displayed. full - all 3 layers are displayed. This is the default option.
mode	BE, HIST, BOTH	This parameter applies only when layer 1 is specified. BE - block error HIST - history BOTH - both BE and HIST
target	LC, MPLU	LC -Line Card MPLU -Multi-point Embedded Operations Channel Line Unit <lu_no>lALL> {1 to 6, ALL}

The following figure shows the MAP display generated if a valid ISDN line is not posted when the help QLAYER command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display response to HELP QLAYER command with no ISDN line posted

```
>HELP QLAYER
QLAYER command is not valid on UNEQUIPPED lines.
The QLAYER command queries the Performance Monitoring
&/or Protocol Abnormality data for the specified
layer of an ISDN LEN posted in the Control Position
of the LTPISDN level of the MAP.  Layer 1 queries are
valid for 2B1Q LENs and their sub-tending mp-eoc line
units only.  As a default, Layer 1 parameters for the
line card and all sub-tending line units is queried.
Layer 2 and layer 3 queries are valid for all ISDN
LENs.  There is only one syntax for the QLAYER command. The
QLAYER command is only valid for the following terminals:
ISDN lines.
To view QLAYER command syntax, POST a terminal the QLAYER
command is valid for.
```

The following figure shows the MAP display generated if a valid ISDN line is posted when the HELP QLAYER command is entered.

MAP display response to HELP QLAYER command with ISDN line posted

```
>HELP QLAYER
QLAYER – Query the Performance &/or Protocol
Monitoring data for the specified layer(s) of an ISDN
LEN posted in the Control Position of the MAP.
Parms: [<layer> {L1 [<mode> {BE,
                             HIST,
                             BOTH}],
                [<target> {LC,
                           MPLU <lu_no|ALL> {1 TO 6,
                                             ALL}}],
                 L2,
                 L3,
                 FULL}]
```

The following figure shows the MAP display generated when QLAYER FULL command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to QLAYER FULL command x

```
>QLAYER FULL

LEN HOST 01 0 00 06
Linecard:
 ---ES NE---  ---SES NE---    ---ES FE---  ---SES FE---
   C.Hr  C.Dy   C.Hr  C.Dy      C.Hr  C.Dy   C.Hr  C.Dy
     0     1      0     0         0     0      0     0
Active Thresholds (NE)   and   (FE)
    40   100     10    25        40   100     10    25

Linecard Clock    1   12:20:36

Frames received in total      :          0
Frames received in error      :          0
Frames transmitted in total   :        274
Frames retransmitted          :          0
Percentage error received     :        0.0%
Percentage retransmitted      :        0.0%

Number of Service Disruptions :     0
Length of Time Disrupted      :     0 minutes
Currently Disrupted           : NO

Layer 2 Individual Abnormality Counts:
ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7  ABN8  ABN9  ABN10
===== ===== ===== ===== ===== ===== ===== ===== ===== =====
   0     0     0     0     0     0     0     0     0     0

TEI Abnormality Count : 0
Layer 2 High Abnormality Count   : 0

Layer 3 High Abnormality Count   : 0
```

The following figure shows the MAP display generated when QLAYER L2 command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to QLAYER L2 command x

```
> QLAYER L2

LEN HOST 01 0 00 06

Frames received in total      :          0
Frames received in error      :          0
Frames transmitted in total   :        274
Frames retransmitted          :          0
Percentage error received     :       0.0%
Percentage retransmitted      :       0.0%

Number of Service Disruptions :     0
Length of Time Disrupted      :     0 minutes
Currently Disrupted           : NO

Layer 2 Abnormality Counts:
ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7  ABN8  ABN9  ABN10
===== ===== ===== ===== ===== ===== ===== ===== ===== =====
0     0     0     0     0     0     0     0     0     0

TEI Abnormality Count : 0
Layer 2 High Abnormality Count   : 0
```

The following figure shows the MAP display generated when QLAYER L3 command is entered.

MAP display of response to QLAYER L3 command x

```
> QLAYER L3

LEN HOST 01 0 00 06

Layer 3 High Abnormality Count   : 0
```

RLAYER command description

This menu command is used to query and reset the layer 1, 2, and 3 performance and abnormality information for ISDN lines. It is executed from the LTPISDN level of the MAP. The command displays the information to the MAP. This feature increases the information displayed and reset for layer 2, adding one more frame abnormality count, a layer 2 high abnormality count, and a TEI assignment abnormality count total. A layer 3 high abnormality count is also displayed and reset.

BRI Layer 2/3 Surveillance Monitoring (continued)

If the posted ISDN line is not a 2B1Q line, layer 1 information is ignored.

RLAYER command syntax

A valid ISDN line must be posted in order for the command syntax to be displayed. The syntax for command RLAYER:

RLAYER <layer> <mode> <all_posted>

RLAYER command parameter definitions

Table RLAYER command parameters contains the definition for each of the parameter values.

RLAYER command parameters

Parameter	Value	Description
layer	L1, L2, L3, full	L1 - performance information pertaining to layer 1 for the ISDN line is displayed. This parameter must be followed by the mode parameter. L2 - performance and abnormality information pertaining to layer 2 for the ISDN line is displayed. L3 - abnormality information pertaining to layer 3 for the ISDN line is displayed. full - all 3 layers are displayed. This is the default option.
mode	CUR, HIST, BOTH	This parameter applies only when layer 1 is specified: CUR - block error HIST - history BOTH - both CUR and HIST
target	LC, MPLUS	LC - Line Card MPLUS -Multi-point Embedded Operations Channel Line Unit - <lu_no>lALL> {1 to 6, ALL}
all_posted	ALL	This is an optional parameter that can follow any of the previously listed parameters. It will perform the chosen RLAYER command on all lines in the posted set.

The following figure shows the MAP display generated if a valid ISDN line is not posted when the HELP RLAYER command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to HELP RLAYER command with no ISDN line postedx

```
>HELP RLAYER
RLAYER command is not valid on UNEQUIPPED lines.
The RLAYER command resets the Performance Monitoring
&/or Protocol Abnormality data for the specified
layer of an ISDN LEN (or set of LENs) posted at the
LTPISDN level of the MAP.  Layer 1 resets are valid
for 2B1Q LENs and their sub-tending mp-eoc line units
only.  As a default, Layer 1 parameters for the line card
and all sub-tending line units are reset.  Layer 2 and
layer 3 resets are valid for all ISDN LENs.  There is only
one syntax for the RLAYER command.
The RLAYER command is only valid for the following terminals:
ISDN lines.
To view a RLAYER command syntax, POST a terminal the RLAYER
command is valid for.
```

The following figure shows the MAP display generated if a valid ISDN line is posted when the QHELP RLAYER command is entered.

MAP display of response to HELP RLAYER command with ISDN line posted

```
>HELP RLAYER
RLAYER – Reset the Performance &/or Protocol
Monitoring data for the specified layer(s) of an ISDN
LEN posted in the Control Position of the MAP.

Parms: [<layer> {L1 [<mode> {CUR,
                             HIST,
                             BOTH}],
                    [<target>{LC,
                              MPLUS}],
               L2,
               L3,
               FULL}]
       [<all_posted> {ALL}]
```

The following figure shows the MAP display generated when the RLAYER command is entered. The RLAYER command defaults to displaying and resetting all three layers unless a specific layer is entered as part of the command entry.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the RLAYER command

```
>RLAYER

LEN HOST 01 0 00 06
Linecard:
 ---BE NE---  ---BE FE---
  C.Hr  P.Hr   C.Hr  P.Hr
     0     1      0     0
---ES NE---  ---SES NE---    ---ES FE---  ---SES FE---
   C.Hr  C.Dy   C.Hr  C.Dy      C.Hr  C.Dy   C.Hr  C.Dy
     0     1      0     0         0     0      0     0
  Active Thresholds (NE)   and   (FE)
    40   100     10    25        40   100     10    25
---ES NE---  ---SES NE---    ---ES FE---  ---SES FE---
   P.Hr  P.Dy   P.Hr  P.Dy  TI  P.Hr  P.Dy   P.Hr  P.Dy
      1            0        -1     0            0

Linecard Clock    1   12:20:36
Linecard COUNTERS : RESET
Frames received in total      :          0
Frames received in error      :          0
Frames transmitted in total   :        274
Frames retransmitted          :          0
Percentage error received     :        0.0%
Percentage retransmitted      :        0.0%

Number of Service Disruptions :     0
Length of Time Disrupted      :     0 minutes
Currently Disrupted           : NO

Layer 2 Individual Abnormality Counts:
ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7  ABN8  ABN9  ABN10
===== ===== ===== ===== ===== ===== ===== ===== ===== =====
0     0     0     0     0     0     0     0     0     0

TEI Abnormality Count : 0
Layer 2 High Abnormality Count   : 0

L2 COUNTERS : RESET

Layer 3 High Abnormality Count   : 0

L3 COUNTER : RESET
```

The following figure shows the MAP display generated when the RLAYER L2 command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the RLAYER L2 command

```
>RLAYER L2

LEN HOST 01 0 00 06

Frames received in total       :         0
Frames received in error      :          0
Frames transmitted in total   :        274
Frames retransmitted          :          0
Percentage error received     :        0.0%
Percentage retransmitted      :        0.0%

Number of Service Disruptions :     0
Length of Time Disrupted      :     0 minutes
Currently Disrupted           :NO

Layer 2 Abnormality Counts:
ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7  ABN8  ABN9  ABN10
===== ===== ===== ===== ===== ===== ===== ===== ===== =====
0     0     0     0     0     0     0     0     0     0

TEI Abnormality Count : 0
Layer 2 High Abnormality Count   : 0

L2 COUNTERS : RESET
```

The following figure shows the MAP display generated when the RLAYER L3 command is entered.

MAP display of response to the RLAYER L3 command

```
>RLAYER L3

LEN HOST 01 0 00 06

Layer 3 High Abnormality Count  : 0

   L3 COUNTER : RESET
```

L2LOGCTL command description

This command allows the user to control which ISDN layer 2 abnormality logs are generated and which are inhibited. The logs can be controlled on an

BRI Layer 2/3 Surveillance Monitoring (continued)

individual line basis as well as on an office-wide basis. This command is only used to set individual line log generation parameters. The office-wide parameters are controlled through table control. Both the office parameter and the line parameter must be ON for a log to be generated for a particular line. This provision can be overridden using the particular line's override parameter. The inclusion of this parameter allows the generation of log reports for an individual line instead of for the whole office. There are three options for this command: QUERY, SET, and SETOVR.

L2LOGCTL command syntax

The syntax for the L2LOGCTL command is:

L2LOGCTL QUERY <query_mode>

L2LOGCTL SET <l2logic_entity> <12_entity_status>

L2LOGCTL SETOVR <12_ovr_state>

This feature includes the selections LAPD16, LAPB, and SDT in the parameter l2logc_entity of the L2LOGCTL SET command. These parameters allow a user to control the generation of logs for

- link access procedure on the D-channel (LAPD) protocol abnormalities for service access point identifier (SAPI 16) frames
- link access procedure balanced (LAPB) protocol abnormalities on B-channel packet data
- service disruption threshold (SDT) abnormalities

BRI Layer 2/3 Surveillance Monitoring (continued)

L2LOGCTL command parameter definitions

Table L2LGCTL command parameters contains the definition for each of the parameter values.

L2LOGCTL command parameters (Sheet 1 of 2)

Parameter	Value	Description
QUERY	NA	Followed by the query_mode variable, it allows the user to query either the definitions of the entities or the status of the entities.
query_type	def, status	This required parameter follows the QUERY parameter. The parameter Def allows the user to see the meanings of each of the entities. The parameter Status allows the user to see the status of each entity.
SET	NA	This option allows the user to set the status parameter of a log entity or log entities (using the all value) to ON or OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

L2LOGCTL command parameters (Sheet 2 of 2)

Parameter	Value	Description
l2log_entity	ALL, LAPD, LAPD16, LAPB, taa1-taa7, abn1-abn10, SDT	These parameters allow the user to specify which entity or entities are set to ON or OFF. The parameter ALL allows the user to set all layer 2 entities to ON or OFF. The parameter LAPD allows the user to set all logs related to LAPD to ON or OFF. The parameter LAPD16 allows the user to turn ON or OFF all logs related to LAPD16. LAPD16 is for LAPD protocol abnormalities for SAPI 16 frames. The parameter LABP allows the user to turn ON or OFF all logs related to LAPB. LAPB controls LAPB protocol abnormalities on B-channel packet data. The parameters taa1-taa7 allow the user to set the individual TEI assignment abnormalities (taa) to ON or OFF. The parameters abn1-abn10 allow the user to set the individual frame abnormalities (abn) logs to ON or OFF. The parameter SDT allows the user to control the generation of ISDN 305 log reports. The ISDN subsystem generates these log reports when a LEN exceeds the level of service disruptions as defined in parameter LAYER2_SERVICE_DSRPT_THLD in table OFCVAR.
l2_entity_status	ON, OFF	This parameter allows the user to specify whether to set the previous 12logc_entity parameter to ON or OFF. This parameter is required.
SETOVR	NA	This parameter allows the user to set the override parameter.
l2_ovr_state	ON, OFF	This parameter allows the user to specify whether to turn the override bit to ON or OFF. This parameter is required following the SETOVR parameter.

The following figure shows the MAP display generated when the HELP L2LOGCTL command is entered when a valid ISDN line is not posted.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the HELP L2LOGCTL command with no ISDN line posted

```
>HELP L2LOGCTL
This command is used to turn on or off layer 2 log control
entities for ISDN lines. These entities determine whether
or not a log is generated when an abnormality is reported.
This command is issued on a posted ISDN LEN at the LTPISDN
level of the MAP.
The L2LOGCTL command is only vaid for the following
terminals: ISDN lines.
To view a L2LOGCTL command syntax, POST a terminal the
L2LOGCTL command is valid for.
```

The following figure shows the MAP display generated when the HELP L2LOGCTL command is entered when a valid ISDN line is posted.

BRI Layer 2/3 Surveillance Monitoring (continued)

Map display of response to the HELP L2LOGCTL command with ISDN line posted

```
>HELP L2LOGCTL
L2LOGCTL – Used to set the layer 2 log control entities
for the ISDN line posted in the control position of the
MAP.
Parms: [<com_type> {QUERY [<query_type> {DEF,
                                         STATUS}]},
                   {SET [<l2logc_entity> {ALL,
                                          LAPD,
                                          LAPD16
                                          LAPB
                                          TAA1
                                          TAA2
                                          TAA3
                                          TAA4
                                          TAA5
                                          TAA6
                                          TAA7
                                          ABN1
                                          ABN2
                                          ABN3
                                          ABN4
                                          ABN5
                                          ABN6
                                          ABN7
                                          ABN8
                                          ABN9
                                          ABN10
                                          SDT
                    <l2_entity_status>    {ON
                                           OFF},
                    SETOVR <l2_ovr_state> {ON
                                           OFF}}
```

The following figure shows the MAP display generated when the L2LOGCTL QUERY DEF command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the L2LOGCTL QUERY DEF command with ISDN line posted

```
>L2LOGCTL QUERY DEF

Layer 2 Abnormality Log Entity Definition
Override: the overridide bit
LAPD:   LAPD protocol
TAA1:   subscription limits exceeded
TAA2:   no terminal response
TAA3:   routine test
TAA4:   multiple TEI response
TAA5:   identify verify message
TAA6:   unsolicited response
TAA7:   TEI not assigned
ABN1:   DM frame rcvd in response to a SABME frame
ABN2:   DM frame sent in response to a SABME frame rcvd
ABN3:   frames rcvd with undefined control field
ABN4:   frames rcvd with invalid info field or incorrect length
ABN5:   frame rcvd with invalid receive seq num
ABN6:   frames rcvd with info field over max length
ABN7:   unexpected frames received
ABN8:   FRMR frame received
ABN9:   proper response not rcvd after SABME frame sent
ABN10:  other invalid frames received – non FCS error
LAPD16: LAPD protocol on SAPI16 frames
LAPB:   LAPB protocol on B-channel data
SDT:    service disruption threshold - limit exceeded
```

The following figure shows the MAP display generated when the L2LOGCTL QUERY STATUS command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the L2LOGCTL QUERY STATUS command

```
>L2LOGCTL QUERY STATUS

Loop Layer 2 Abnormality Log Reporting Status:
Override: OFF
LAPD TAA1 TAA2 TAA3 TAA4 TAA5 TAA6 TAA7
ON   ON   OFF  ON   OFF  ON   ON   OFF
ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7 ABN8 ABN9 ABN10 LAPD16 LAPB SDT
OFF  ON   ON   ON   OFF  ON   ON   OFF  OFF  ON    OFF    OFF  ON

Office Layer 2 Abnormality Log Reporting Status:
LAPD LAPD TAA1 TAA2 TAA3 TAA4 TAA5 TAA6 TAA7
OFF   ON   ON   ON   OFF  OFF  ON   ON   OFF
ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7 ABN8 ABN9 ABN10 LAPD16 LAPB SDT
ON   OFF  ON   OFF  ON   ON   OFF  ON   OFF  OFF   OFF    OFF  OFF
```

The following figure shows the MAP display generated when the L2LOGCTL SET ABN1 OFF command is entered.

MAP display of response to the L2LOGCTL SET ABN1 OFF command

```
>L2LOGCTL SET ABN1 OFF

Loop Layer 2 Abnormality Log Reporting Status:
Override: OFF
LAPD TAA1 TAA2 TAA3 TAA4 TAA5 TAA6 TAA7
ON   ON   ON   ON   ON   ON   ON   ON
ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7 ABN8 ABN9 ABN10 LAPD16 LAPB SDT
OFF  ON   ON   ON   ON   ON   ON   ON   ON   ON    ON     ON   ON

Office Layer 2 Abnormality Log Reporting Status:
LAPD TAA1 TAA2 TAA3 TAA4 TAA5 TAA6 TAA7
ON   ON   ON   ON   ON   ON   ON   ON
ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7 ABN8 ABN9 ABN10 LAPD16 LAPB SDT
OFF  ON   ON   ON   ON   ON   ON   ON   ON   ON    ON     ON   ON
```

The following figure shows the MAP display generated when the L2LOGCTL SETOVR ON command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the L2LOGCTL SETOVR ON command

```
>L2LOGCTL SETOVR ON

Loop Layer 2 Abnormality Log Reporting Status:
Override: ON
LAPD TAA1 TAA2 TAA3 TAA4 TAA5 TAA6 TAA7
ON   ON   OFF  ON   OFF  ON   ON   OFF
ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7 ABN8 ABN9 ABN10 LAPD16 LAPB SDT
OFF  OFF  ON   ON   ON   OFF  ON   ON   OFF  OFF   OFF    OFF  OFF

Office Layer 2 Abnormality Log Reporting Status:
LAPD LAPD TAA1 TAA2 TAA3 TAA4 TAA5 TAA6 TAA7
OFF  ON   ON   ON   OFF  OFF  ON   ON   OFF
ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7 ABN8 ABN9 ABN10 LAPD16 LAPB SDT
ON   OFF  ON   OFF  ON   ON   OFF  ON   OFF  OFF   OFF    OFF  OFF
```

L2LOGCTL command usage

Following are samples of how the command L2LOGCTL can be used to block or unblock logs from being generated. In all of the examples, ABN1 is used as a sample entity.

Turn ON/OFF a single log on an individual line

To turn OFF a log

1. Post the line with the desired log.
2. Turn on the required protocol (LAPD16 or LAPB).
3. Use L2LOGCTL SET ABN1 OFF to turn it OFF. This will inhibit the log.

There are two methods to turn a log ON:

1. The first method is for use when the the entity is ON for the office in general.
   - Post the line with the desired log.
   - Turn on the required protocol (LAPD16 or LAPB).
   - Since the entity is ON for the office, use L2LOGCTL SET ABN1 ON to turn the log ON for the line.

   Note: This method also assumes that the office and line entities controlling LAPD protocols are on. Turning these entities off is currently the equivalent of turning all the individual entities off (either on an office-wide basis or an individual line basis). This is due to the fact that all layer 2 abnormality logs are related to LAPD. This will not

BRI Layer 2/3 Surveillance Monitoring (continued)

always be the case however. In the future, new layer 2 logs that are not related to LAPD protocol errors will not be turned off simply because either the LAPD log control entity for the line or the LAPD log control entity for the office is set to off.

2. When the entity is OFF for the office in general
   - Post the line with the desired log.
   - Turn on the required protocol (LAPD16 or LAPB).
   - Use L2LOGCTL SETOVR ON to turn the line's override bit to ON.
   - Use L2LOGCTL SET ABN1 ON to turn on the log.

Turn ON/OFF all logs for an individual line

To turn OFF all the individual entities for a line

1. Post the line with the desired logs.
2. Use L2LOGCTL SET ALL OFF to turn off all the logs.

There are two ways to turn all entities ON:

1. When all office log control entities are ON
   - Post the line with the desired logs.
   - Turn on the required protocol (LAPD16 or LAPB).
   - Use L2LOGCTL SET ALL ON to turn on all the logs.
2. When any office entities are OFF
   - Post the line with the desired logs.
   - Turn on the required protocol (LAPD16 or LAPB).
   - Use L2LOGCTL SETOVR ON to turn on the override bit.
   - Use L2LOGCTL SET ALL ON to turn on all the logs.

Turn ON/OFF a single log for the entire office

To turn OFF an entity for an office, turn OFF the entity using table control.

1. Go to table ISDNVAR
2. Set ABN1 to OFF.

This turns off all logs of that type except for those from lines with both their override bit and their ABN1 entity set to ON. To turn OFF the ABN1 logs for these lines, refer to “Turn ON/OFF a single log on an individual line.

BRI Layer 2/3 Surveillance Monitoring (continued)

Turn ON a single log

To turn ON the logs for lines with their ABN1 entity set to ON, turn ON the log control entity in table ISDNVAR.

1. Go to table ISDNVAR
2. Set ABN1 to ON.

To turn ON the ABN1 entity set to OFF, refer to “Turn ON/OFF a single log on an individual line."

Turn ON/OFF all logs for the entire office

To turn OFF the log entities for the office, set the value for the log entities in table ISDNVAR to OFF. This will only turn off the logs for lines that have their override bit set to OFF. Lines with their override bit set to ON will continue to have logs generated for all abnormalities for which the line's corresponding log entity is set to ON.

Note: To turn OFF all logs, either all override bits must be set to OFF or all the log entities for all lines must be set to OFF.

To turn ON all logs entities, set all layer 2 log control entities in table ISDNVAR to ON. However, individual lines with individual entities set to OFF will not generate logs for those entities.

Note: A L2LOGCTL SET ALL ON command must be issued before all layer 2 logs are truly turned on for all office lines.

L3LOGCTL command description

This command allows the user to control which ISDN layer 3 abnormality logs are generated and which are inhibited. The logs can be controlled on an individual line basis as well as on an office-wide basis. This command is only used to set individual line log generation parameters. The office-wide parameters are controlled through table control. Both the office parameter and the line parameter must be set to ON for a log to be generated for a particular line. This provision can be overridden using the particular line's override parameter. The inclusion of this parameter allows the generation of log reports for an individual line instead of for the whole office. There are three options for this command: QUERY, SET, and SETOVR.

L3LOGCTL command syntax

The syntax for the L3LOGCTL command is:

L3LOGCTL QUERY <query_type>

BRI Layer 2/3 Surveillance Monitoring (continued)

L3LOGCTL SET <l3logic_entity> <13_entity_status>

L3LOGCTL SETOVR <13_ovr_state>

L3LOGCTL command parameter definitions

Table L3LOGCTL command parameters contains the definition for each of the parameter values.

L3LOGCTL command parameters

Parameter	Value	Description
QUERY	NA	Followed by the query_type variable, it allows the user to query either the definitions of the entities or the status of the entities.
query_type	def, status	This required parameter follows the QUERY parameter. The parameter Def allows the user to see the meanings of each of the entities. Status allows the user to see that status of each entity.
SET	NA	This option allows the user to set the status parameter of a log entity or log entities (using the all value) to ON or OFF.
l3log_entity	ALL, Q931, abn1-abn13	These parameters allow the user to specify which entity or entities are set to ON or OFF. The parameter ALL allows the user to set all layer 3 entities to ON or OFF. The parameter Q931 allows the user to set all logs related to Q931 to ON or OFF. The parameters abn1-abn13 allow the user to set the individual frame abnormality (abn) logs to ON or OFF. This parameter is required after the parameter SET.
l3_entity_status	ON, OFF	This parameter allows the user to specify to set the previous l3logc_entity parameter to ON or OFF. This parameter is required.
SETOVR	NA	This parameter allows the user to set the override parameter.
l3_ovr_state	ON, OFF	This parameter allows the user to specify whether to turn the override bit ON or OFF. This parameter is required following the SETOVR parameter.

BRI Layer 2/3 Surveillance Monitoring (continued)

The following figure shows the MAP display generated when the HELP L3LOGCTL command is entered when a valid ISDN line is not posted.

MAP display of response to the HELP L3LOGCTL command with no ISDN line posted

```
>HELP L3LOGCTL
This command is used to turn on or off layer 3 log control
entities for ISDN lines. These entities determine whether
or not a log is generated when an abnormailty is reported.
This command is issued on a posted ISDN LEN at the
LTPISDN level of the MAP.
The L3LOGCTL command is only valid for the following
terminals:  ISDN lines.
To view a L3LOGCTL command syntax, POST a terminal the
L3LOGCTL command is valid for.
```

The following figure shows the MAP display generated when the HELP L3LOGCTL command is entered when a valid ISDN line is posted.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the HELP L3LOGCTL command with ISDN line posted

```
>HELP L3LOGCTL
L3LOGCTL – Used to set the layer 3 log control entities
for the ISDN line posted in the control position of the MAP.
Parms: [<com_type> {QUERY [<query_type> {DEF,
                                         STATUS}]},
                   {SET [<l3logc_entity> {ALL,
                                          Q931,
                                          ABN1
                                          ABN2
                                          ABN3
                                          ABN4
                                          ABN5
                                          ABN6
                                          ABN7
                                          ABN8
                                          ABN9
                                          ABN10
                                          ABN11
                                          ABN12
                                          ABN13
                                <l3_entity_status> {ON,
                                                    OFF}]},
                   {SETOVR [<l3_ovr_state> {ON,
                                            OFF}]}]
```

The following figure shows the MAP display generated when the L3LOGCTL QUERY DEF command is entered when a valid ISDN line is posted.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the L3LOGCTL QUERY DEF command when an ISDN line is posted

```
>L3LOGCTL QUERY DEF

Layer 3 Abnormality Log Entity Definitions
Override: the override bit
Q931:  Q.931
abn1 : DISCONNECT received
abn2 : DISCONNECT transmitted
abn3 : RELEASE received
abn4 : RELEASE transmitted
abn5 : RELEASE COMP received
abn6 : RELEASE COMP transmitted
abn7 : Status message received
abn8 : Status message transmitted
abn9 : Progress message transmitted
abn10: msg rcvd less than minimum length
abn11: msg rcvd with invalid protocol discriminator info
abn12: msg rcvd with invalid call ref value
abn13: SETUP msg rcvd with cal ref flag incorrectly set to 1
```

The following figure shows the MAP display generated when the L3LOGCTL QUERY STATUS command is entered.

MAP display of response to the L3LOGCTL QUERY STATUS command

```
>L3LOGCTL QUERY STATUS

Loop Layer 3 Abnormality Log Reporting Status:
Override: OFF
Q931  ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7
ON    ON    ON    ON    OFF   ON    ON    OFF
ABN8  ABN9  ABN10 ABN11 ABN12 ABN13
OFF   OFF   OFF   ON    ON    OFF

Office Layer 3 Abnormality Log Reporting Status:
Q931  ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7
ON    ON    ON    OFF   OFF   ON    ON    ON
ABN8  ABN9  ABN10 ABN11 ABN12 ABN13
OFF   OFF   OFF   ON    ON    OFF
```

The following figure shows the MAP display generated when the L3LOGCTL SET ABN2 OFF command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the L3LOGCTL SET ABN2 OFF command

```
>L3LOGCTL SET ABN2 OFF

Loop Layer 3 Abnormality Log Reporting Status:
Override: OFF
Q931  ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7
ON    ON    OFF   ON    OFF   ON    ON    OFF
ABN8  ABN9  ABN10 ABN11 ABN12 ABN13
OFF   OFF   OFF   ON    ON    OFF
Office Layer 3 Abnormality Log Reporting Status:
Q931  ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7
ON    ON    ON    OFF   OFF   ON    ON    ON
ABN8  ABN9  ABN10 ABN11 ABN12 ABN13
OFF   OFF   OFF   ON    ON    OFF
```

The following figure shows the MAP display generated when the L3LOGCTL SETOVR ON command is entered.

MAP display of response to the L3LOGCTL SETOVR ON command

```
>L3LOGCTL SETOVR ON

Loop Layer 3 Abnormality Log Reporting Status:Override: ON
Q931  ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7
ON    ON    OFF   ON    OFF   ON    ON    OFF
ABN8  ABN9  ABN10 ABN11 ABN12 ABN13
OFF   OFF   OFF   ON    ON    OFF

Office Layer 3 Abnormality Log Reporting Status:
Q931  ABN1  ABN2  ABN3  ABN4  ABN5  ABN6  ABN7
ON    ON    ON    OFF   OFF   ON    ON    ON
ABN8  ABN9  ABN10 ABN11 ABN12 ABN13
OFF   OFF   OFF   ON    ON    OFF
```

L3LOGCTL command usage

Following are samples of how the command L3LOGCTL can be used to block or unblock logs from being generated. In all of the examples, ABN1 is used as a sample entity.

BRI Layer 2/3 Surveillance Monitoring (continued)

Turn ON/OFF a single log on an individual line

To turn OFF a log

1. Post the line with the desired log.
2. Use L3LOGCTL SET ABN1 OFF to turn it OFF. This will inhibit the log.

There are two methods to turn a log ON:

1. The first method is for use when the the entity is ON for the office in general.
   - Post the line with the desired log.
   - Since the entity is ON for the office, use L3LOGCTL SET ABN1 ON to turn the log ON for the line.

   Note: This method also assumes that the office and line entities controlling Q931 protocols are on. Turning these entities off is currently the equivalent of turning all the individual entities off (either on a per office or per line basis). This is due to the fact that all layer 3 abnormality logs are related to Q.931. This will not always be the case however. If future logs for layer 3 are not related to Q.931 protocol errors, then they will not be turned off simply because either the Q931 log control entity for the line or the Q931 log control entity for the office is off.

2. When the entity is OFF for the office in general
   - Post the line with the desired log.
   - Use L3LOGCTL SETOVR ON to turn the line's override bit to ON.
   - Use L3LOGCTL SET ABN1 ON to turn on the log.

Turn ON/OFF all logs for an individual line

To turn OFF all the individual entities for a line

1. Post the line with the desired logs.
2. Use L3LOGCTL SET ALL OFF to turn off all the logs.

BRI Layer 2/3 Surveillance Monitoring (continued)

There are two ways to turn all entities ON:

1. When all office log control entities are ON
   - Post the line with the desired logs.
   - Use L3LOGCTL SET ALL ON to turn on all the logs.
2. If any of the office entities are OFF, then the line's override bit is used
   - Post the line with the desired logs
   - Use L3LOGCTL SETOVR ON to turn ON the override bit.

Turn ON a single log

To turn ON the logs for lines with their ABN1 entity set to ON, turn ON the log control entity in table ISDNVAR.

1. Go to table ISDNVAR
2. Set ABN1 to ON.

To turn ON the ABN1 entity set to OFF, refer to "Turn ON/OFF a single log on an individual line."

Turn ON/OFF all logs for the entire office

To turn OFF the log entities for the office, set the value for the log entities in table ISDNVAR to OFF. This will only turn off the logs for lines that have their override bit set to OFF. Lines with their override bit set to ON will continue to have logs generated for all abnormalities for which the line's corresponding log entity is set to ON.

Note: To turn OFF all logs, either all override bits must be set to OFF or all the log entities for all lines must be set to OFF.

To turn ON all logs entities, set all layer 3 log control entities in table ISDNVAR to ON. However, individual lines with individual entities set to OFF will not generate logs for those entities.

Note: A L3LOGCTL SET ALL ON command must be issued before all layer 3 logs are truly turned on for all office lines.

ISPGAUD command description

The use of the ISPGAUD command was expanded to include layer 3 checking. This command causes an ISDN layer 2 and 3 audit to be run. This audit is in addition to the 24-hour audit that is run. The audit checks all the ISDN lines and reports which have exceeded the layer 2 or layer 3 high abnormality rate thresholds. A summary ISDN 201 log reports the total number of LENs exceeding the layer 2 threshold and the total number of LENs exceeding the

layer 3 threshold. An ISDN 203 log reports the lines that exceeded the layer 2 high abnormality rate threshold and an ISDN 204 log reports the lines that exceeded the layer 3 high abnormality rate threshold. Each ISDN 204 log contains reports on up to ten LENs. If there are more than ten LENs included in the audit, two ISDN 204 logs are generated.

Note: The ISPGAUD is a non-resident command.

ISPGAUD command syntax

The syntax for the ISPGAUD command is:

ISPGAUD <node>

ISPGAUD command parameter definitions

Table ISPGAUD command parameter contains the definition for the values.

ISPGAUD command parameter

Parameter	Value	Description
node	ALL, 0-495	This parameter specifies whether to perform this command on all XPM nodes or on an individual XPM node as indicated by the input of the XPM's node number.

The following figure shows the MAP display generated when the ISPGAUD ALL command is entered.

MAP display of response to the ISPGAUD ALL command

```
>ISPGAUD ALL

Command started for all nodes
Resulting counts are:
Number of transmission reports      : 1
Number of abnormality reports       : 2
Total received frames               : 83476
Total received errored frames       : 0
Total transmitted frames            : 122532
Total retransmitted frames          : 531
First unacked/unlogged/next entry   : 3 3 3
```

The following figure shows the MAP display generated when the ISPGAUD NODE 0 command is entered.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display of response to the ISPGAUD NODE 0 command

```
>ISPGAUD NODE 0

Command started for node number 0.
Only layer 2 counts will be displayed.
Cannot obtain layer 3 counts on a per node basis.
Use Ispgaud all command to obtain total
layer 2 and layer 3 counts for the office.

Command started for node number 0.
Resulting counts are:
Number of transmission reports  : 0
Number of abnormality reports   : 0
Total received frames           : 0
Total received errored frames   : 0
Total transmitted frames        : 0
Total retransmitted frames      : 0
First unacked/unlogged/next entry: 0 0 0
```

Billing

Basic Rate Interface Layer 2/3 Surveillance Monitoring does not affect billing.

Translations table flow

BRI Layer 2/3 Surveillance Monitoring does not affect translations.

Limitations and restrictions

The following limitations and restrictions apply to BRI Layer 2/3 Surveillance Monitoring:

- No additional layer 2 and layer 3 packet surveillance beyond requirements described in section 3.5 of TR821 is supported by this feature.
- Both DLOG and SDM log delivery support 24-hour storage of protocol abnormality log reports as required by section 3.5.3 D and M1 of TR821.
- The buffer space for the protocol abnormality log reports is allocated on a log report type basis, not on access of an individual line as required by section 3.5.3 G1-13 of TR821.
- Service disruption because of the layer 3 signaling condition is not supported as outlined in section 3.5.2 of TR821.
- This feature is not supported for ISDN line drawer (ILD) lines.

BRI Layer 2/3 Surveillance Monitoring (continued)

- The layer 2 and layer 3 surveillance capability for the Generic Services Framework (GSF) ISDN lines is not blocked.
- The layer 2 and layer 3 log control capability is not supported for Generic Services Framework (GSF) ISDN lines.

Datafilling office parameters

The following table shows the office parameters used by BRI Layer 2/3 Surveillance Monitoring. For more information about office parameters, refer to *Office Parameters Reference Manual.*

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 1 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	LAPD_ABN_LOG	This parameter is used to enable or disable the generation of ISDN Link Access Protocol for the D-channel (LAPD) abnormality log reports on an office-wide basis. If the generation of ISDN LAPD abnormality log reports on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN LAPD abnormality log reports on an office-wide basis is not desired, use table control to set to the value of this parameter to OFF.
ISDNVAR	TEI_ SUBSCRIPTION_ LIMITS_EXCD	This parameter is used to enable or disable the generation of ISDN115 Layer 2 Protocol Abnormality log reports with “Subscription limits exceeded" displayed in the Subscription limits exceeded field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN115 Layer 2 Protocol Abnormality log reports with “Subscription limits exceeded" displayed in the Subscription limits exceeded field on an office-wide basis is desired, leave this parameter set to ON. If the generation of ISDN115 Layer 2 Protocol Abnormality log reports with “Subscription limits exceeded" displayed in the Subscription limits exceeded field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 2 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	TEI_NO_ RESPONSE	This parameter is used to enable or disable the generation of ISDN100 Layer 2 Protocol Abnormality log reports with “Terminal Unavailable" displayed in the Terminal Unavailable field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN100 Layer 2 Protocol Abnormality log reports with “Terminal Unavailable" displayed in the Terminal Unavailable field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN100 Layer 2 Protocol Abnormality log reports with “Terminal Unavailable" displayed in the Terminal Unavailable field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.
ISDNVAR	TEI_ROUTINE_ TEST	This parameter is used to enable or disable the generation of ISDN120 Layer 2 Protocol Abnormality log reports with “Routine Test" displayed in the Routine Test field. This parameter enables or disables these logs on an office-wide basis. If the generation of ISDN120 Layer 2 Protocol Abnormality log reports with “Routine Test" displayed in the Routine Test field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN120 Layer 2 Protocol Abnormality log reports with “Routine Test" displayed in the Routine Test field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	TEI_MULTIPLE_ RESPONSE	This parameter is used to enable or disable the generation of ISDN102 Layer 2 Protocol Abnormality log reports with “TEI Removed" displayed in the TEI Removed field. This parameter enables or disables these logs on an office-wide basis. If the generation of ISDN102 Layer 2 Protocol Abnormality log reports with “TEI Removed" displayed in the TEI Removed field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN102 Layer 2 Protocol Abnormality log reports with “TEI Removed" displayed in the TEI Removed field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 3 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	TEI_IDENTITY_ VERIFY_MSG	This parameter is used to enable or disable the generation of ISDN121 Layer 2 Protocol Abnormality log reports with “Identity Verify Message" displayed in the Identity Verify Message field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN121 Layer 2 Protocol Abnormality log reports with “Identity Verify Message" displayed in the Identity Verify Message field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN121 Layer 2 Protocol Abnormality log reports with “Identity Verify Message" displayed in the Identity Verify Message field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	TEI_ UNSOLICITED_ RESPONSE	This parameter is used to enable or disable the generation of ISDN122 Layer 2 Protocol Abnormality log reports with “Unsolicited Response" displayed in the Unsolicited Response field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN122 Layer 2 Protocol Abnormality log reports with “Unsolicited Response" displayed in the Unsolicited Response field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN122 Layer 2 Protocol Abnormality log reports with “Unsolicited Response" displayed in the Unsolicited Response field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	TEI_NOT_ ASSIGNED	This parameter is used to enable or disable the generation of ISDN116 Layer 2 Protocol Abnormality log reports with “TEI not assigned" displayed in the TEI not assigned field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN116 Layer 2 Protocol Abnormality log reports with “TEI not assigned" displayed in the TEI not assigned field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN116 Layer 2 Protocol Abnormality log reports with “TEI not assigned" displayed in the TEI not assigned field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 4 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L2_DM_ FRAME_RCVD	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Disconnect Mode frame" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Disconnect Mode frame" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Disconnect Mode frame" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	L2_DM_FRAME_ SENT	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Disconnect Mode frame sent" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Disconnect Mode frame sent" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Disconnect Mode frame sent" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	L2_FRAME_ RCVD_CNTRL_ UNDEF	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with cntrl field not defined" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with cntrl field not defined" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with cntrl field not defined" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 5 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L2_FRAME_ RCVD_INVALID_ INFO	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with invalid info field" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with invalid info field" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with invalid info field" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	L2_FRAME_ RCVD_INVALID_ SEQ_NUM	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with invalid seq num" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with invalid seq num" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with invalid receive seq num" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 6 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L2_FRAME_ RCVD_EXCD_ INFO	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with info field exceeding max established length" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with info field exceeding max established length" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with info field exceeding max established length" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	L2_FRAME_ RCVD_ UNEXPECTED	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Unexpected frames received" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Unexpected frames received" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Frames Rcvd with info field exceeding max established length" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 7 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L2_FRMR__ FRAME_RCVD	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “FRMR frame received" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “FRMR frame received" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Unexpected frames received" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	L2_PROPER_ RESPONSE_NOT _RCVD	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Proper response not Rcvd to estab or reset link after N200 SABME sent" displayed in the abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Proper response not Rcvd to estab or reset link after N200 SABME sent" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Proper response not Rcvd to estab or reset link after N200 SABME sent" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 8 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L2_INVALID_ FRAME_RCVD	This parameter is used to enable or disable the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Invalid Frames Rcvd" displayed in the Abnormality field. This parameter enables or disables these log reports on an office-wide basis. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Invalid Frames Rcvd" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN304 Layer 2 Protocol Abnormality log reports with “Invalid Frames Rcvd" displayed in the Abnormality field on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	Q931_ABN_LOG	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports. This parameter enables or disables these logs on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports on an office-wide basis is desired, use table control to set the value of this parameter to ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports on an office-wide basis is not desired, leave this parameter set to the default value of OFF.
ISDNVAR	L3_DISCONNECT _MSG_RCVD	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “DISCONNECT received" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “DISCONNECT received" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “DISCONNECT received" displayed in the Abnormality field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 9 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L3_DISCONNECT_MSG_TRANS	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “DISCONNECT transmitted" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “DISCONNECT transmitted" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “DISCONNECT received" displayed in the Abnormality field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.
ISDNVAR	L3_RELEASE_MSG_RCVD	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “RELEASE received" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “RELEASE received" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “RELEASE received" displayed in the Abnormality field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.
ISDNVAR	L3_RELEASE_MSG_TRANS	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “RELEASE transmitted" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “RELEASE transmitted" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “RELEASE transmitted" displayed in the Abnormality field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 10 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L3_RELEASE_ COMPL_MSG_ RCVD	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “REL COMPLETE received" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “REL COMPLETE received" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “REL COMPLETE received" displayed in the Abnormality field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.
ISDNVAR	L3_RELEASE_ COMPL_MSG_ TRANS	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “REL COMPLETE transmitted" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “REL COMPLETE transmitted" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “REL COMPLETE transmitted" displayed in the Abnormality field on an office-wide basis is not desired, use table control to set the value of this parameter to OFF.
ISDNVAR	L3_STATUS_ MSG_RCVD	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “STATUS received" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “STATUS received" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “STATUS received" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 11 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L3_STATUS_ MSG_TRANS	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “STATUS transmitted" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “STATUS transmitted" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “STATUS transmitted" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to OFF
ISDNVAR	L3_PROGRESS_ MSG_TRANS	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “PROGRESS transmitted" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “PROGRESS transmitted" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “PROGRESS transmitted" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to OFF.
ISDNVAR	L3_MSG_RCVD_ BAD_LENGTH	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd less than min length" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd less than min length" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd less than min length" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 12 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	L3_MSG_RCVD_ INVALID_INFO	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd with inval protocol discriminator" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd with inval protocol discriminator" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd with inval protocol discriminator" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to OFF.
ISDNVAR	L3_MSG_RCVD_ INVALID_CR_ VALUE	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd with inval CR value" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd with inval CR value" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “MSG Rcvd with inval CR value" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to OFF.
ISDNVAR	L3_MSG_RCVD_ INVALID_CR_ FLAG	This parameter is used to enable or disable the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “SETUP Rcvd with CR flag incorrectly set to 1" displayed in the Abnormality field on an office-wide basis. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “SETUP Rcvd with CR flag incorrectly set to 1" displayed in the Abnormality field on an office-wide basis is desired, leave this parameter set to the default value of ON. If the generation of ISDN301 Layer 3 Protocol Abnormality log reports with “Setup Rcvd with CR flag incorrectly set to 1" displayed in the Abnormality field on an office-wide basis is desired, use table control to set the value of this parameter to OFF.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 13 of 14)

Table name	Parameter name	Explanation and action
ISDNVAR	SDT_ SUBSCRIPTION_ LIMIT_EXCD	This parameter controls the generation of ISDN 305 layer 2 abnormality log reports for the office. The ISDN subsystem generates these layer 2 log reports with the abnormality type “Service Disruption Exceeded". OFF is the default value. Leave this parameter OFF to prevent the generation of ISDN 305 abnormality log reports for the office. Use table control to activate this parameter. To generate ISDN 305 abnormality log reports office wide, set this parameter to ON.
OFCVAR	DAILY_ISDN_ L2L3_PEG_ AUDIT_TIME	This parameter specifies the time of day that all ISDN layer 2 and layer 3 peg counts are audited and reset. Set this parameter to become active during a low traffic period on the switch. Do not change setting while audit is active. Use 24-hour clock with the range of values 0:00-23:59 for the time of day for this parameter, for example,8:30 pm = 20:30.
OFCVAR	LAYER2_ CIRCUIT_ABN_ PEGS_THLD	This parameter sets the high abnormality rate threshold number for allowable layer 2 protocol abnormalities on any circuit switched ISDN line over a 24-hour period. Once this threshold number is exceeded, a high abnormality rate is declared and audit registers are pegged. The default value for this parameter is 20. Set the value of this parameter during time when an audit is not active. Set the value of this parameter to fall within the range of 1-1000.
OFCVAR	LAYER2_PACKET _ABN_PEGS_ THLD	This parameter sets the high abnormality rate threshold number for allowable layer 2 protocol abnormalities on any packet switched ISDN line over a 24-hour period. Once this threshold number is exceeded, a high abnormality rate is declared and audit registers are pegged. The default value for this parameter is 10. Set the value of this parameter during time when an audit is not active. Set the value of this parameter to fall within the range of 1-1000.

BRI Layer 2/3 Surveillance Monitoring (continued)

Office parameters used by BRI Layer 2/3 Surveillance Monitoring (Sheet 14 of 14)

Table name	Parameter name	Explanation and action
OFCVAR	LAYER2_ SERVICE_ DSRPT_THLD	This parameter indicates the threshold value for line equipment number (LEN) service disruptions. The monitored errors are the number of layer 2 resets and the number of overflows of the received frame buffer. The ISDN XMS-based peripheral module (XPM) identifies as service disruption an error count that exceeds the value of this parameter. The default value for this parameter is 4. Set the value of this parameter to fall within the range of 1-100.
OFCVAR	LAYER3_ CIRCUIT_ABN_ PEGS_THLD	This parameter sets the high abnormality rate threshold number for allowable layer 3 protocol abnormalities on any circuit switched ISDN line over a 24-hour period. Once this threshold number is exceeded, a high abnormality rate is declared and audit registers are pegged. The default value for this parameter is 10. Set the value of this parameter during time when an audit is not active. Set the value of this parameter to fall within the range of 1-1000.
OFCVAR	LAYER3_PACKET _ABN_PEGS_ THLD	This parameter sets the high abnormality rate threshold number for allowable layer 3 protocol abnormalities on any packet switched ISDN line over a 24-hour period. Once this threshold number is exceeded, a high abnormality rate is declared and audit registers are pegged. The default value for this parameter is 10. Set the value of this parameter during time when an audit is not active. Set the value of this parameter to fall within the range of 1-1000.

Datafill sequence

The following table lists the tables that require datafill to implement BRI Layer 2/3 Surveillance Monitoring.

Tables L2ABNLOG and L3ABNLOG are normally empty. Entries only appear in these tables if they establish a log generation status for layer 2 or layer 3 abnormality log reports for a given line that is different from that established on an office-wide basis.

BRI Layer 2/3 Surveillance Monitoring (continued)

Entries into these tables are the result of either one of the following methods:

- manual datafill using table editor
- dynamic updating

  If the LTPISDN MAP level commands L2LOGCTL and L3LOGCTL are used to make a change in the status for generation of layer 2 or layer 3 abnormality log reports for individual lines, entries are made automatically in these tables. These changes only appear in these two tables if they establish a log generation status for an individual line that is different from that established on an office-wide basis.

Datafill tables required for BRI Layer 2/3 Surveillance Monitoring

Table	Purpose of table
L2ABNLOG	Layer 2 Abnormality Log Control contains the reporting status for layer 2 controllable log reports for individual lines.
L3ABNLOG	Layer 3 Abnormality Log Control contains the reporting status for layer 3 controllable log reports for individual lines. .

Datafilling table L2ABNLOG

The following table shows the datafill specific to BRI Layer 2/3 Surveillance Monitoring for table L2ABNLOG. Only those fields that apply directly to BRI

BRI Layer 2/3 Surveillance Monitoring (continued)

Layer 2/3 Surveillance Monitoring are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table L2ABNLOG (Sheet 1 of 6)

Field	Subfield	Entry	Explanation and action
LEN		see subfields	Line equipment number. This field defines the physical location of the equipment that is connected to a specific telephone line. Because field line equipment number (LEN) is common to more than 60 tables, it is documented in a single section to avoid unnecessary duplication. Refer to section “Common entry field LEN" for a complete description of field LEN and associated subfields. Field LEN consists of subfields SITE, FRAME, UNIT, DRAWER or LSG, SHELF, SLOT, and CIRCUIT.
OVR		ON or OFF	Override. Status of override bool for line-based control of abnormality log report generation. Enter ON to have individual line-based control setting for abnormality log report generation override office-wide setting. Enter OFF to turn off individual line-based override control of abnormality log report generation.
LAPD		ON or OFF	Link Access Protocol for the D-channel. Report generation status of LAPD log reports. Enter ON to turn on LAPD log report generation. Enter OFF to turn off LAPD log report generation.

BRI Layer 2/3 Surveillance Monitoring (continued)

Datafilling table L2ABNLOG (Sheet 2 of 6)

Field	Subfield	Entry	Explanation and action
TAA1		ON or OFF	Terminal endpoint identifier (TEI) assignment abnormality1. Status of line-based control of generation of TAA1 log report indicating: subscription limits exceeded Enter ON to turn on individual line-based control for TAA1 log report generation. Enter OFF to turn off individual line-based control for TAA1 log report generation.
TAA2		ON or OFF	TEI assignment abnormality 2. Status of line-based control of generation of TAA2 log report indicating: no terminal response Enter ON to turn on individual line-basedcontrol for TAA2 log report generation. Enter OFF to turn off individual line-based control for TAA2 log report generation.
TAA3		ON or OFF	TEI assignment abnormality 3. Status of line-based control of generation of TAA3 log report indicating: routine test Enter ON to turn on individual line-based control for TAA3 log report generation. Enter OFF to turn off individual line-based control for TAA3 log report generation.
TAA4		ON or OFF	TEI assignment abnormality 4. Status of line-based control of generation of TAA4 log report indicating: multiple TEI response Enter ON to turn on individual line-based control for TAA4 log report generation. Enter OFF to turn off individual line-based control for TAA4 log report generation.

BRI Layer 2/3 Surveillance Monitoring (continued)

Datafilling table L2ABNLOG (Sheet 3 of 6)

Field	Subfield	Entry	Explanation and action
TAA5		ON or OFF	TEI assignment abnormality 5. Status of line-based control of generation of TAA5 log report indicating: identity verify message Enter ON to turn on individual line-based control for TAA5 abnormality log report generation. Enter OFF to turn off individual line-based control for TAA5 abnormality log report generation.
TAA6		ON or OFF	TEI assignment abnormality 6. Status of line-based control of generation of TAA6 log report indicating: unsolicited response Enter ON to turn on individual line-based control for TAA6 log report generation. Enter OFF to turn off individual line-based control for TAA6 log report generation.
TAA7		ON or OFF	TEI assignment abnormality 7. Status of line-based control of generation of TAA7 log report indicating: TEI not assigned Enter ON to turn on individual line-based control for TAA7 log report generation. Enter OFF to turn off individual line-based control for TAA7 log report generation.
ABN1		ON or OFF	Abnormality 1. Status of line-based control of generation of ABN1 log report indicating: Disconnected mode (DM) frame received as response to a Set Asynchronous Balanced Mode Extended (SABME) frame Enter ON to turn on individual line-based control for ABN1 log report generation. Enter OFF to turn off individual line-based control for ABN1 log report generation.

BRI Layer 2/3 Surveillance Monitoring (continued)

Datafilling table L2ABNLOG (Sheet 4 of 6)

Field	Subfield	Entry	Explanation and action
ABN2		ON or OFF	Abnormality 2. Status of line-based control of generation of ABN2 log report indicating: DM frame sent in response to SABME from received Enter ON to turn on individual line-based control for ABN2 log report generation. Enter OFF to turn off individual line-based control for ABN2 log report generation.
ABN3		ON or OFF	Abnormality 3. Status of line-based control of generation of ABN3 log report indicating: Frames received with a control field that is undefined or not implemented Enter ON to turn on individual line-based control for ABN3 log report generation. Enter OFF to turn off individual line-based control of ABN3 log report generation.
ABN4		ON or OFF	Abnormality 4. Status of line-based control of generation of ABN4 log report indicating: Frames received with an information field that is not permitted or a supervisory or unnumbered frame with incorrect length Enter ON to turn on individual line-based control for ABN4 log report generation. Enter OFF to turn off individual line-based control for ABN4 log report generation.
ABN5		ON or OFF	Abnormality 5. Status of line-based control of generation of ABN5 log report indicating: Frame received with an invalid receive sequence number Enter ON to turn on individual line-based control for ABN5 log report generation. Enter OFF to turn off individual line-based control for ABN5 log report generation.

BRI Layer 2/3 Surveillance Monitoring (continued)

Datafilling table L2ABNLOG (Sheet 5 of 6)

Field	Subfield	Entry	Explanation and action
ABN6		ON or OFF	Abnormality 6. Status of line-based control of generation of ABN6 log report indicating: Frames received with an information field that exceeds the maximum established length Enter ON to turn on individual line-based control of ABN6 log report generation. Enter OFF to turn off individual line-based control ABN6 log report generation.
ABN7		ON or OFF	Abnormality 7. Status of line-based control of generation of ABN7 log report indicating: Unexpected frames received Enter ON to turn on individual line-based control for ABN7 log report generation. Enter OFF to turn off individual line-based control for ABN7 log report generation.
ABN8		ON or OFF	Abnormality 8. Status of line-based control of generation of ABN8 log report indicating: Frame Reject Frame (FRMR) received Enter ON to turn on individual line-based control for ABN8 log report generation. Enter OFF to turn off individual line-based control for ABN8 log report generation.
ABN9		ON or OFF	Abnormality 9. Status of line-based control of generation of ABN9 log report indicating: Proper response not received to establish reset the link after N200 SABME frame was sent Enter ON to turn on individual line-based control for ABN9 log report generation. Enter OFF to turn off individual line-based control for ABN9 log report generation.

BRI Layer 2/3 Surveillance Monitoring (continued)

Datafilling table L2ABNLOG (Sheet 6 of 6)

Field	Subfield	Entry	Explanation and action
ABN10		ON or OFF	Abnormality 10. Status of line-based control of generation of ABN10 log report indicating: Invalid frames received other than those containing frame check sequence (FCS) errors as defined by subsection 3.6 of TR-TSY-000821 Enter ON to turn on individual line-based control for ABN10 log report generation. Enter OFF to turn off individual line-based control for ABN10 log report generation.
LAPD16		ON or OFF	Link access procedure on the D-channel for service access point identifier 16 frames (LAPD16). Report generation status for LAPD16 log reports. The ON entry activates the generation of LAPD16 log reports. The OFF entry disables the generation of LAPD16 log reports.
LAPB		ON or OFF	Link access procedure balanced (LAPB). Report generation status for LAPB log reports. The ON entry activates the generation of LAPB log reports. The OFF entry disables the generation of LAPB log reports.
SDT		ON or OFF	Service disruption threshold (SDT). Status of line-based control of generation of log report that indicates: Service Disruption Exceeded. Enter ON to activate line-based control for service disruption threshold - limit exceeded. Enter OFF to disable line-based control for service disruption threshold - limit exceeded.

Datafill example for table L2ABNLOG

The following example shows sample datafill for table L2ABNLOG.

BRI Layer 2/3 Surveillance Monitoring (continued)

MAP display example for table L2ABNLOG

```
HOST LEN      OVR LAPD TAA1 TAA2 TAA3 TAA4 TAA5 TAA6
_____________________________________________________
(02 1 04 02) OFF ON   ON   OFF  ON   ON   ON   ON

TAA7 ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7 ABN8 ABN9 ABN10
_____________________________________________________
OFF  ON   ON   ON   OFF  OFF  ON   ON   ON   ON   ON

LAPD16 LAPB SDT
_______________
OFF    OFF  ON
```

Datafilling table L3ABNLOG

The following table shows the datafill specific to BRI Layer 2/3 Surveillance Monitoring for table L3ABNLOG. Only those fields that apply directly to BRI

BRI Layer 2/3 Surveillance Monitoring (continued)

Layer 2/3 Surveillance Monitoring are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table L3ABNLOG (Sheet 1 of 4)

Field	Subfield	Entry	Explanation and action
LEN		see subfields	Line equipment number. This field defines the physical location of the equipment that is connected to a specific telephone line. Because field line equipment number (LEN) is common to more than 60 tables, it is documented in a single section to avoid unnecessary duplication. Refer to section “Common entry field LEN" for a complete description of field LEN and associated subfields. Field LEN consists of subfields SITE, FRAME, UNIT, DRAWER or LSG, SHELF, SLOT, and CIRCUIT.
OVR		ON or OFF	Override. Status of override bool for line-based control of Q931 log report generation. Enter ON to have the individual line-based control setting for Q931 log report generation override the office-wide setting. Enter OFF to turn off the individual line-based override control of Q931 log report generation.
Q931		ON or OFF	Q931. Report generation status for Q931 log report generation. Enter ON to turn on the generation of Q931 log reports. Enter OFF to turn off the generation of Q931 log reports.
ABN1		ON or OFF	Abnormality 1. Status of line-based control of generation of ABN1 log report indicating: DISCONNECT message received Enter ON to turn on individual line-based control for ABN1 log report generation. Enter OFF to turn off individual line-based control for ABN1 log report generation.

BRI Layer 2/3 Surveillance Monitoring (continued)

Datafilling table L3ABNLOG (Sheet 2 of 4)

Field	Subfield	Entry	Explanation and action
ABN2		ON or OFF	Abnormality 2. Status of line-based control of generation of ABN2 log report indicating: DISCONNECT message transmitted Enter ON to turn on individual line-based control for ABN2 log report generation. Enter OFF to turn off individual line-based control for ABN2 log report generation.
ABN3		ON or OFF	Abnormality 3. Status of line-based control of generation of ABN3 log report indicating: RELEASE message received Enter ON to turn on individual line-based control for ABN3 log report generation. Enter OFF to turn off individual line-based control for ABN3 log report generation.
ABN4		ON or OFF	Abnormality 4. Status of line-based control of generation of ABN4 log report indicating: RELEASE message transmitted Enter ON to turn on individual line-based control for ABN4 log report generation. Enter OFF to turn off individual line-based control for ABN4 log report generation.
ABN5		ON or OFF	Abnormality 5. Status of line-based control of generation of ABN5 log report indicating: RELEASE COMPLETE message received Enter ON to turn on individual line-based control for ABN5 log report generation. Enter OFF to turn off individual line-based control for ABN5 log report generation.
ABN6		ON or OFF	Abnormality 6. Status of line-based control of generation of ABN6 log report indicating: RELEASE COMPLETE message transmitted Enter ON to turn on individual line-based control for ABN6 log report generation. Enter OFF to turn off individual line-based control for ABN6 log report generation.

BRI Layer 2/3 Surveillance Monitoring (continued)

Datafilling table L3ABNLOG (Sheet 3 of 4)

Field	Subfield	Entry	Explanation and action
ABN7		ON or OFF	Abnormality 7. Status of line-based control of generation of ABN7 log report indicating: STATUS message received Enter ON to turn on individual line-based control for ABN7 log report generation. Enter OFF to turn off individual line-based control for ABN7 log report generation.
ABN8		ON or OFF	Abnormality 8. Status of line-based control of generation of ABN8 log report indicating: STATUS message transmitted Enter ON to turn on individual line-based control for ABN8 log report generation. Enter OFF to turn off individual line-based control for ABN8 log report generation.
ABN9		ON or OFF	Abnormality 9. Status of line-based control of generation of ABN9 log report indicating: PROGRESS message transmitted Enter ON to turn on individual line-based control for ABN9 log report generation. Enter OFF to turn off individual line-based control for ABN9 log report generation.
ABN10		ON or OFF	Abnormality 10. Status of line-based control of generation of ABN10 log report indicating: Message received less than minimum length Enter ON to turn on individual line-based control for ABN10 log report generation. Enter OFF to turn off individual line-based control for ABN10 log report generation.
ABN11		ON or OFF	Abnormality 11. Status of line-based control of generation of ABN11 log report indicating: Message received with invalid protocol discriminator information Enter ON to turn on individual line-based control for ABN11 log report generation. Enter OFF to turn off individual line-based control for ABN11 log report generation.

BRI Layer 2/3 Surveillance Monitoring (end)

Datafilling table L3ABNLOG (Sheet 4 of 4)

Field	Subfield	Entry	Explanation and action
ABN12		ON or OFF	Abnormality 12. Status of line-based control of generation of ABN12 log report indicating: Message received with an invalid call reference Enter ON to turn on individual line-based control for ABN12 log report generation. Enter OFF to turn off individual line-based control for ABN12 log report generation.
ABN13		ON or OFF	Abnormality 13. Status of line-based control of generation of ABN13 log report indicating: SETUP message received with call reference flag incorrectly set to 1 Enter ON to turn on individual line-based control for ABN13 log report generation. Enter OFF to turn off individual line-based control for ABN13 log report generation.

Datafill example for table L3ABNLOG

The following example shows sample datafill for table L3ABNLOG.

MAP display example for table L3ABNLOG

```
HOST LEN      OVR Q931 ABN1 ABN2 ABN3 ABN4 ABN5 ABN6 ABN7
_____________________________________________________________
(02 1 04 02)  OFF ON   ON   ON   OFF  ON   ON   ON   ON

ABN8 ABN9 ABN10 ABN11 ABN12 ABN13
_____________________________________________________________
ON   OFF  OFF   ON    ON    ON
```

Translation verification tools

BRI Layer 2/3 Surveillance Monitoring does not use translation verification tools.

Provisioning Support for Default Service

Ordering codes

Functional group ordering code: MISC0003

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 or hardware not described in this document.

Description

Default Service provides limited voice service for ISDN basic rate interface (BRI) lines in conditions when voice service is not otherwise available. These conditions can occur because of either provisioning or failure of layer 3 initialization at the customer premises equipment (CPE), and include the following:

- There are no provisioned logical terminals on an interface.
- A provisioned fully initializing terminal (FIT) exists on an interface without a provisioned default logical terminal. The terminal fails to initialize layer 3 after it establishes layer 2.
- A provisioned FIT or non-initializing terminal (NIT) does not have voiceband information (VI) directory numbers (DN). That is, the terminal is not provisioned to support voice calls.
- One or two provisioned FITs (either initialized or not initialized) exist. The operating company attaches a NIT. (The interface does not include a default logical terminal.)
- A provisioned NIT exists, but association of an attached terminal to the NIT is not possible. (Association of the terminal with the NIT would exceed the terminal limit parameter.) For example, this condition can occur because of initialization failure.

Provisioning Support for Default Service (continued)

Default Service provides the following capabilities for new and existing ISDN BRI lines using FITs or NITs:

- origination of voice calls (processing of and reply to a SETUP message sent by the CPE)
- access to Basic Rate Interface Verification (BRIV) testing

  Note: The BRIV feature provides dial access to allow operating company installation and maintenance personnel to identify the termination of an access line. The BRIV feature is accessible over the BRI access line at the customer premises from a FIT or NIT.

- access to any three-digit (611 or 911), seven-digit, or ten-digit telephone numbers that the local exchange carrier (LEC) provisions for the feature

As a minimum, Default Service works with regional Bell operating company (RBOC) test equipment that supports the VI call type. The operating company can expand Default Service to support calls to emergency, LEC repair, or service numbers. Subscribed features on the terminal do not affect Default Service, and Default Service does not affect normal operation of subscribed features.

Operation

Provisioning steps

To implement Default Service, the operating company performs the following provisioning steps:

1. Use the table editor to provision a new Default Service customer group or a network class of service (NCOS) off an existing customer group. This customer group or NCOS restricts the DNs on which calls from the Default Service DN can terminate. These DNs normally include 611, 911, and three-digit, seven-digit, and ten-digit DNs targeted for BRIV testing.

Provisioning Support for Default Service (continued)

The following BRI translations tables define the customer group or NCOS:

- DIGCOL
- XLANAME
- CUSTENG
- CUSTHEAD
- NCOS
- IBNRTE
- IBNXLA

2. Use the command interpreter (CI) DEFSVCCI tool to provision Default Service data on all interfaces that support Default Service.

   At this point all BRI lines with WORKING status in table LNINV can support Default Service calls.

3. Use the table editor to provision the Default Service DN in table DNROUTE. The DSVC selector in this table identifies the Default Service DN. Each switch can contain only one Default Service DN.

Any BRI lines later set to WORKING status in table LNINV will also become capable of supporting Default Service.

Table DNROUTE

Provisioning Support for Default Service adds the DN selector value DSVC to table DNROUTE. The DSVC selector identifies a DN as a Default Service DN. The Default Service tuple also contains the customer group, subgroup, and NCOS of the Default Service DN.

Note: Table DNROUTE can contain only one Default Service tuple.

Removal of the Default Service DN and entry of a new Default Service DN in table DNROUTE triggers static data download messages. These messages update the DN information to each XMS-based peripheral module (XPM) that is in service and supports BRI lines.

Table LNINV

Table control support for table LNINV consists of triggering the creation of Default Service logical terminal data and static data messaging to the XPM. This messaging establishes the time-division multiplexing (TDM) D-channel connection for a BRI line for interfaces that change from the hardware assigned, software unassigned (HASU) state to WORKING state. Default Service requires an established D-channel connection (an interface state of

Provisioning Support for Default Service (continued)

WORKING). This requirement applies whether or not the interface contains provisioned terminals.

To provide Default Service, the XPM needs data normally found in table LNTDM. This information is normally sent to the XPM during execution of the Service Order System (SERVORD) SLT ATT command. (The SLT ATT command attaches a DN to a logical terminal identifier [LTID].) Because Default Service does not wait for the creation of an LTID, Default Service is hard-coded to use an LTID byte of 131 (hex 83) and key 1 for Default Service calls. The XPM uses the table data to establish the TDM connections in the line concentrating module (LCM) for D-channel communications.

When the interface state goes from WORKING to HASU, the D-channel must be taken down. Taking down the D-channel is done as a side effect of the STATUS field toggle in table LNINV. It does not requires additional activity by operating company personnel.

DEFSVCCI tool

Provisioning Support for Default Service introduces the CI tool DEFSVCCI. This tool allows the operating company to provision Default Service against all interfaces present in table LNINV that support Default Service. The operating company can also use this tool to remove Default Service provisioning.

The DEFSVCCI tool is available at the CI level and provides the following four commands: SETUP, REMOVE, HELP, and QUIT.

SETUP command

The SETUP command provisions all the necessary data in table LNINV on each ISDN interface that supports Default Service. The operating company must use this command before provisioning the Default Service DN in table DNROUTE.

The following warning message displays after entry of the SETUP command, before provisioning occurs. To proceed with Default Service provisioning, the operating company must enter Y at the prompt.

```
*** WARNING WARNING WARNING ***
*** Provisioning Default Service on all eligible ISDN
***
*** interfaces may take several minutes. During this
***
*** time you will NOT be able to enter any commands
***
```

Provisioning Support for Default Service (continued)

```
*** from this MAP terminal!                                    ***
Are you sure you want to continue? (y/n)
```

The following message displays if the SETUP command is successful and a Default Service DN exists in table DNROUTE:

```
*** Default Service is provisioned.
```

The following message displays if the SETUP command is successful and a Default Service DN does not exist in table DNROUTE:

```
*** Default Service is provisioned
.*** You may enter Default Service DN into Table
DNROUTE now.
```

The following error message displays if the SETUP command fails. In this event, the operating company should try the SETUP command again later.

```
*** Default Service provisioning FAILED.
```

The following message displays if the switch seizes a loop during execution of the SETUP command:

```
*** Default Service is preparing loop LEN <n n n n>
for provisioning.
```

REMOVE command

The REMOVE command removes all provisioning established by the SETUP command. Before using this command, the operating company must remove the Default Service DN from table DNROUTE.

The following error message displays if the operating company attempts to use the REMOVE command before removing the Default Service DN from table DNROUTE:

```
Cannot remove Default Service while Default Service
DN <nnnnnnnnnn> is in Table DNROUTE.
```

The following warning message displays after entry of the REMOVE command if the operating company has removed the Default Service DN from table DNROUTE. To proceed with removal of Default Service provisioning, the operating company must enter Y at the prompt.

Provisioning Support for Default Service (continued)

```
*** WARNING WARNING WARNING ***
This will remove Default Service provisioning fromall
loops.Are you sure you want to continue? (y/n)
```

The following message displays if the REMOVE command is successful:

```
Default Service has been removed.
```

The following error message displays if the REMOVE command fails. In this event, the operating company should try the REMOVE command again later.

```
*** Default Service could not be removed completely.
```

HELP command

The HELP command displays help information for the DEFSVCCI tool.

QUIT command

The QUIT command exits the DEFSVCCI tool.

Examples

The following MAP display example shows use of the DEFSVCCI tool SETUP command.

Provisioning Default Service using DEFSVCCI tool SETUP command

```
CI:
> DEFSVCCI
DEFSVCCI:
> SETUP
*** WARNING WARNING WARNING ***
*** Provisioning Default Service on all eligible ISDN ***
*** interfaces may take several minutes. During this  ***
*** time you will NOT be able to enter any commands   ***
*** from this MAP terminal!                           ***
Are you sure you want to continue? (y/n)
> Y
*** Default Service is provisioned.
*** You may enter Default Service DN into Table DNROUTE now.
```

The following MAP display example shows use of the DEFSVCCI tool REMOVE command.

Provisioning Support for Default Service (continued)

Removing Default Service using DEFSVCCI tool REMOVE command

```
CI:
> DEFSVCCI
DEFSVCCI:
> REMOVE
*** WARNING WARNING WARNING ***
This will remove Default Service provisioning from all loops.
Are you sure you want to continue? (y/n)
> Y
Default Service has been removed.
```

Maintenance

Default Service has two classes of maintenance requirements.

The first requirement is to maintain static data correctly in the XPM. The XPM must receive the Default Service DN when the XPM enters one of the following states. The XPM must be in service to receive a static data download message.

- in-service (INSV)
- in-service trouble (ISTB)

When an XPM enters the INSV or ISTB state, a public procedure downloads the Default Service DN to the XPM.

The second requirement covers the behavior of interfaces equipped for Default Service in response to MAP (maintenance and administration position) maintenance commands. Assignment of a Default Service DN to an interface does not affect the interaction of the interface with maintenance commands. For example, assignment of a Default Service DN does not affect the operation of the BSY (busy), FRLS (force release), or RTS (return to service) commands.

Translations table flow

The Provisioning Support for Default Service translations tables are described in the following list:

- Table NCOS (Network Class of Service) allows the operating company to subdivide a customer group for purposes of digit translations and routing. Each entry in this table can have a different set of translators and digit collection rules. The switch accesses table NCOS using the NCOS value from table DNROUTE, and searches this table for a preliminary translator

Provisioning Support for Default Service (continued)

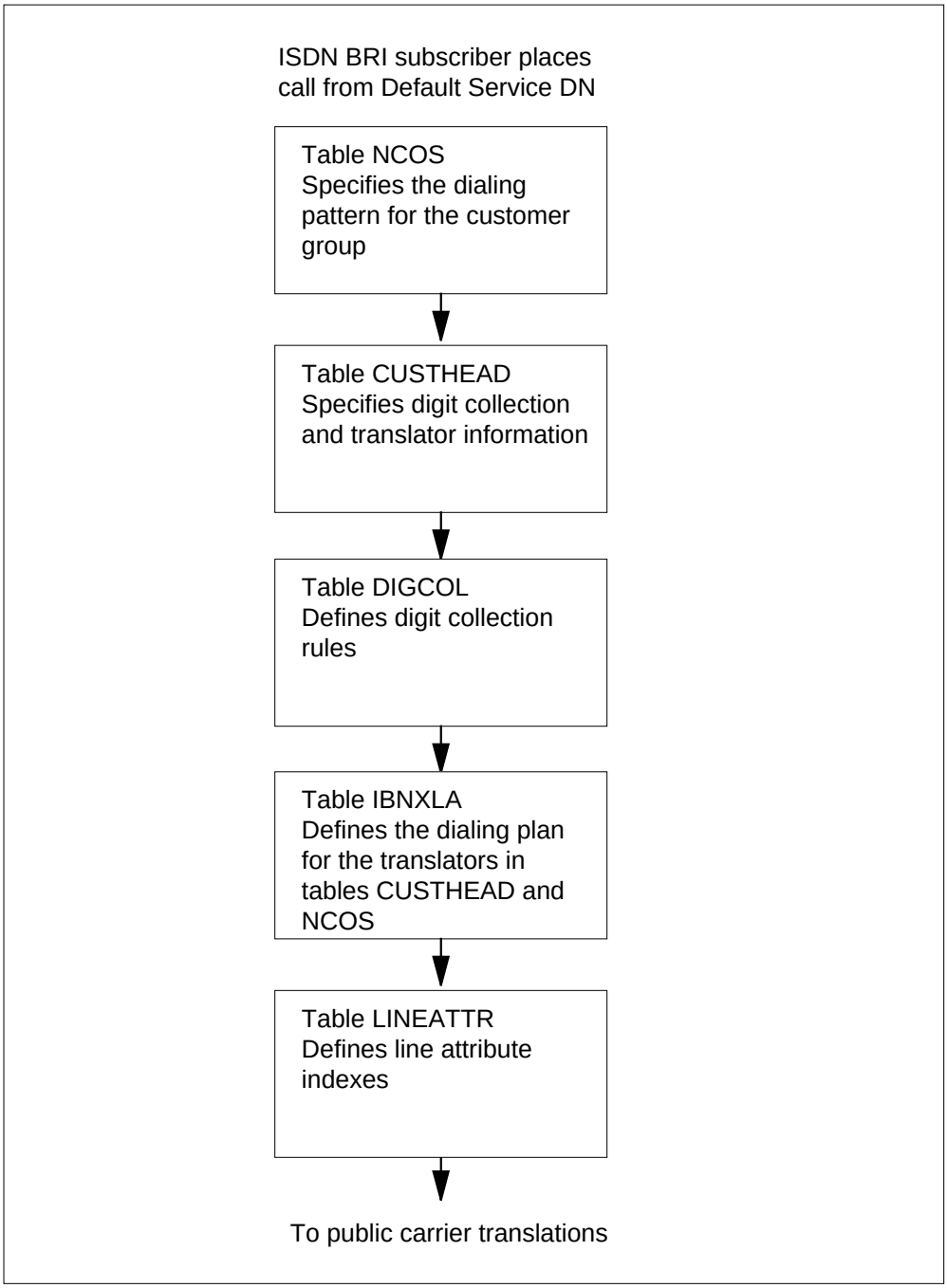
(PRELMXLA). The switch uses this preliminary translator value to access table IBNXLA.

- Table CUSTHEAD (Customer Group Head) contains basic translation characteristics for customer groups. These characteristics include the customer translator name and the digit collection rule name.
- Table DIGCOL (Digit Collection) defines digit collection rules. These rules include the number of digits to collect after the first digit and the timing between digits.
- Table IBNXLA (IBN Translation) defines the dialing plan for each translator defined in tables NCOS and CUSTHEAD.
- Table LINEATTR (Line Attribute) defines line attribute indexes that apply to an office.

The Provisioning Support for Default Service translation process is shown in the flowchart that follows.

Provisioning Support for Default Service (continued)

Table flow for Provisioning Support for Default Service



Provisioning Support for Default Service (continued)

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

Datafill example for Provisioning Support for Default Service

Datafill table	Example data
NCOS	DEFSVCGRP 0 DSNCOS 0 0 (XLAS DEFSVCXL DEFSVCXL DEFSVCOL) $
CUSTHEAD	DEFSVCGRP DEFSVCXL DEFSVCOL NIL $
DIGCOL	DEFSVCOL 1 COL S 1
IBNXLA	DEFSVCXL 411 NET Y Y 1 Y POTS N N GEN (LATTR 91) $ $
LINEATTR	91 IBN NONE NT NSCR 1 613 BNR NLCA NONE 0 NIL NILSFC NILLATA 0 NIL NIL 00 N $

Limitations and restrictions

The following limitations and restrictions apply to Provisioning Support for Default Service:

- There can be at most one Default Service call on each interface at a time.
- Default Service requires that at least one B-channel be provisioned on the interface to function. In other words, interfaces with only D-channel access provisioned cannot use Default Service functionality.
- Default Service is not available on an interface on which all B-channels are allocated or busy.
- Assume that a NIT is attached to the ISDN interface when the operating company removes the default logical terminal from provisioning. The operating company must detach the NIT and re-attach it in order to receive Default Service on the interface.
- Default Service does not affect existing or future terminal endpoint identifier (TEI) restrictions on an interface. For example, assume that an interface allows a maximum of eight TEIs. The ninth terminal attached to the interface will not receive any service, including Default Service.
- Default Service does not support the TRAVER (translations verification) tool. To test Default Service translations behavior, the operating company can create another DN with the same customer group, subgroup, and NCOS.
- The following XPM types are supported for Default Service:
  - — line trunk controller (LTC)
  - — line group controller (LGC)

Provisioning Support for Default Service (continued)

— remote cluster controller 2 (RCC2)

— subscriber carrier module-100 access (SMA)

Within these peripherals the following card types are supported: BX26AA, BX27AA, and RDTISDN.

- Assume that an interface has an active Default Service call when the operating company attempts to delete the Default Service DN. The table control command to delete the Default Service DN fails, and the DN is not deleted. The command displays a warning message that advises the operating company to try the deletion again later. If the operating company does not try the deletion again, the Default Service DN remains in the system.
- Assume that a caller places a 911 call from an interface using Default Service. If the caller goes on-hook, ringback from the public service answering point (PSAP) does not occur.
- Calling name and number information provided by Default Service calls cannot determine either of the following:

  — the specific calling party name

  — the location of the calling party
- Terminals that are provisioned as 2B NI-1 with only circuit mode data (CMD) call types allowed cannot originate Default Service VI calls. NI-1 1B and NI-2 terminals do not have this restriction.
- Remote XPMs in emergency stand-alone (ESA) mode do not allow the origination of Default Service calls. Active Default Service calls are not dropped over the warm entry into ESA mode. No new Default Service originations are allowed.
- When adding the Default Service tuple to table DNROUTE, a line equipment number (LEN) without attached LTIDs requires a setting of the line state as part of its setup. A LEN for which this process fails requires operating company intervention to activate Default Service functionality for that LEN.

When provisioning fails for a LEN without LTIDs, an error message advises the operating company that the provisioning failed for the LEN. The operating company must do the following:

- Position on the tuple for the LEN in table LNINV.
- Toggle the STATUS from WORKING to HASU and back to WORKING.

Provisioning Support for Default Service (continued)

Interactions

A Default Service call uses one B-channel and, like a normal ISDN voice call, affects functionality that relies on B-channel availability. Default Service does not have user-visible interactions with other functionalities.

Activation/deactivation by the end user

Provisioning Support for Default Service requires no activation or deactivation by the end user.

Billing

Provisioning Support for Default Service does not affect billing.

A Default Service call may or may not be a billable call, depending on the translations that are set up to support Default Service.

Station Message Detail Recording

Provisioning Support for Default Service does not affect Station Message Detail Recording.

Datafilling office parameters

Provisioning Support for Default Service does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement Provisioning Support for Default Service. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for Provisioning Support for Default Service (Sheet 1 of 2)

Table	Purpose of table
DIGCOL	Digit Collection. This table contains digit collection algorithms and sets the timing between digits.
XLANAME	Translator Names. This table stores the default data for each translator, including the acceptable digilator range.
CUSTENG	Customer Group Engineering. This table contains engineering parameters for customer groups.
CUSTHEAD	Customer Group Head. This table contains basic translation characteristics for customer groups. These characteristics include the customer translator name and the digit collection rule name.

Provisioning Support for Default Service (continued)

Datafill tables required for Provisioning Support for Default Service (Sheet 2 of 2)

Table	Purpose of table
NCOS	Network Class of Service. This table allows the operating company to subdivide a customer group for purposes of digit translations and routing. The operating company can assign each entry in this table a different set of translators and digit collection rules.
IBNRTE	IBN Route. This table contains route lists identified by a route reference index number.
IBNXLA	IBN Translation. This table stores data for the digit translation of calls from the following sources: • an IBN station • an attendant console • an incoming IBN trunk group • the incoming side of a two-way IBN trunk group
DNROUTE	Directory Number Route. This table defines DNs that are not associated with an LTID. Provisioning Support for Default Service adds the DN selector value DSVC to table DNROUTE. The DSVC selector identifies a DN as a Default Service DN. The Default Service tuple also contains the customer group, subgroup, and NCOS of the Default Service DN. ***Note:*** The operating company must use the DEFSVCCI tool SETUP command before provisioning the Default Service DN in table DNROUTE. Before using the DEFSVCCI tool REMOVE command, the operating company must remove the Default Service DN from table DNROUTE. For more information, see “DEFSVCCI tool" in this document.

Note: This document does not describe the datafill to restrict Default Service calls to DNs that require special provisioning (for example, E911 numbers). The data tables involved will vary depending on the DN type and its required provisioning. For more information on this datafill, refer to the appropriate section of the *Translations Guide*.

Datafilling table DIGCOL

Table DIGCOL provides the digit collection algorithm for the customer group or NCOS. Digit collection is based on the digit collection selector

Provisioning Support for Default Service (continued)

(DGCOLSEL) field. For BRI applications, the following selectors are normally used:

- COL, to collect more than one digit
- RPT, to collect one digit (for example, 0 for attendant access)
- POTS, to transfer to POTS digit translation after the digit is received

The following table shows the datafill specific to Provisioning Support for Default Service for table DIGCOL. Only those fields that apply directly to Provisioning Support for Default Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table DIGCOL (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DGKEY		see subfields	Digit collection key. This field consists of subfields DATANAME and DIGIT.
	DATANAME	alphanumeric (1 to 8 characters)	Name of digit collection table. Enter the name assigned to this digit collection algorithm. ***Note:*** Translations uses the name in table IBNXLA to refer to this area of table DIGCOL.
	DIGIT	0 to 9, STAR, or OCT	Digit. Enter the number that begins digit collection for this algorithm. The value can be a a number from 0 to 9, STAR for star (*), or OCT for octothorpe (#).
DGDATA		see subfields	Digit collection data. This field consists of subfield DGCOLSEL and other fields that vary depending on the value of the selector.
	DGCOLSEL	COL, RPT, or POTS	Digit collection selector. Enter COL to specify additional digit collection, and datafill subfield COLDATA. Enter RPT to specify no additional digit collection. Enter POTS to specify POTS digit collection after this digit is received, and datafill subfield DTONE. ***Note:*** If the customer group is a mixed group of ISDN and IBN lines, and subfield DATANAME is POTS, enter RPT in this field.

Provisioning Support for Default Service (continued)

Datafilling table DIGCOL (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	COLDATA	see subfields	Collect data. This field consists of subfields TMODE and NUMDIGS.
	TMODE	S or L	Timing mode. Enter S for short timing between digits, or L for long timing. ***Note:*** For NI-1 compatibility, enter L.
	NUMDIGS	1 to 3 (for short timing) 1 to 7 (for long timing)	Number of digits. For short timing, enter the number of digits (in the range of 1 to 3) after which timing should occur. For long timing, enter the number of digits (in the range of 1 to 7) after which timing should occur. ***Note 1:*** NUMDIGS does not include the first digit dialed. ***Note 2:*** The time intervals for short and long timing are defined by office parameters LN_SHORT_PARTIAL_DIAL_TIME and LN_LONG_PARTIAL_DIAL_TIME in table OFCENG.
	DTONE	Y or N	Dial tone. Enter Y if a dial tone is necessary after the first digit is received. Enter N if a dial tone is not necessary after the first digit is received.

Datafill example for table DIGCOL

The following example shows sample datafill for table DIGCOL.

MAP display example for table DIGCOL

```
DGKEY         DGDATA
------------------------------------------------------------
DEFSVCOL 1    COL S 1
```

Datafilling table XLANAME

Table XLANAME contains a list of the translator names used for the customer group. This table defines the default translations used when no translations are defined in table IBNXLA for the access code dialed. The default translations

Provisioning Support for Default Service (continued)

data must take the same form as the original translations data in table IBNXLA. Field DEFAULT in table XLANAME is identical to field RESULT in table IBNXLA.

Under the following conditions, the switch applies the vacant treatment (VACTRMT) defined in table CUSTHEAD to the call:

- Translations data does not exist for an access code in table IBNXLA.
- Default data does not exist in table XLANAME.

The following table shows the datafill specific to Provisioning Support for Default Service for table XLANAME. Only those fields that apply directly to Provisioning Support for Default Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table XLANAME (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
XLANAME		alphanumeric (1 to 8 characters)	Translator name. Enter the name assigned to the customer, feature, or preliminary translator.

Provisioning Support for Default Service (continued)

Datafilling table XLANAME (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
DEFAULT		see subfield TRSEL in table IBNXLA	Default data. This field is a vector that consists of translation selector subfield TRSEL and refinements that depend on on this selector. This field is identical to field RESULT in table IBNXLA. See table IBNXLA in the data schema section of this document for a full description of field RESULT and refinements. ***Note:*** Because of the large number of TRSEL selector values and corresponding refinements, the RESULT refinement descriptions are not included in this table description.
MAXDIG		9, C, or F	Maximum digit range. This field indicates the range of acceptable values for the table IBNXLA digilator value Enter 9 to specify a range of 0 to 9. This value applies to North America. Enter C to specify a range of 0 to 9, A, B, and C. This value applies to Australia. Enter F to specify a range of 0 to 9, A, B, C, D, E, and F. This value applies to Australia. Entries other than 9, C, or F are invalid. Assume that you have datafilled field MAXDIG for a tuple. To change the MAXDIG value, you must delete the tuple and reenter it with a new MAXDIG value. The default MAXDIG value is 9.

Datafill example for table XLANAME

The following example shows sample datafill for table XLANAME.

MAP display example for table XLANAME

```
XLANAME      DEFAULT      MAXDIG
-------------------------------------------------------
DEFSVCXL       $            9
```

Provisioning Support for Default Service (continued)

Datafilling table CUSTENG

Table CUSTENG defines the engineering parameters for the customer group, including

- NONCOS, which is the number of NCOS numbers required
- NOIBNTMT, which specifies the number of treatments required
- CONSOLES, which specifies if the group can be equipped with attendant consoles
- CUSTTYPE, which defines the type of customer group as one of
  - — private, which indicates that the features affected by customer group limits can operate only within the customer group
  - — public, which indicates that the features can operate across customer group limits
  - — family, which indicates that the customer group belongs to either a private or public family (defined in table CUSTFAM)

Two of the options available in table CUSTENG apply to BRI customer groups:

- PKTSUP, which allows suppression of billing for packet service within a customer group
- CONF6C, which specifies the number of six-port conference circuits for the group

The following table shows the datafill specific to Provisioning Support for Default Service for table CUSTENG. Only those fields that apply directly to

Provisioning Support for Default Service (continued)

Provisioning Support for Default Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table CUSTENG (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		alphanumeric (1 to 16 characters)	Customer group name. Enter the name (1 to 16 characters) assigned to the customer group.
ADNUM		0 to 4095	Administration number. Enter the administration number assigned to the customer group. ***Note:*** The operating company cannot datafill values greater than 4080 for this field.
NONCOS		numeric (0 to 511)	Number of NCOS numbers. Enter the highest-numbered NCOS to assign to the customer group.
NOIBNTMT		numeric (0 to 63)	Number of IBN treatments. Enter the number of treatments required for the customer group.
CONSOLES		Y or N	Attendant consoles. Enter Y if the customer group can be equipped with attendant consoles. Enter N if the customer group cannot be equipped with attendant consoles.
DOMAIN		see subfields	Domain. This field consists of subfields CUSTTYPE and FAMILY.
	CUSTTYPE	PRIVATE, PUBLIC, or FAMILY	Customer group type. Enter one of the following values: • Enter PRIVATE to define the customer group as private. • Enter PUBLIC to define the customer group as public. • Enter FAMILY to define the customer group as part of a family, and datafill refinement FAMILY.

Provisioning Support for Default Service (continued)

Datafilling table CUSTENG (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	FAMILY	alphanumeric (1 to 16 characters)	Family. If the entry in subfield CUSTTYPE is FAMILY, datafill this refinement. Enter the name of the family to which this customer group belongs. ***Note:*** Enter the family name in table CUSTFAM before using it in other tables.
GROUPID		0 to 4095	Customer group identification number. Enter the identification number assigned to this customer group. IBN option AMACUST in table CUSTSMDR uses this number for billing purposes. The default value is 0 (zero).
OPTIONS		see subfield	Options. This field consists of subfield OPTION.
	OPTION	CONF6CPKTSUP	Option. Enter the options assigned to the customer group. Each option and its refinement are separated by a space. Use as many records as required to datafill the list of options and associated subfields. If an option is not provided, input for that option is not required. If fewer than eight options are required, end the list with a $ character. Additional datafill is not required. Enter CONF6C if the number of six-port conference circuits available to the customer group at any one time is less than the total quantity of six-port conference circuits. Datafill refinement MAX_NO_CNF6C. If this option is not provided, all six-port conference circuits are available to the customer group at any one time. Enter PKTSUP to specify whether to suppress billing for packet service calls within the customer group. Datafill refinement PKTSUP.

Provisioning Support for Default Service (continued)

Datafilling table CUSTENG (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	MAX_NO_CNF6C	0 to 2047	Maximum six-port conference circuits. If the entry in subfield OPTION is CONF6C, datafill this refinement. Enter the maximum number of six-port conference circuits that are available to the customer group at any one time.
	PKTSUP	Y or N	Packet suppression. If the entry in subfield OPTION is PKTSUP, datafill this refinement. Enter Y to disable billing of packet service calls within the customer group. Enter N to enable billing of packet service calls within the customer group.

Datafill example for table CUSTENG

The following example shows sample datafill for table CUSTENG.

MAP display example for table CUSTENG

```
      CUSTNAME ADNUM NONCOS NOIBNTMT CONSOLES   DOMAIN  GROUPID
                                                              OPTIONS
-------------------------------------------------------------------------

       DEFSVCGRP   97    10      10        N    PRIVATE     222
                                                                    $
```

Datafilling table CUSTHEAD

Table CUSTHEAD defines the basic translation and routing characteristics for the customer group.

Field CUSTXLA defines the primary translator for the customer group. CUSTXLA is the name assigned to the data block in table IBNXLA that specifies digit translation for this customer group. This data includes any access codes that contain a leading numeric digit. In addition to the digit translator, table CUSTHEAD also specifies the feature (*) and octothorpe (#) translators with options FETXLA and OCTXLA. These translators indicate the areas in table IBNXLA that define feature and octothorpe translations, which translate any access codes beginning with a star or octothorpe, respectively. The operating company can also specify a preliminary translator (PLMXLA).

Provisioning Support for Default Service (continued)

Table CUSTHEAD also specifies the method of digit collection required for the group. Field DIGCOLNM specifies the area in table DIGCOL that defines digit collection for terminals in the group.

Specify a treatment for conditions in which digit translation is not possible using option VACTRMT, which contains the number of the treatment in table IBNTREAT.

The following table shows the datafill specific to Provisioning Support for Default Service for table CUSTHEAD. Only those fields that apply directly to Provisioning Support for Default Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table CUSTHEAD (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		alphanumeric (1 to 16 characters)	Customer group name. Enter the name assigned to the customer group.
CUSTXLA		alphanumeric (1 to 8 characters)	Customer translator. Enter the name used in table IBNXLA to identify the data block that specifies translations of digits for the group.
DIGCOLNM		alphanumeric (1 to 8 characters)	Digit collection name. Enter the name used in table DIGCOL to identify the data block that specifies digit collection for BRI lines in the group.
IDIGCOL		alphanumeric (1 to 8 characters) or NIL	International digit collection name. Enter the name assigned to the data block in table DGHEAD. This field only appears if feature package NTXB57AA (Open Number Translations) is in the load. This field does not apply to DMS-300 digit collection.
OPTIONS		see subfield	Options. This field consists of subfield OPTION.

Provisioning Support for Default Service (continued)

Datafilling table CUSTHEAD (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	FETXLA, OCTXLA, PLMXLA, or VACTRMT	Option. Enter FETXLA to define the feature (*) translator, and datafill subfield XLANAME. Enter OCTXLA to define the octothorpe (#) translator, and datafill subfield XLANAME. Enter PLMXLA to define the preliminary translator, and datafill subfield XLANAME. Enter VACTRMT to identify the treatment in table IBNTREAT used when digit translation is not possible. Datafill subfield VACTRMT.
	XLANAME	alphanumeric (1 to 8 characters)	Translator name. Enter the name used in table IBNXLA to identify the data block that specifies feature (*), octothorpe (#), or preliminary translation for the group.
	VACTRMT	1 to 63	Vacant number treatment. Enter the number that identifies vacant treatment in table IBNTREAT.

Datafill example for table CUSTHEAD

The following example shows sample datafill for table CUSTHEAD.

MAP display example for table CUSTHEAD

```
CUSTNAME    CUSTXLA    DGCOLNM      IDIGCOL   OPTIONS
-------------------------------------------------------
DEFSVCGRP   DEFSVCXL   DEFSVCOL      NIL       $
```

Datafilling table NCOS

Table NCOS allows the operating company to define basic translation and routing characteristics based on a subset of the customer group lines. This table defines the characteristics of the NCOS group. Base service provisioning of BRI terminals allocates individual lines to the NCOS group.

Provisioning Support for Default Service (continued)

For each NCOS, the operating company can define the following optional parameters:

- XLAS, which defines preliminary, feature (*), and octothorpe (#) translators, and a digit collection name for the NCOS
- FLSHXLA, which defines preliminary, feature, and octothorpe flash translators for the NCOS
- OCTXLA, which defines an octothorpe translator for the NCOS

If these options are datafilled, their values override the corresponding values datafilled in table CUSTHEAD during the call translation process.

Table NCOS also specifies code restriction based on the NCOS. The CRL option defines the code restriction level that applies to the NCOS. This option also determines if the codes in the code restriction level are allowed or blocked. (The codes belonging to the code restriction level are identified in table CODEBLK.)

The following table shows the datafill specific to Provisioning Support for Default Service for table NCOS. Only those fields that apply directly to Provisioning Support for Default Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table NCOS (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
CUSTGRP		alphanumeric (1 to 16 characters)	Customer group name. Enter the name assigned to the customer group.
NCOS		0 to 511	Network class of service number. Enter a number to identify the NCOS.
NCOSNAME		alphanumeric (1 to 6 characters)	Network class of service name. Enter an NCOS name for attendant console display purposes.
LSC		0 to 31	Line screening code. Enter a number to assign a line screening code to the NCOS.
TRAFSNO		10 to 127 or 0	Traffic separation number. If traffic separation measurements are required, enter a traffic separation number (in the range 10 to 127). If traffic separation measurements are not required, enter zero (0).

Provisioning Support for Default Service (continued)

Datafilling table NCOS (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see subfield	Options. This field is a vector of up to 17 entries of subfield NCOSOPTN and its refinements.
	NCOSOPTN	XLAS, OCTXLA, FLSHXLA, or CRL	Network class of service options. Enter XLAS to specify translators and a digit collection name for the NCOS, and datafill subfields PRELMXLA, FEATXLA, and DIGCOLNM. Enter OCTXLA to specify an octothorpe translator for the NCOS, and datafill subfield OCTXLA. Enter FLSHXLA to specify flash translators for the NCOS, and datafill subfields PRELMXLA, FEATXLA, and OCTXLA. Enter CRL to specify code restriction levels for the NCOS, and datafill subfields CRL and CRLACT.
	PRELMXLA	alphanumeric (1 to 8 characters)	Preliminary translator. Enter the name from table IBNXLA that identifies the data block that specifies preliminary digit or flash translation for the NCOS. Enter NXLA to cause the translations process to use the preliminary translator in table CUSTHEAD.
	FEATXLA	alphanumeric (1 to 8 characters)	Feature translator. Enter the name from table IBNXLA that identifies the data block that specifies feature (*) translation (or feature flash translation) for the NCOS. Enter NXLA to cause the translations process to use the feature translator in table CUSTHEAD.
	OCTXLA	alphanumeric (1 to 8 characters)	Octothorpe translator. Enter the name used in table IBNXLA to identify the data block that specifies octothorpe (#) translation (or octothorpe flash translation) for the NCOS. Enter NXLA to cause the translations process to use the octothorpe translator in table CUSTHEAD.

Provisioning Support for Default Service (continued)

Datafilling table NCOS (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	DIGCOLNM	alphanumeric (1 to 8 characters)	Digit collection name. Enter the name from table DIGCOL that identifies the data block that specifies digit collection for BRI lines in the NCOS. Enter NDGT to cause the translations process to use the digit collection name in table CUSTHEAD.
	CRL	1 to 15	Code restriction level. Enter the code restriction level that applies to the NCOS.
	CRLACT	ALLOWED or BLOCKED	Code restriction action. Enter one of the following values: • To allow all calls to codes specified by this code restriction level (in table CODEBLK) to complete, enter ALLOWED. • To block all calls to codes specified by this code restriction level from completing, enter BLOCKED.

Datafill example for table NCOS

The following example shows sample datafill for table NCOS.

MAP display example for table NCOS

```
CUSTGRP   NCOS   NCOSNAME   LSC   TRAFSNO                  OPTIONS
-------------------------------------------------------------------------
DEFSVCGRP  0    DSNCOS     0     0    (XLAS DEFSVCXL DEFSVCXL DEFSVCOL) $
```

Datafilling table IBNRTE

Table IBNRTE provides a route for the translated digits in the IBN environment. Routing is based on the routing selector field (IBNRTSEL), which specifies the type of routing. The following selectors are used in the BRI environment:

- The DN selector routes the call to a DN on the switch.
- The IW selector routes an INWATS call.

Provisioning Support for Default Service (continued)

- The N selector routes an outgoing call for which the dialed digits are not the same as the outpulsed digits. This type of call involves prefixing or deleting digits in table DIGMAN.
- The OW selector routes an OUTWATS call.
- The S selector routes an outgoing call to a trunk.
- The T selector routes the call to another route in table IBNRTE or another routing table.
- The TRMT selector routes the call to a treatment.
- The VFG selector routes the call to a virtual facility group (VFG).

The table contains route lists, each identified by a route reference index. Each route list contains up to eight different routes for the call.

Note: There are four IBN routing tables, named IBNRTE, IBNRT2, IBNRT3, and IBNRT4. Each of these tables operates in the same way. In this document, IBNRTE refers to all of these IBN routing tables.

The following table shows the datafill specific to Provisioning Support for Default Service for table IBNRTE. Only those fields that apply directly to Provisioning Support for Default Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table IBNRTE (Sheet 1 of 4)

Field	Subfield or refinement	Entry	Explanation and action
RTE		1 to 1023 or blank	Route reference index. Enter the route reference index for the first route in the route list only. For other routes in this route list, leave the field blank.
RTELIST		see subfields	Route list. This field consists of subfield IBNRTSEL and other subfields that vary depending on the value of the selector.

Provisioning Support for Default Service (continued)

Datafilling table IBNRTE (Sheet 2 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	IBNRTSEL	DN, IW, N, OW, S, T, TRMT, or VFG	IBN route selector. Enter DN to specify a route to a DN in the switch, and datafill subfields SNPA, NXX, EXP, and DMI. Enter IW to route an INWATS call, and datafill subfields LINEATTR, NXX, VFG, and DMI. Enter N to route a call that has dialed digits that are not the same as the digits to outpulse. Datafill subfields OHQ, CBQ, EXP, MBG, CLLI, and DMI. Enter OW to route an OUTWATS call, and datafill subfields OHQ, CBQ, EXP, ZONE, and ROUTE. Enter S to specify a route to a trunk, and datafill subfields OHQ, CBQ, EXP, MBG, and CLLI. Enter T to route the call to another route index in table IBNRTE or to another routing table, and datafill subfield EXTRTEID. Enter TRMT to route the call to a treatment, and datafill subfield RTETRMT. Enter VFG to route the call to a VFG, and datafill subfields OHQ, CBQ, EXP, VFG, and DMI.
	SNPA	3 digits	Serving NPA. Enter the serving numbering plan area (NPA) of the DN on which the call should terminate.
	NXX	3 digits	Office code. Enter the office code of the DN on which the call should terminate.
	EXP	Y or N	Expensive. Enter Y if an expensive route and expensive route warning tone is applied to the trunk. Enter N if an expensive route and expensive route warning tone is not applied to the trunk.
	DMI	0 to 31 999	Digit manipulation index. Enter the index in table DIGMAN that provides digit alteration for this call. Enter 0 (zero) if digit alteration is not required.
	LINEATTR	0 to 2047	Line attribute. Enter the line attribute of the virtual line associated with the INWATS call.

Provisioning Support for Default Service (continued)

Datafilling table IBNRTE (Sheet 3 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	VFG	alphanumeric (1 to 6 characters)	Virtual facility group. Enter the name of the VFG (from table VIRTGRPS) through which the call should be routed.
	OHQ	Y or N	Off-hook queuing. Enter Y if off-hook queuing is allowed for the call. Enter N if off-hook queuing is not allowed.
	CBQ	Y or N	Call-back queuing. Enter Y if call-back queuing is allowed for the call. Enter N if call-back queuing is not allowed.
	MBG	Y or N	Multi-switch business group. Enter Y if the call is to a switch within a multi-switch business group. Enter N if the call is not to a switch within a multi-switch business group.
	CLLI	alphanumeric (1 to 16 characters)	Common language location identifier. Enter the code (assigned in table CLLI) of the trunk on which the call should terminate.
	ZONE	0 to 13	OUTWATS zone. Enter the OUTWATS zone number for the virtual circuit. ***Note:*** The zone in which the call destination is located must be valid in this zone.
	ROUTE	see subfields	Route. This field consists of subfield RTETYPE and other subfields that vary depending on the value of RTETYPE.
	RTETYPE	S, T, or V	Route type. Enter S to route the call to a trunk, and datafill subfields CLLI and DMI. Enter T to route the call to another route index in this table or another routing table. Datafill subfields TABID and INDEX. Enter V to route the call through a VFG, and datafill subfields VFG and DMI.
	CLLI	alphanumeric (1 to 16 characters)	Common language location identifier. Enter the code (from table CLLI) assigned to the trunk on which the call should terminate.

Provisioning Support for Default Service (continued)

Datafilling table IBNRTE (Sheet 4 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	DMI	1 to 31 999, 0	Digit manipulation index. Enter the index into table DIGMAN that provides digit alteration for the call. Enter 0 (zero) if digit alteration is not required.
	TABID	IBNRTE, IBNRT2, IBNRT3, IBNRT4, OFRT, OFR2, OFR3, or OFR4	Table identifier. Enter the name of the table to which the call is routed.
	INDEX	0 to 1023	Key. Enter the route index in the specified table.
	VFG	alphanumeric (1 to 6 characters)	Virtual facility group. Enter the name of the VFG from table VIRTGRPS to which the call should be routed.
	RTETRMT	alphanumeric (4 characters)	Route treatment. Enter the name of the treatment in table TMTCNTL.TREAT to which to route the call.
	EXTRTEID	see subfields	External route identifier. This field consists of subfields TABID and KEY.
	TABID	IBNRTE, IBNRT2, IBNRT3, IBNRT4, OFRT, OFR2, OFR3, or OFR4	Table identifier. Enter the name of the table to which to route the call.
	KEY	0 to 1023	Key. Enter the route index in the specified table.

Datafill example for table IBNRTE

The following example shows sample datafill for table IBNRTE.

Provisioning Support for Default Service (continued)

MAP display example for table IBNRTE

```
RTE      RTELIST
-------------------------------------------------------
972      VFG N N N 611VFG 830 $
911      VFG Y Y N 911VFG 0 $
```

Datafilling table IBNXLA

Table IBNXLA translates the digits in calls that originate at BRI terminals or incoming trunks. The following identify each tuple (translator) in the table:

- a translator name assigned in table XLANAME
- a translation selector (TRSEL), which specifies the type of translation to perform

Depending on the type of translation, the RESULT field provides a route or treatment for the digits.

Datafill for the Customer Groups capability uses the following types of translation selectors:

- The ATT (attendant access) selector routes calls to the attendant.
- The EXTN (extension) selector routes calls on an extension basis when abbreviated numbers are dialed.
- The FLEXI (route to IBN treatment table) selector translates calls on special intercept lines and route the calls to treatments.
- The NET (networks) selector handles translations of network calls. The NETTYPE field distinguishes between types of networks, for example, direct outward dial (DOD), private network (PVT), or OUTWATS (OWT) calls.

Within the NET translation selector for DOD calls, the CRL field allows the operating company to enable or disable code restriction or allowance.

If there is no datafill for the dialed digits, translation proceeds according to the default given in table XLANAME. If there is no default in table XLANAME, translation automatically defaults to the VACTRMT specified in table CUSTHEAD.

The following table shows the datafill specific to Provisioning Support for Default Service capability in table IBNXLA. Only those fields that apply directly to Provisioning Support for Default Service are shown. For a

Provisioning Support for Default Service (continued)

description of the other fields, refer to the data schema section of this document.

Datafilling table IBNXLA (Sheet 1 of 4)

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfields	Key. This field consists of subfields XLANAME and DGLIDX.
	XLANAME	alphanumeric (1 to 8 characters)	Translator name. Enter the name of the translator. ***Note:*** Table XLANAME must contain the translator name.
	DGLIDX	numeric (up to 18 digits)	Digilator index. Enter the digits to translate.
RESULT		see subfields	Result. This field consists of subfield TRSEL and a number of other subfields that differ depending on the translation selector.
	TRSEL	ATT, EXTN, FLEXI, or NET	Translation selector. Enter ATT to specify calls to the attendant, and datafill subfield ICI. Enter EXTN to specify extension calls, and datafill subfields SMDR, INTRAGROUP, SNPA, NNX, DIGINEXT, and FILLDIGS. Enter FLEXI to specify a special intercept line, and datafill subfield FLEX_INTCPT. Enter NET to specify DOD, PVT, or OWT calls, and datafill subfields ACR, SMDR, NOACDIGS, SDT, DGCOLNM, CRL, INTRAGRP, and NETTYPE.
	ICI	0 to 255	Incoming call identification code. Enter the incoming call identification code assigned to the attendant console for this listed DN. ***Note:*** Table FNMAP contains the assignment of ICI to keys and lamps on the attendant console. For a description of table FNMAP, refer to the data schema section of this document.

Provisioning Support for Default Service (continued)

Datafilling table IBNXLA (Sheet 2 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	FLEX_INTCPT	0 to 63	Flexible intercept. Enter the number of the treatment in table IBNTREAT to which to route the intercepted calls.
	ACR	Y or N	Account code entry. Enter Y if an account code entry is required; otherwise, enter N.
	SMDR	Y or N	Station message detail recording. Enter Y to enable recording for all calls within the customer group. Enter N to disable recording.
	NOACDIGS	0 to 7	Number of access code digits. Enter the number of access code digits in the access code (normally 1 for DOD and PVT).
	SDT	Y or N	Second dial tone. Enter Y if a dial tone is required after dialing the access digit. Enter N if a dial tone is not required.
	DGCOLNM	alphanumeric (1 to 8 characters)	Digit collection name. Enter the digit collection name assigned to the customer group in table CUSTHEAD.
	CRL	Y or N	Code restriction level. Enter Y to enable code restriction and allowance for DOD calls. Enter N to disable code restriction and allowance.
	INTRAGROUP	Y or N	Intragroup. Enter Y or N to indicate if calls are for the same customer group.
	NETTYPE	DOD, PVT, or OWT	Network type. Enter DOD to specify direct outward dial. Enter data in subfields SMDRB, LINEATTR, and TOLLREST. Enter PVT to specify a private network. Enter data in subfields STS, ORIGSCRE, and SCRNCL. Enter OWT to specify an OUTWATS call. Enter data in subfields LNATTR, OWATZONE, INVZNFLX, and EXTRTEID.

Provisioning Support for Default Service (continued)

Datafilling table IBNXLA (Sheet 3 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	SMDRB	Y or N	Station message detail recording. Enter Y to record the call as chargeable. Enter N if the call is not chargeable.
	LINEATTR	0 to 2047	Line attribute. Enter the line attribute assigned to the DOD access code.
	TOLLREST	TDN, TDV, or NONE	Toll restriction. Enter TDN to specify to divert DOD calls to toll denied treatment. Enter TDV to specify diversion of DOD calls to the attendant console intercept. Enter NONE to specify no diversion.
	STS	numeric	Serving translation scheme. Enter the number of the table assigned to the home NPA to which these calls must route.
	ORIG_SOURCE	LCL or NLCL	Origination source. Enter LCL to indicate that the source of the call is local (inside the central office). Enter NLCL to indicate that the call is not local.
	SCRNCL	alphanumeric or NSCR	Screening class. If class of service screening is required, enter the name of the class of screening subtable. If class of service screening is not required, enter NSCR.
	INTRAGROUP	Y or N	Intragroup. Enter Y if the call is within the same customer group. Enter N if the call is not within the same customer group.
	SNPA	3 digits	Serving numbering plan area. Enter the destination NPA number to apply to the dialed code as a prefix.
	NNX	3 digits	Central office code. Enter the destination central office code to apply to the dialed code as a prefix.
	DIGINEXT	1 to 7	Digits in extension. Enter the number of digits (1 to 7) in the extension.

Provisioning Support for Default Service (continued)

Datafilling table IBNXLA (Sheet 4 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	FILLDIGS	up to 3 digits	Fill digits. Enter up to three digits to use as a prefix for the dialed digits in extension dialing.
	LNATTR	0 to 2047	Line attribute. Enter the line attribute assigned to the OUTWATS access code.
	OWATZONE	0 to 9, A, B, C, or AUTO	OUTWATS zone. Enter the OUTWATS zone (0 to 9, A, B, or C) in which to screen this call. Enter AUTO to indicate the zone specified in table OWATZONE for the NPA of the called number. ***Note:*** Entries A, B, and C correspond, in the sequence given, to zones 10, 11, and 12.
	INVZNFLX	0 to 63	Zone flexible intercept. Enter the number of the IBN treatment (from table IBNTREAT) to which out-of-zone calls should be routed.
	EXTRTEID	see subfields	External route identifier. This field consists of subfields TABID and KEY.
	TABID	IBNRTE, IBNRT2, IBNRT3, IBNRT4, OFRT, OFR2, OFR3, or OFR4	Table identifier. Enter the name of the table to which to route the call.
	KEY	0 to 1023	Key. Enter the route index in the specified table.

Datafill example for table IBNXLA

The following example shows sample datafill for table IBNXLA.

Provisioning Support for Default Service (continued)

MAP display example for table IBNXLA

```
KEY          RESULT
-------------------------------------------------------------------
DEFSVCXL     411 NET Y Y 1 Y POTS N N GEN (LATTR 91) $ $
DEFSVCXL     911 NET Y Y 1 Y POTS N N GEN (LATTR 91) $ $
DEFSVCXL     991 NET Y Y 1 Y POTS N N GEN (LATTR 91) $ $
```

Datafilling table DNROUTE

Table DNROUTE directs DNs that are not associated with an LTID (for example, INWATS lines) to a route or treatment. Different DN selectors (in field DN_SEL) are used to specify different types of routing for calls to the specified DNs.

Provisioning Support for Default Service adds the DN selector value DSVC to table DNROUTE. The DSVC selector identifies a DN as a Default Service DN. Table DNROUTE can contain only one Default Service tuple.

> ***Note:*** The operating company must use the DEFSVCCI tool SETUP command before provisioning the Default Service DN in table DNROUTE. Before using the DEFSVCCI tool REMOVE command, the operating company must remove the Default Service DN from table DNROUTE. For more information, see “DEFSVCCI tool" in this document.

Removal of the Default Service DN and entry of a new Default Service DN triggers static data download messages. These messages update the DN information to each XPM that is in service and supports BRI lines. In addition, BRI lines with a status already set to WORKING are equipped for Default Service.

The following table shows the datafill specific to Provisioning Support for Default Service for table DNROUTE. Only those fields that apply directly to

Provisioning Support for Default Service (continued)

Provisioning Support for Default Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table DNROUTE

Field	Subfield or refinement	Entry	Explanation and action
AREACODE		3 digits	Area code. Enter the area code or serving NPA number (the first three digits of the DN).
OFCCODE		3 digits	Office code digit register. Enter the office code (the next three digits of the DN).
STNCODE		0 to 99999999 (up to 8 digits)	Station code. The station code identifies a unique station within the terminating office. If office parameter ACTIVE_DN_SYSTEM in table OFCENG is set to NORTH_AMERICAN, the area code must contain either one or four digits. If you enter one digit, that digit functions as a D-digit (the fourth digit in the format ABC-DEFG). A D-digit receives the appropriate DN result. For example, assume you enter area code 613, office code 226, and station code 5. Any calls to a number that begins with 6132265 automatically route to the specified treatment. If 5 is the D-digit, and DNROUTE is datafilled as 613 226 5 D OPRT, any numbers for 6132265 route to the operator treatment as set in table TMTCNTL.
DNRESULT		see subfields	Directory number result. This field consists of subfields DN_SEL, CUSTGRP, SUBGRP, and NCOS.
	DN_SEL	DSVC	Directory number selector. Enter the DN selector DSVC.
	CUSTGRP	alphanumeric (1 to 16 characters)	Customer group. Enter the name of the customer group of the Default Service DN.
	SUBGRP	0 to 7	Subgroup. Enter the subgroup of the customer group of the Default Service DN.
	NCOS	0 to 511	Network class of service. Enter the NCOS of the Default Service DN.

Datafill example for table DNROUTE

The following example shows sample datafill for table DNROUTE.

Provisioning Support for Default Service (continued)

MAP display example for table DNROUTE

```
AREACODE OFCCODE    STNCODE                        DNRESULT
---------------------------------------------------------
     919    991       9999          DSVC DEFSVCGRP 0 0
```

Error messages for table DNROUTE

The following error messages apply to table DNROUTE.

Error messages for table DNROUTE

Error message	Explanation and action
`Only one Default Service DN per switch. The Default Service DN is nnn nnn nnnn.`	Enter only one Default Service tuple in table DNROUTE.
`Default Service has not been set up on all eligible ISDN loops. To set up all ISDN loops use the CI command DEFSVCCI and run SETUP. Then you will be able to add the Default Service DN to Table DNROUTE.`	Use the DEFSVCCI tool SETUP command before provisioning the Default Service DN in table DNROUTE.

Translation verification tools

Provisioning Support for Default Service does not use translation verification tools. Translation verification tools do not support Default Service DN originations.

SERVORD

Changes to SERVORD commands

Provisioning Support for Default Service prevents the entry of a provisioned ten-digit Default Service DN as an input parameter for the following SERVORD commands:

- ABNN (add bridged night number)
- ADD (add line to an existing hunt group)
- ADDPH (add or change packet handler options)
- ADO (add option)
- CHAPH (change packet handler parameters)

Provisioning Support for Default Service (continued)

- CHF (change feature information for pre-existing feature)
- CHG (change translation/routing information)
- DEL (delete line from a hunt group)
- DELPH (delete packet handler options)
- DEO (delete option)
- EST (establish a hunt group or call pickup group)
- NEW (establish service)
- OUT (remove service)
- SUS (suspend service)
- SWLT (swap logical terminals)

The following error message displays if the operating company attempts to enter a Default Service DN, where "<nnnnnnnnnn>" is the Default Service DN:

```
Default Service DN: Invalid input
<nnnnnnnnnn>
```

The following exception exists. Assume that

- A switch has multiple NPAs and duplicate exchange codes (NXX).
- Translations restricts some DNs—for example, forwarding or hunt group overflow DNs—to seven digits.

The following condition allows entry of part of a Default Service DN at a SERVORD prompt.

The operating company attempts to enter a Default Service DN under one NPA. Under a different NPA, a forwarding or overflow DN shares the NXX and station code of the Default Service DN. That is, the seven digits of the forwarding or overflow DN are identical to those of the Default Service DN. In this event, SERVORD accepts the entry of the Default Service DN.

This behavior is in line with existing SERVORD behavior with normal DNs. SERVORD always accepts the entry of ambiguous DNs; if DN rejection occurs, the rejection is based on later, feature-specific checks.

Changes to SERVORD QDN query command

Provisioning Support for Default Service modifies the SERVORD QDN (query DN) command output to identify Default Service DNs. The QDN

Provisioning Support for Default Service (end)

command output does not include the BRI LENs associated with a Default Service DN.

Changes to SERVORD QDNSU and QDNWRK query commands

Provisioning Support for Default Service modifies the following SERVORD query commands to identify Default Service DNs in the command output:

- QDNSU (query software unassigned DNs)
- QDNWRK (query working [assigned] DNs)

The QDNSU or QDNWRK command output includes the Default Service DN when the operating company specifies both of the following output options:

- R (range of DNs)
- D (detailed printout)

The command output omits the Default Service DN when the operating company specifies the R and S (summary printout) options.

The command output also omits the Default Service DN when the operating company specifies the following options:

- ALL (all DNs) option with D option
- ALL option with S option

2 Datafilling NI0 NI98 Enhancements Ph1

The following chapter describes the NI0 NI98 Enhancements Ph 1, NI000060, functionality.

Associated Groups on a TSP Basis

Ordering codes

Functional group ordering code: NI000060

Functionality ordering code: not applicable

Release applicability

NA009 and up

Prerequisites

To operate, Associated Groups on a TSP Basis requires the NI0 NI-2/3 BRI / ISDN Support for Associated Groups for LTIDs, NI000051.

Description

Associated Groups on a TSP Basis, introduced in NA009, enhances the associated group (AG) capability in the following ways:

- Up to nine AGs can exist on an interface.
- The same AG group can span multiple terminal service profiles (TSP) so long as the LTIDs assigned to those AG groups are on the same Basic Rate Interface (BRI).

Associated Groups is a National ISDN (NI)-2/3 capability that applies to BRI ISDN terminals. An AG restricts a directory number/call type (DN/CT) or a group of DN/CTs to the use of a single B-channel at a time. Associated group assignment (AGA) uniquely identifies each AG. Each AG has access to one B-channel. Only one terminal at a time in the AG group is allowed access to the B-channel. The first terminal that establishes an active call controls the AG, which prohibits other terminals from use of the channel.

AGs can exist on terminals that have shared DNs (Electronic Key Telephone Service [EKTS] basic or Call Appearance Call Handling [CACH]) as well.

ISDN Support for Associated Groups for LTIDs, introduced in NA008, introduced the concept of associated groups. In NA008, a maximum of two AGs could be defined on an interface and AG members could not belong to different LTIDs.

See the feature description “ISDN Support for Associated Groups for LTIDs" in this document for more description of the NA008 and up AG capability.

When multiple terminals are in use on an interface, B-channel access restrictions, or AGs, restrict each user to only one of the B-channels. Typically these users have their own DN or set of DNs. Define the DN or set of DNs in

Associated Groups on a TSP Basis (continued)

an AG, which restricts that set of DNs from access to both B-channels. Once one of the DNs establishes a call, the other DNs cannot use a B-channel until the active DN releases the channel. This restriction ensures that the other user can always access a B-channel.

If each user has more than one terminal, each user can still use only a single B-channel. Alternatively, for a single user, you can restrict one or more terminals to one B-channel to ensure that those devices do not use all the B-channels, which prohibits another device from access.

Operation

Provision AGs with option AGA (Associated Group Assignment) through the Service Order System (SERVORD). The SLT ADD and SLT CHA commands automatically update tuples in table LTDEF, which defines the service profiles of LTIDs. A maximum of nine AGs can exist on an interface. Define the AG group number (1-8) through SERVORD, as well as the call type for that AG. An AG can include voice (VI) or circuit-mode data (CMD) calls, or both (ALL), as well as be undefined (UNASSIGNED).

Supported LTID configurations

Logical terminal identifiers (LTID) are unique labels assigned to a logical terminal. TSP is the Bellcore term for LTID. Associated Groups on a TSP Basis supports the following LTID interface configurations:

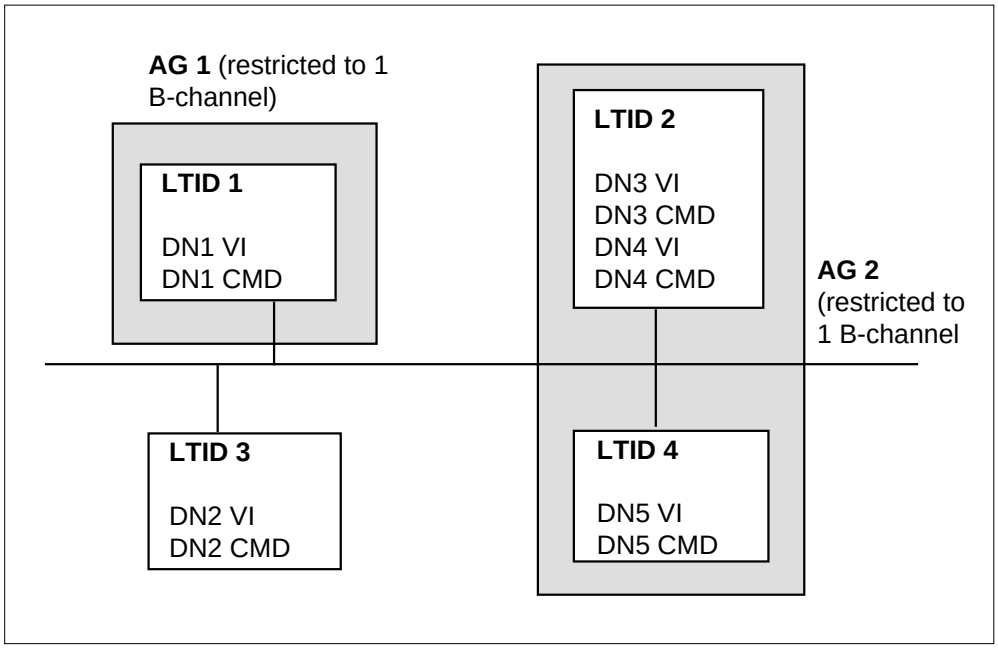
- 2B LTID (introduced in NA007)a single 2B LTID on a BRI interface with access to one B-channel
- NI-2 LTID (introduced in NA008)one or two 2B or 2BD LTIDs on a BRI interface with a National ISDN-2 (NI-2) capabilities. NI-2 capabilities allow the LTIDs to access both B-channels or both B-channels and the D-channel (X.25 packet service).

Note: Associated Groups on a TSP Basis affects circuit-switched voice and data B-channels only. The operation of this feature on an NI-2 2B LTID is identical to the operation on an NI-2 2BD LTID. Any reference to an NI-2 LTID within this document applies both to an NI-2 2B LTID and to an NI-2 2BD LTID.

The following figure shows LTID-based AGs. AG 1 contains LTID 1. AG 2 contains LTIDs 2 and 4. LTID 3 is not in an AG. AG 2 shows that AGs can contain DNs from different LTIDs and include all the DN/CTs provisioned against the LTID.

Associated Groups on a TSP Basis (continued)

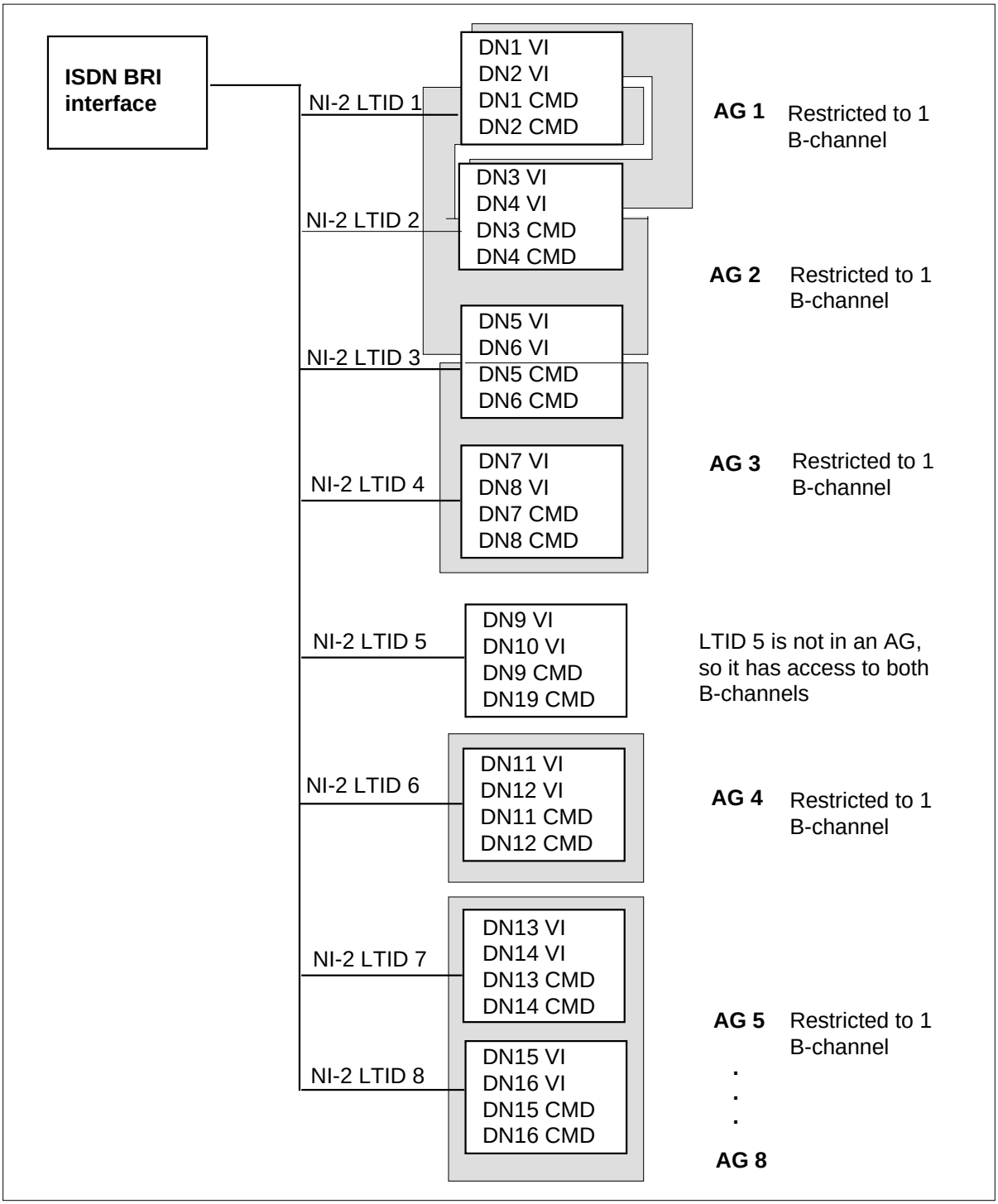
AGs on a TSP (LTID) basis



The following figure shows an example of AG configurations on an interface that supports eight LTIDs.

Associated Groups on a TSP Basis (continued)

Supported AG configurations for eight NI-2 LTIDs on a BRI loop



Associated Groups on a TSP Basis (continued)

Supported call types

Associated Groups on a TSP Basis provides the ability to place all the VI or CMD, or both, DN/CTs assigned to a 2B LTID or to an NI-2 LTID in an AG.

Note: AGs do not apply to the D-channel.

Translations table flow

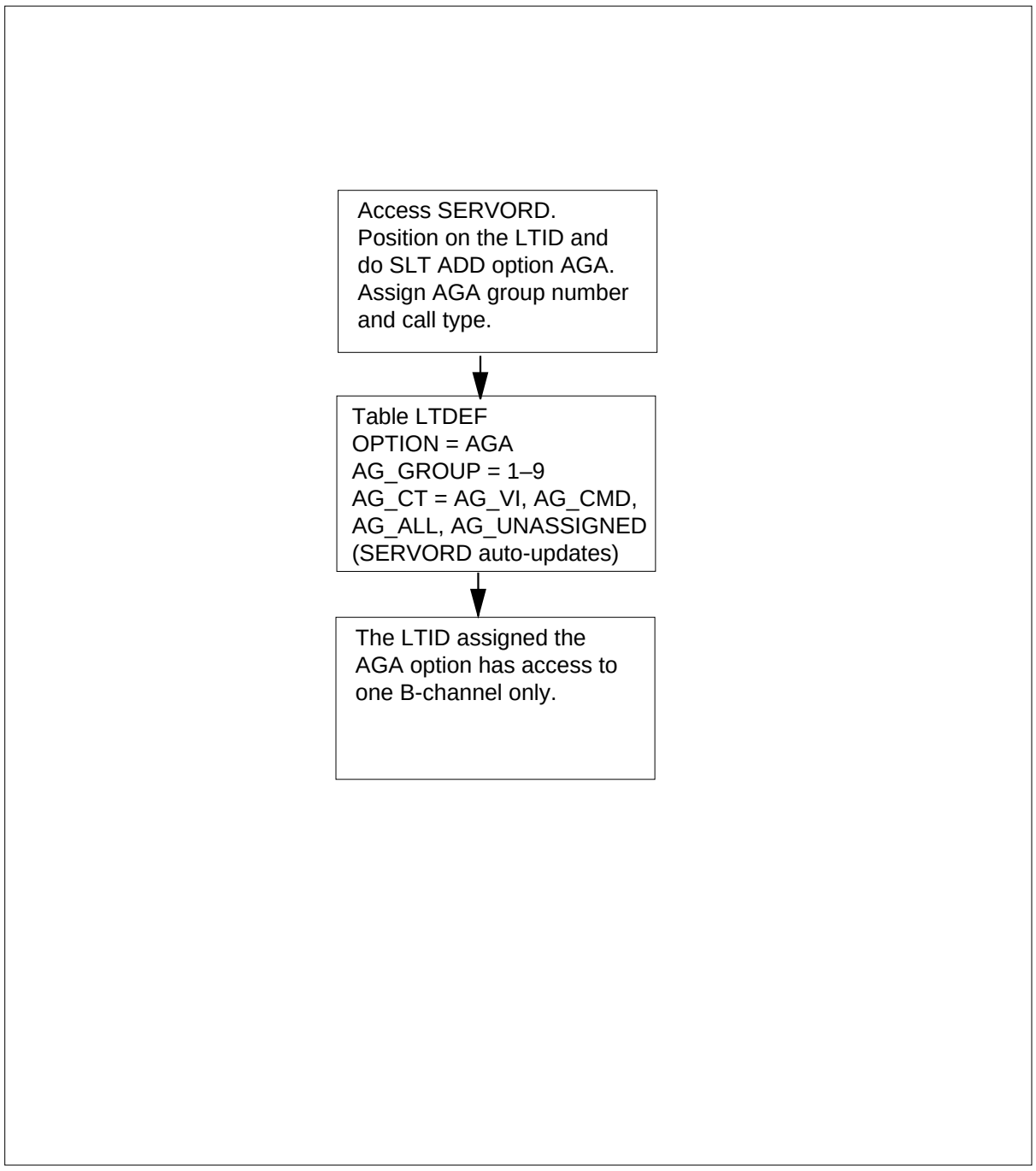
Datafill the following table for the Associated Groups on a TSP Basis functionality:

- Table LTDEF (Logical Terminal Definition) defines the service profile of an ISDN LTID. The key to this table is the LTID. Provision the AGA option against an LTID in this table. The SERVORD SLT ADD and SLT CHA commands automatically update this table.

The following flowchart shows the Associated Groups on a TSP Basis translation process.

Associated Groups on a TSP Basis (continued)

Table flow for Associated Groups on a TSP Basis



Associated Groups on a TSP Basis (continued)

Limitations and restrictions

The following limitations and restrictions apply to Associated Groups on a TSP Basis:

- A maximum of nine AGs can exist on an interface.
- The AG capability does not apply to 1B LTIDs because these LTIDs can only use a single B-channel anyway.
- Although the AG capability can exist on 2B LTIDs, only one NI-1 2B LTID is assignable to an interface.
- Only one B-channel is available to an AG.
- AGAs apply only to circuit-switched voice and data (VI and CMD) call types, not to the packet-switched data (PMD) call type.
- The AGA call type must differ for all AGA group numbers on the same LTID. For example, AGA 1 with CMD call type and AGA 2 with CMD call type cannot exist on the same LTID. This AGA assignment is redundant and returns an error message.

Interactions

Associated Groups on a TSP Basis has no functionality interactions.

Activation/deactivation by the end user

Associated Groups on a TSP Basis requires no activation or deactivation by the end user.

Billing

Associated Groups on a TSP Basis does not affect billing.

Station Message Detail Recording

Associated Groups on a TSP Basis does not affect Station Message Detail Recording.

Datafilling office parameters

Associated Groups on a TSP Basis does not affect office parameters.

Datafill sequence

The following table shows the table that requires datafill to implement Associated Groups on a TSP Basis.

Note: Provision this table through SERVORD. Refer to “SERVORD" for an example of using SERVORD to datafill this table. The SLT ADD and

Associated Groups on a TSP Basis (continued)

SLT CHA commands automatically update tables LTDEF and KSETINV. The SLT ATT and SLT DET commands automatically update table LTMAP.

Datafill tables required for Associated Groups on a TSP Basis

Table	Purpose of table
LTDEF	Logical Terminal Definition table defines the service profile of an ISDN LTID. The key to this table is an LTID. Based on the type of service in the LTCLASS field, provision logical terminal-specific options against a particular LTID.

Translation verification tools

Associated Groups on a TSP Basis does not use translation verification tools.

SERVORD

Assign AGs by the AGA option to an LTID in SERVORD. This functionality uses the SLT ADD and SLT CHA commands. The SLT ADD command automatically updates tables LTDEF and KSETINV. The SLT ATT and SLT DET commands automatically update table LTMAP, by writing or deleting the tuple. The CHA command automatically changes the LTID specified in table LTDEF.

SERVORD limitations and restrictions

The following SERVORD limitations and restrictions apply to Associated Groups on a TSP Basis:

- The AGA call type has to differ for all AGA group numbers on the same LTID. For example, AGA 1 with CMD call type and AGA 2 with CMD call type are not assignable to the same LTID. This AGA assignment is redundant and returns an error message.
- A maximum of nine AGs can exist on an interface.

Associated Groups on a TSP Basis (continued)

SERVORD prompts

The following table shows the SERVORD prompts used to assign the AGA option to an LTID.

SERVORD prompts for Associated Groups on a TSP Basis (Sheet 1 of 2)

Prompt	Valid input	Explanation
AG_CT	AG_VI, AG_CMD, AG_ALL, AG_UNASSIGNED	Associated group call type. Enter AG_VI for voiceband information call type. Enter AG_CMD for circuit mode data call type. Enter AG_ALL for both call types. Enter AG_UNASSIGNED for an unassigned call type.
AG_GROUP	1-9	Associated group number. Enter an associated group number of 1-9.
CS	2B, NI2	Circuit-switched service. Enter 2B for a 2B LTID. Enter NI2 for an NI2 LTID.
DEFLTERM	Y, N	Default terminal. Enter Y (yes) for the default non-initializing terminal (NIT) and the default service profile. Enter N (no) for the fully initializing terminal (FIT).
EKTS	N, Y	Electronic key telephone set. ***Note:*** Only a functional (BRAFS) set with dynamic TEI is definable as an EKTS.
FUNCTION	ADD, REM, ATT, DET, CHA	The action required by the service order.
LTCLASS	BRAFS	Class of logical terminal based on the type of messaging exchanged between the terminal and the ISDN exchange termination. Enter BRAFS for functional messaging.

Associated Groups on a TSP Basis (continued)

SERVORD prompts for Associated Groups on a TSP Basis (Sheet 2 of 2)

Prompt	Valid input	Explanation
LTID	1 to 8 alphanumeric characters, followed by a space and a terminal number (1 to 1022)	The logical terminal identifier.
MAXKEYS	2 -64	Maximum number of feature activators (keys) on a logical terminal used for circuit-switched service.
OPTION (used with SLT ADD)	AGA	Enter AGA for associated group assignment.
PS	N, D	Packet-switched service. For 2B and NI-2 2B terminals, enter N for no packet service. For NI-2 2BD terminals, enter D for packet service on the D-channel. AGs do not apply to packet service.
SET_ATTRIBUTE (used with SLT CHA)	AGA	Enter AGA for associated group assignment.
TEI_TYPE	DTEI, STEI	The type of TEI assignment. Enter DTEI for dynamic TEI assignment. Enter STEI for static TEI assignment.
TSPID	1-18 digits	Terminal service profile identifier option, which is used to initialize BRIFS LTIDs. This option is used with the Free Format SPID feature.

SERVORD examples for Associated Groups on a TSP Basis

The following figures show SERVORD examples for defining or changing the AGA option on an LTID and for attaching the LTID to a LEN.

Associated Groups on a TSP Basis (continued)

Defining the AGA option, one group, VI call type

The following example shows the SLT ADD command used to define the AGA option for an NI-2 2B LTID. All DNs associated with the VI call type are placed in one AG.

Note: Also use the SLT ADD command to define the AGA option for a 2B LTID or for an NI-2 2BD LTID.

Example of the AGA option with SLT ADD command in prompt mode

```
SO:
> SLT
SONUMBER:  NOW 97 07 26 AM
> $
LTID:
> ISDN 1
FUNCTION:
> ADD
LTCLASS:
> BRAFS
CS:
> NI2
PS:
> N
MAXKEYS:
> 64
DEFLTERM:
> N
TEI_TYPE:
> DTEI
TSPID:
> 6137235011
EKTS:
> N
OPTION:
> AGA
AG_GROUP:
> 1
AG_CT:
> AG_VI
OPTION:
> $
```

Associated Groups on a TSP Basis (continued)

Example of the AGA option with SLT ADD command in no-prompt mode

```
>SLT $  ISDN 1 ADD BRAFS NI2 N 64 N DTEI 6137235011 N AGA 1
AG_VI $
```

Define the AGA option, two groups, two call types

The following example shows the SLT ADD command that defines the AGA option for an NI-2 LTID that has DNs associated with the VI call type in one AG and DNs associated with the CMD call type in a second AG.

Note: Also use the SLT ADD command to define the AGA option for a 2B LTID or for an NI-2 2BD LTID.

Associated Groups on a TSP Basis (continued)

Example of the AGA option with the SLT ADD command in prompt mode

```
SO:
> SLT
SONUMBER:  NOW 97 07 26 AM
> $
LTID:
> ISDN 1
FUNCTION:
> ADD
LTCLASS:
> BRAFS
CS:
> NI2
PS:
> N
MAXKEYS:
> 64
DEFLTERM:
> N
TEI_TYPE:
> DTEI
TSPID:
> 6137235011
EKTS:
> N
OPTION:
> AGA
AG_GROUP:
> 1
AG_CT:
> AG_VI
OPTION:
> AGA
AG_GROUP:
> 2
AG_CT:
> AG_CMD
OPTION:
> $
```

Example of the AGA option with SLT ADD command in no-prompt mode

```
>SLT $ ISDN 1 ADD BRAFS NI2 N 64 N DTEI 6137235011 N AGA 1
AG_VI AGA 2 AG_CMD $
```

Associated Groups on a TSP Basis (continued)

Define all DN/CTs assigned to an LTID in one AG

The following example shows an SLT ADD command that defines the AGA option for a 2B LTID with DN/CTs associated with both VI and CMD call types in one AG.

Note: Also use the SLT ADD command to define the AGA option for an NI-2 2B LTID or for an NI-2 2BD LTID.

Example of the AGA option with the ADD command in prompt mode

```
SO:
> SLT
SONUMBER:  NOW 97 07 26 AM
> $
LTID:
> ISDN 1
FUNCTION:
> ADD
LTCLASS:
> BRAFS
CS:
> 2B
PS:
> N
MAXKEYS:
> 64
DEFLTERM:
> N
TEI_TYPE:
> DTEI
TSPID:
> 6137235011
EKTS:
> N
OPTION:
> AGA
AG_GROUP:
> 1
AG_CT:
> AG_ALL
OPTION:
> $
```

Associated Groups on a TSP Basis (continued)

Example of the AGA option with the SLT ADD command in no-prompt mode

```
>SLT $ ISDN 1 ADD BRAFS 2B N 64 N DTEI 6137235011 N AGA 1
AG_ALL $
```

Change the AGA field of an existing AG

The following example shows an SLT CHA command that changes the AGA field of an existing AG for LTID ISDN 1. After completion of the CHA command, all the DNs on ISDN 1 LTID associated with VI call type can access a single B-channel, and the DNs associated with CMD call type can access to both B-channels.

Example of the AGA option with SLT CHA command in prompt mode

```
SO:
>SLT
SONUMBER:  NOW 97 07 26 PM
>$
LTID:
>ISDN 1
FUNCTION:
>CHA
SET_ATTRIBUTE:
>AGA
AG_GROUP:
>1
AG_CT:
>AG_VI
SET_ATTRIBUTE:
>$
```

Example of the AGA option with SLT CHA command in no-prompt mode

```
>SLT $ ISDN 1 CHA AGA 1 AG_VI $
```

Remove the AG capability

The following example shows the SLT CHA command that removes the AG capability from an LTID by changing the AGA call type to AG_UNASSIGNED.

Associated Groups on a TSP Basis (end)

Example of the AGA option with SLT CHA command in prompt mode

```
SO:
>SLT
SONUMBER:  NOW 97 07 26 PM
> $
LTID:
>ISDN 1
FUNCTION:
>CHA
SET_ATTRIBUTE:
>AGA
AG_GROUP:
>1
AG_CT:
>AG_UNASSIGNED
SET_ATTRIBUTE:
>$
```

Example of the AGA option with SLT CHA command in no-prompt mode

```
>SLT $ ISDN 1 CHA AGA 1 AG_UNASSIGNED $
```

Attach existing NI-2 LTIDs to a LEN

After an LTID is added and an AGA is assigned, the SLT ATT command attaches the LTID to a LEN. The attachment succeeds when there are no conflicts in AGA groups. Conflicts in AGA groups occur when the same DN/CT is in different AGA groups on an LTID. The following example shows an SLT ATT command used to assign two NI-2 LTIDs with B-channel restrictions (restricted to one) for VI and CMD call types to a LEN.

Example of attaching existing NI-2 LTIDs with SLT ATT command

```
> SLT $ ISDN 1 ADD BRAFS NI2 N 64 N DTEI N AGA 1 AG_ALL $

> SLT $ ISDN 10 ADD BRAFS NI2 N 64 N DTEI N AGA 2 AG_ALL $

> SLT $ ISDN 1 ATT HOST 01 0 00 04 $

> SLT $ ISDN 10 ATT HOST 01 0 00 04 $
```

Audible Message Waiting Indication

Ordering code

Functional group ordering code: NI000060

Functionality ordering code: not applicable

Release applicability

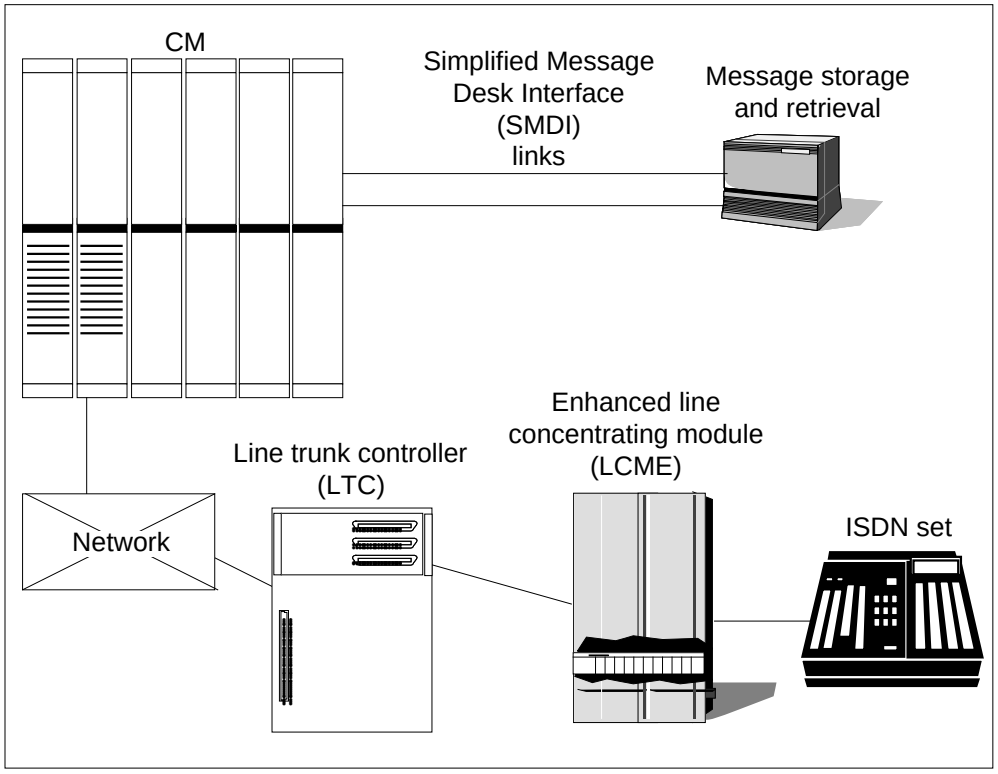
NA009 and higher

Prerequisites

Audible message waiting indication (AMWI) has no prerequisites.

The following figure shows the complete hardware connection for providing AMWI to the subscriber.

Standard hardware setup for MWT



Description

AMWI extends the number of notification options for message waiting indicator (MWI) on integrated services digital network (ISDN) sets. The

Audible Message Waiting Indication (continued)

message waiting indicator alerts subscribers to messages pending in the message storage and retrieval (MSR) system.

The AMWI feature is compatible with the functionality found in the NI000050 and NI000051 order codes. You can assign notification types to both national ISDN (NI) NI-1 and NI-2 ISDN terminal types. Analog telephones using terminal adapters require the AMWI functionality.

Message protocols

Three notification types are available: stuttered dial tone (STD), Message Waiting Lamp (MWL), and MWL_STD together.

STD

The system activates STD during overlap transmission of the digits at call origination and removes STD after the first digit collection. The XMS-based peripheral module (XPM) connects to the tone generator to provide the STD. The table Tones defines the audible pattern of STD.

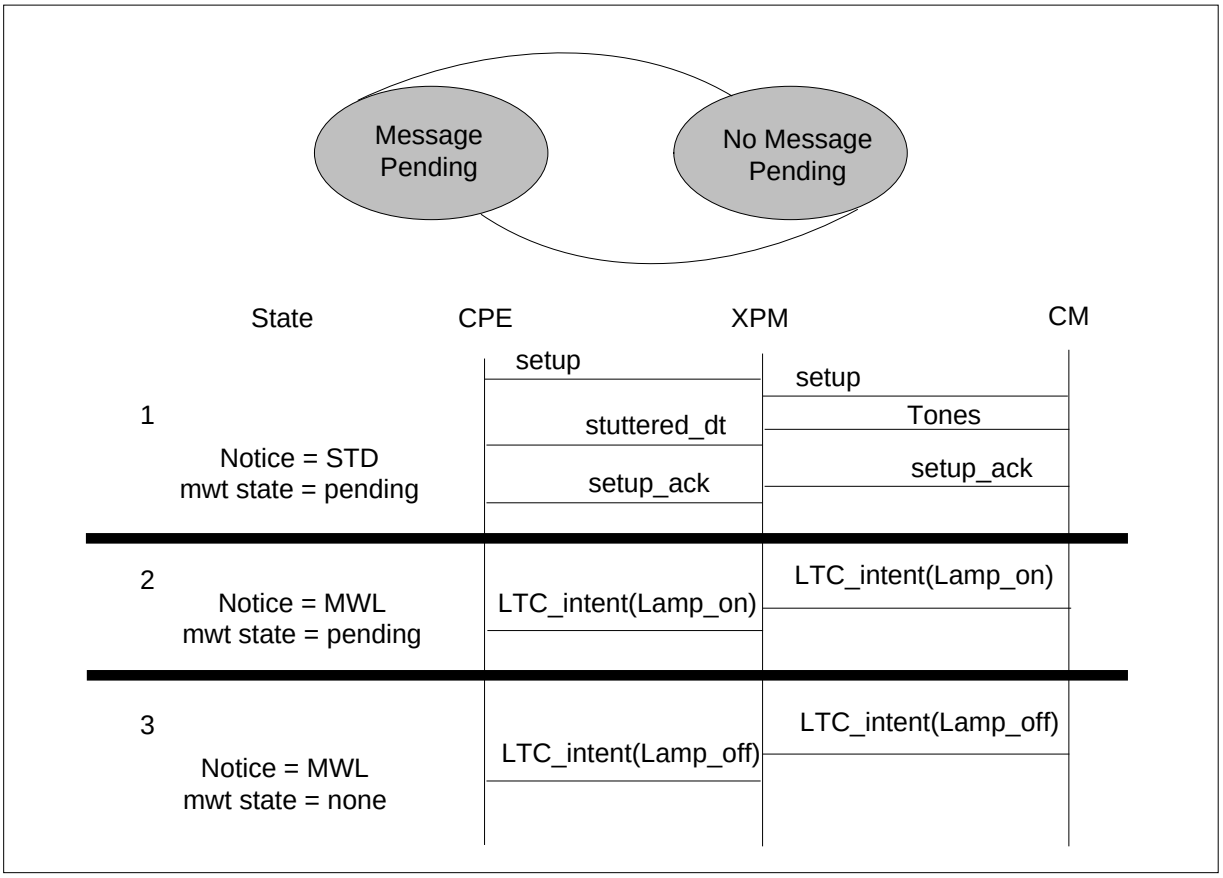
MWL

When the system detects a pending message, the MWL illuminates or flashes until the subscriber retrieves the message. The MWL is active in the message pending state.

The following figure shows the message and state changes of the AMWI feature.

Audible Message Waiting Indication (continued)

Message and state changes of the AMWI feature



Operation

AMWI functionality modifies the following:

- table KSETFEAT
- NEW, ADO, and CHF SERVORD commands
- QLT and QDN command interpreter commands

Message Waiting (MWT) operation includes table control, SERVORD, and call processing.

Table control

Table KSETFEAT allows you to select the notification type. The prompt for the NOTICE type makes the ISDN prompting sequence for MWL more like that of integrated business network (IBN) lines.

Audible Message Waiting Indication (continued)

SERVORD

SERVORD also allows you to select notification types.

Call processing

Call control provides MWL, STD, or MWL_STD. When the system detects a pending message, the MWL illuminates or flashes until the subscriber retrieves the message. The system activates the STD when a pending message exists at call origination. The system removes STD from the call after it receives the first dialed digit.

Translations table flow

The following section describes Audible Message Waiting Indication (AMWI) translations.

Table KSETFEAT uses subfield NOTIFICATION (message waiting notification type) in field KVAR (key variable area). The values include STD, MWL, and MWL_STD. The default value is MWL.

Datafill example for Audible Message Waiting Indication

Datafill table	Example data
KSETFEAT	ISDN 4 7 MWT MWT MWL_STD N N

Limitations and restrictions

AMWI and MWT do not need a visual indicator, but MWT operation continues to require a key.

Interactions

The following paragraphs describe the interactions between Audible Message Waiting Indication and other functionalities.

AMWI interacts with other dial tone-related services. The stuttered dial tone, used for the audible indication, appears during call origination. Audible Message Waiting Indication affects features that involve dial tone and new call references, such as the following features:

- first dial tone from 9+ calls
- dial tones from feature processing environment (FPE), that is, Conference Add-on
- Flex Call

Audible Message Waiting Indication (continued)

The following features or codes and their dial tones are affected by AMWI:

- calls that require authorization codes, like direct inward system access (DISA) calls
- Call Forward Activation
- Call Forward Programming
- Speed Call Programming
- Call Pick-up

These features return STD upon activation. The AMWI feature provides a second dial tone during the message pending state.

Activation/deactivation by the end user

Audible Message Waiting Indication requires no activation or deactivation by the end user.

Billing

Audible Message Waiting Indication does not affect billing.

Station Message Detail Recording

Audible Message Waiting Indication does not affect Station-Message Detail Recording.

Datafilling office parameters

Audible Message Waiting Indication does not affect office parameters.

Datafill sequence

The following table lists the table that requires datafill to implement Audible Message Waiting Indication.

Datafill table required for Audible Message Waiting Indication

Table	Purpose of table
KSETFEAT	Business Set and Data Unit Feature. This table lists the line features assigned to the business sets and data units (DU) listed in table KSETLINE. This table also lists the Meridian digital telephone sets and DUs listed in table IVDINV.

Translation verification tools

Audible Message Waiting Indication does not use translation verification tools.

Audible Message Waiting Indication (continued)

SERVORD

The NEW (establish service), ADO (add option), and CHF (change feature) SERVORD commands are modified for the MWT option on ISDNKSET_LCC.

SERVORD limitations and restrictions

Audible Message Waiting Indication does not have any SERVORD limitations or restrictions.

SERVORD prompts

The following table shows the SERVORD prompt used to assign, add, and change Audible Message Waiting Indication to a line.

SERVORD prompt for Audible Message Waiting Indication

Prompt	Valid input	Explanation
NOTICE	MWL, STD, MWL_STD	NOTICE permits multiple notification type assignments The NEW, ADO, and CHF SERVORD commands prompt for the notification type during the assignment of MWT to an ISDNKSET_LCC line type. After you designate option MWT, the prompt for the notification types shows the following selections: • MWL (Message Waiting Lamp) • STD (Stuttered Dial tone) • MWL_STD (simultaneous grouping of MWL and STD)

SERVORD example for assigning Audible Message Waiting Indication

The following SERVORD example shows how to assign Audible Message Waiting Indication to a line with the NEW SERVORD command.

Audible Message Waiting Indication (continued)

SERVORD example for Audible Message Waiting Indication in prompt mode

```
>NEW
SONUMBER:      NOW  97  8  7 AM
>
DN:
>7230000
LCC_ACC:
>ISDNKSET
GROUP:
>BNR
SUBGRP:
>0
NCOS:
>4
SNPA:
>613
KEY:
>1
RINGING:
>Y
LATANAME:
>LATA1
LTG:    0
>
LEN_OR_LTID:
>ISDN 6
OPTKEY:
>6
OPTION:
>MWT
NOTICE:
>MWL
CAR:
>Y
CRRCFW:
>ALL
CRX:
>N
OPTKEY:
>$
```

SERVORD example for Audible Message Waiting Indication in no-prompt mode

```
> NEW NOW 97 8 7 AM 7230000 ISDNKSET BNR 0 4 613 1 Y LATA1 0
ISDN 6 ( 6 MWT MWL Y ALL N ) $
```

Audible Message Waiting Indication (continued)

SERVORD example for adding Audible Message Waiting Indication

The following SERVORD example shows how to add Audible Message Waiting Indication to a line with the ADO SERVORD command.

SERVORD example for Audible Message Waiting Indication in prompt mode

```
>ADO
SONUMBER:     NOW  97  8 18 PM
>
DN_OR_LEN:
>ISDN 6
OPTKEY:
>7
OPTION:
>MWT
NOTICE:
>STD
CAR:
>Y
CRRCFW:
>ALL
CRX:
>N
OPTKEY:
>$
```

SERVORD example for Audible Message Waiting Indication in no-prompt mode

```
>ADO NOW 97 8 18 PM ISDN 6 ( 7 MWT STD Y ALL N ) $
```

SERVORD example for changing Audible Message Waiting Indication

The following SERVORD example shows how to change Audible Message Waiting Indication for a line with the CHF SERVORD command.

Audible Message Waiting Indication (end)

SERVORD example for Audible Message Waiting Indication in prompt mode

```
>CHF
SONUMBER:      NOW  97  8  7 AM
>
DN_OR_LEN:
>ISDN 6
OPTKEY:
>7
OPTION:
>MWT
NOTICE:
>MWL_STD
CAR:
>Y
CRRCFW:
>ALL
CRX:
>N
OPTKEY:
>$
```

SERVORD example for Audible Message Waiting Indication in no-prompt mode

```
>CHF NOW 97 8 7 AM ISDN 6 ( 7 MWT MWL_STD Y ALL N ) $
```

Automated SPID and Free Format SPID

Ordering codes

Functional group ordering code: NI000060

Functionality ordering code: not applicable

Release applicability

NA009 and later

Prerequisites

This document contains the data entry information for the functionality associated with Automated SPID and Free Format SPID. Complete installation requires prerequisite software or hardware.

Description

This feature supports Automated Service Profile Identifier (SPID) selection and Free Format SPID provisioning. A SPID is a different Layer 3 identifier for an initializing integrated services digital network (ISDN) terminal. Automated SPID selection and Free Format SPID provisioning work with customer premises equipment (CPE) using pre-National ISDN, National ISDN 1, or National ISDN 2 firmware. This feature reduces the amount of time and knowledge required to initialize new installed ISDN basic rate interface (BRI) CPE.

Automated SPID

Automated SPID selection gives you the ability to download correct SPIDs to a terminal on an interface. Automated SPID selection is generally a preprocessor for Layer 3 initialization that makes it easier for operating companies to select SPIDs. An initializing interface is an ISDN interface that has at least one associated initializing logical terminal identifier (LTID). When an interface supports both noninitializing and initializing terminals, the network sends back the SPIDs associated with each initializing terminal. The network can return up to three different call types associated with each LTID on the interface.

This functionality allows the terminal to select the SPID for many mass-market applications. When the terminal cannot choose from available SPIDs, operating company personnel must make a selection.

Free Format SPID

Free Format SPID supports provisioning and Layer 3 initialization by a SPID of any 3- to 20-digit value. The addition of Free Format SPIDs for all provisioned initializing basic rate access functional signaling (BRAFS) simplifies LTIDs on the DMS-100 switch. Free format SPIDs makes it easier

Automated SPID and Free Format SPID (continued)

for offices to go through serving numbering plan area (SNPA) splits. Operating company personnel provision Free Format SPIDs, which must be unique to an interface, as part of the LTID.

Current Initializing BRAFS LTIDs receive a generic terminal service profile identifier (TSPID) during the one night process (ONP) to NA009. The generic TSPID contains the SNPA and primary directory number (PDN) of the LTID plus the SPID Suffix (SPIDSFX) value. The system removes option SPIDSFX from LTIDs.

Operation

The following sections describe Automated SPID and Free Format SPID.

Automated SPID selection description

This feature introduces office parameter AUTOSPID in table ISDNVAR. This parameter controls activation of the Automated SPID feature officewide. The parameter is equal to OFF by default.

Free Format SPID description

The TSPID value for the LTID is a 1- to 18-digit string located in field TSPID in table LTDEF. SERVORD provisions this table for this feature.

ONP reformat to add TSPID to existing terminals

During the ONP to the NA009 release, the system reformats initializing BRI working sets (BRIFS) LTIDs to use the generic TSPID. The system builds the generic TSPID value from the SNPA and PDN plus existing SPID Suffix (SPIDSFX) value. The system stores the generic TSPID value in field TSPID of table LTDEF. The system removes option SPIDSFX from applicable LTIDs. During the ONP, the system gives partly provisioned LTIDs (LTIDs with no associated PDN) a default value for the TSPID.

Translations table flow

The following list describes Automated SPID and Free Format SPID translations tables:

- Table LTDEF

  Table Logical Terminal Definition specifies a logical terminal identifier. SERVORD provisions this table for this feature.

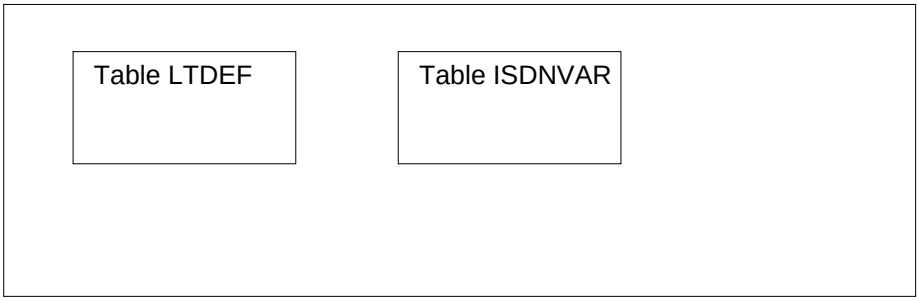
- Table ISDNVAR

  Office parameter AUTOSPID in table ISDNVAR controls activation of the Automated SPID feature officewide. The default is OFF.

Automated SPID and Free Format SPID (continued)

The following flowchart shows the Automated SPID and Free Format SPID translation.

Table flow for Automated SPID and Free Format SPID



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

Datafill example for Automated SPID and Free Format SPID

Datafill table	Example data
LTDEF	(SERVORD datafills this table.)
ISDNVAR	Y

Limitations and restrictions

The following limitations and restrictions apply to Automated SPID and Free Format SPID:

- This feature does not allow initializing terminals to share SPIDs on the same LEN.
- Option SPIDSFX (SPID suffix) cannot be used with option TSPID. The system removes option SPIDSFX from BRAFS LTIDs during the ONP to NA009.
- The TSPID option is not compatible with default logical terminals (option DEFLTERM).
- The Universal SPID cannot be used as a Free Format SPID. The Universal SPID is an SPID with a value of 01010101010101 that a terminal uses to request Automated SPID selection.
- This feature does not affect provisioning and initialization for Meridian feature transparency (MFT) terminals.

Interactions

The following paragraphs describe the interactions between Automated SPID and Free Format SPID and other functionalities.

Automated SPID and Free Format SPID (continued)

Automated SPID selection interactions

The Automated SPID feature has no functionality interactions.

Free Format SPID interactions

The Free Format SPID feature removes the SPID Suffix option from BRAFS LTIDs.

Activation/deactivation by the end user

Automated SPID and Free Format SPID requires no activation or deactivation by the end user.

Billing

Automated SPID and Free Format SPID does not affect billing.

Station Message Detail Recording

Automated SPID and Free Format SPID does not affect Station Message Detail Recording.

Datafilling office parameters

The following table shows the office parameters used by Automated SPID and Free Format SPID. For more information about office parameters, refer to the *Office Parameters Reference Manual.*

Office parameters used by Automated SPID and Free Format SPID

Table name	Parameter name	Explanation and action
ISDNVAR	AUTOSPID	Automated SPID. AUTOSPID controls the use of the Automated SPID feature on an office-wide basis. When set to ON, initializing BRIFS terminals that send a Universal SPID to the XPM receive a SPID value back from the XPM to use for Layer 3 initialization. The XPM does not send a correct SPID to the terminal after receipt of the Universal SPID when the parameter is equal to OFF. The default value is OFF. The XPM responds to initialization requests using the Universal SPID. XPM sends one or more correct SPIDs to the terminal. When AUTOSPID is equal to OFF, the XPM will not send valid SPIDs to the terminal.
Note: Office parameter AUTOSPID interacts with the new OM; the system collects the OM when you set the office parameter AUTOSPID to ON.		

Automated SPID and Free Format SPID (continued)

Datafill sequence

The following table lists the table that requires datafill to implement Automated SPID and Free Format SPID.

Datafill tables required for Automated SPID and Free Format SPID

Table	Purpose of table
LTDEF	Logical Terminal Definition. This table specifies a logical terminal identifier and access privileges. BRI and PRI share this table. SERVORD provisions this table for this feature.

Datafilling table LTDEF

The following table shows the datafill for Automated SPID and Free Format SPID for table LTDEF. The following table applies directly to Automated SPID and Free Format SPID. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDEF

Field	Subfield or refinement	Entry	Explanation and action
TSPID		1 to18 digits	Terminal Service Profile Identifier. The TSPID field defines the Free Format SPID value used for Layer 3 provisioning. All initializing BRIFS LTIDs are given a value for this field during the ONP to the NA009 release. New initializing BRIFS LTIDs are forced to supply a TSPID value. The TSPID value can be changed. The SPID value is the TSPID plus a 2-digit TID.

Datafill example for table LTDEF

The following example shows sample datafill for table LTDEF.

Automated SPID and Free Format SPID (continued)

MAP display example for table LTDEF

```
>TABLE LTDEF
TABLE: LTDEF
>LIS
TOP
LTKEY     LTAP

           CLASSREF
-------------------------------------------------------------------------
ISDN   1       2B
BRAFS  (NITYPE NI2)  (PVC FUNCTIONAL 2)  (DTEI)  (TSPID 6137235011) $
```

Translation verification tools

Automated SPID and Free Format SPID do not use translation verification tools.

SERVORD

The Free Format SPID feature impacts SERVORD in the following ways:

- Provides the SERVORD functionality necessary for provisioning of the TSPID option for initializing BRIFS LTIDs. This includes new prompts for options ADD and CHA. It also controls the options for all initializing BRIFS LTIDs while blocking them from BRAMFT LTIDs. The SPID Suffix option does not work for BRIFS LTIDs.
- Enhances the output of the QLT (Query Logical Terminal) command to display the TSPID value for Initializing BRIFS LTIDs.

The Free Format SPID feature introduces LTID option TSPID.

LTID option TSPID is not compatible with options SPIDSFX, STEI, or DEFLTERM LTID. This feature removes option SPIDSFX for BRIFS LTIDs.

You must assign LTID option DTEI, UATEI, or UNATEI to BRIFS LTIDs in order to assign LTID option TSPID.

To enter a dynamic TEI (DTEI, UATEI or UNATEI), follow the system prompts. The system prompts you for TSPID during an SLT ADD command for BRIFS LTIDs. TSPID is not available as an ADD option. You can change the TSPID value by using an SLT CHA command.

SERVORD limitations and restrictions

Automated SPID and Free Format SPID has no SERVORD limitations and restrictions.

Automated SPID and Free Format SPID (continued)

SERVORD prompts

The following table shows the SERVORD prompts used to change Free Format SPID for provisioning the TSPID option for initializing BRIFS LTIDs.

SERVORD prompts for Free Format SPID

Prompt	Correct input	Explanation
ADD	BRAFS	Add
CHA	TSPID	Change
QLT	TSPID	Query Logical Terminal. This feature modifies the QLT command to include the TSPID value for BRIFS LTIDs.

The following figure shows a sample output of the QLT command for an NI-2 logical terminal.

Output example of the QLT command for an NI-1 LTID logical terminal attached to a LEN with a DN 0features

```
>qlt nI1 1
----------------------------------------------------
LTID:  NI1         1
SNPA: 613
DIRECTORY NUMBER:          7234101
LT GROUP NO: 2
LTCLASS:  BRAFS    DEFAULT LOGICAL TERMINAL: N
EKTS: N   CACH: N
SLBRI: N
BEARER SERVICE ALLOWED: VOICE   VBD   CMD
CS: Y PS: N
ELN: N
VERSION: FUNCTIONAL  ISSUE: 2
TSPID:         6137234101
LEN: HOST  01 0 07 03    TEI: DYNAMIC
CUSTGRP:             BNR  SUBGRP: 0  NCOS: 0  RING: Y
LINE CLASS CODE: ISDNKSET
MAXKEYS: 64
OPTIONS:
RAG LNR SFC
CFU N $ I $ SCS FC 6 DROP XFER CTALL

   KEY       DN
   ---       --
     1       DN             7234101
```

Automated SPID and Free Format SPID (end)

SERVORD example of defining a TSPID when you create an NI-2 LTID

The following SERVORD example shows the sequence of defining a TSPID to create an NI-2 LTID with the SERVORD SLT ADD command.

SERVORD example for Free Format SPID in prompt mode

```
SO:
>SLT
SONUMBER:     NOW  97  6 17 PM
>
LTID:
>ISDN 1
FUNCTION:
>ADD
LTCLASS:
>BRAFS
CS:
>NI2
PS:
>N
MAXKEYS:
>32
DEFLTERM:
>N
TEI_TYPE:
>DTEI
TSPID:
>6137235011
EKTS:
>N
OPTION:
>PVC
VERSION:
>FUNCTIONAL
ISSUE:
>2
OPTION:
>$
```

SERVORD example for Free Format SPID in no-prompt mode

```
>SLT $ ISDN 1 ADD BRAFS NI2 N 32 N DTEI 6137235011 N PVC FUNCTIONAL 2 $
```

BRI in RES

Ordering codes

Functional group ordering code: NI000060

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 or hardware not described in this document.

Description

The BRI in RES feature allows operating companies to place single ISDN basic rate interface (BRI) lines in an existing residential customer group. Single-line BRIs (SLBRI) share translations with the other members of the group. SLBRIs have access to all ISDN features that are not related to customer groups. In addition, SLBRIs have access to some Custom Local Area Signaling Services (CLASS) features.

The BRI in RES feature implements a discriminator for ISDN BRI lines. The discriminator identifies an ISDN logical terminal identifier (LTID) as an SLBRI. Each directory number (DN) associated with an SLBRI can have a unique line attribute index. The Service Order System (SERVORD) data entry process sets the line attribute index. The switch uses the line attribute index to integrate with the NA009 RES Translations Simplification feature.

Before the NA009 release, Residential Enhanced Services (RES) lines have a line attribute index when they enter private translations. The operating company must set this index in private translations when RES lines re-enter public translations. This process involves a large amount of datafill.

In the NA009 release, the RES Translations Simplification feature modifies RES translations. RES calls retain the line attribute index with which they entered private translations, when they re-enter public translations. When the switch encounters the new RES option in the NET GEN selector, RES translations retains the originating line attribute index. The BRI in RES feature provides the same functionality for SLBRI lines. For SLBRI, the switch uses the new line attribute index when it encounters the RES option in the NET GEN selector.

BRI in RES (continued)

The BRI in RES feature also extends the CLASS Anonymous Caller Rejection (ACRJ) feature to ISDN BRI lines. The ACRJ feature allows the subscriber to reject incoming calls from parties with suppressed name or number display information.

Note: For additional information on the ACRJ feature, refer to "Anonymous Caller Rejection (ACRJ)" in the RES translations section of this document.

Operation

SLBRI option provisioning

Datafill in table LTDEF assigns the SLBRI option to each single-line BRI. This datafill identifies the set as a single-line BRI. This datafill also supports the additional datafill required for the RES Translations Simplification feature.

Note: Only National ISDN 2 (NI-2) and later LTIDs support the SLBRI option.

Assignment of the SLBRI option is on an LTID basis. The SLBRI option does not have additional associated information.

The operating company can assign the SLBRI option when provisioning a new ISDN BRI NI-2 LTID. The SERVORD SLT (set up logical terminal) command with the ADD subcommand provisions an ISDN BRI NI-2 LTID.

Note: The operating company cannot change the SLBRI option on an existing LTID using the SLT command with the CHA (change) subcommand. To change the SLBRI option on an existing LTID, the operating company must use table control to update tables DNCTINFO and LTDEF.

The SLBRI option is compatible with multiline hunt (MLH), distributed line hunt (DLH), directory number hunt (DNH), and bridged night number (BNN) groups. For more information, see "SLBRI behavior with hunt groups" in this feature description.

The following example shows provisioning of the SLBRI option using the SLT ADD command.

BRI in RES (continued)

Provisioning the SLBRI option using the SLT ADD command

```
> SLT
SONUMBER: NOW 98 01 31 PM
> (CR)
LTID:
> ISDN 200
FUNCTION:
> ADD
LTCLASS:
> BRAFS
CS:
> NI2
PS:
> N
MAXKEYS:
> 64
DEFLTERM:
> N
TEI_TYPE:
> DTEI
TSPID:
> 9
EKTS:
> N
OPTION:
> PVC
VERSION:
> FUNCTIONAL
ISSUE:
> 2
OPTION:
> SLBRI
OPTION:
> $
```

The following figure shows sample datafill in table LTDEF for the SLBRI option.

MAP display example for table LTDEF

```
LTKEY LTAP CLASSREF
------------------------------------------------------------------------

ISDN 200 2B BRAFS (NITYPE NI2) (SLBRI) (PVC FUNCTIONAL 2) (DTEI)
```

BRI in RES (continued)

Integration with RES Translations Simplification feature

Introduction of line attribute index for SLBRI

In the NA009 release, the RES Translations Simplification feature creates a new RES option in the NET GEN selector. Tables XLANAME and IBNXLA use the NET GEN selector. When translations encounters the RES option in the NET GEN selector, RES translations uses the originating line attribute index. Before this feature, BRI lines did not specify a line attribute index. To provide the same functionality for SLBRIs, the operating company can assign each DN on an SLBRI a line attribute index, or SLBRI_LATTR. An SLBRI line can specify a unique line attribute index for each DN associated with the SLBRI set during SERVORD datafill.

The line attribute index applies only to public (non-centrex) translations. The switch uses the line attribute index when translations encounters the NET GEN (RES) selector in table IBNXLA or table XLANAME. The line attribute index specifies translations and billing for a DN in the same way as the NET GEN (LATTR xxx) selector. Customer group (CUSTGRP), subgroup (SUBGRP), and network class of service (NCOS) datafill at the DN level is still mandatory for SLBRI. There is no change in this functionality.

The SLBRI_LATTR option for SLBRI DNs is optional. During creation of a DN using SERVORD, the operating company can maintain the existing translations by specifying a NIL line attribute index. If the operating company specifies a NIL value and translations encounters the NET GEN (RES) selector, the switch routes the call to treatment. To maintain the existing translations, no change is necessary, and the operating company can use the existing NET GEN (LATTR) selector.

If an SLBRI DN has a non-NIL SLBRI_LATTR, translations uses the SLBRI_LATTR if it encounters the NET GEN (RES) selector. If an SLBRI DN with a non-NIL SLBRI_LATTR translates to the NET GEN (LATTR) selector, the line attribute index specified in the LATTR option takes precedence over the datafilled SLBRI_LATTR.

SLBRI DN creation

The following SERVORD commands prompt for the SLBRI_LATTR option during creation of a new DN:

- NEW (establish service)
- EST (establish a hunt or call pickup group)
- ADD (add line to an existing hunt group)

SERVORD prompts for the SLBRI_LATTR if the LTID has the SLBRI option assigned in table LTDEF.

BRI in RES (continued)

The following SERVORD examples show provisioning of the SLBRI_LATTR option using the NEW, EST, and ADD commands. For additional examples, refer to “SERVORD" in this feature description.

Provisioning the SLBRI_LATTR option using the NEW command

```
> NEW
SONUMBER: NOW 98 01 31 PM
> (CR)
DN:
> 7231234
LCC:
> ISDNKSET
GROUP:
> RESGRP
SUBGRP:
> 0
NCOS:
> 0
SNPA:
> 613
KEY:
> 1
RINGING:
> Y
LATANAME:
> LATA1
LTG: 0
> (CR)
LEN_OR_LTID:
> ISDN 200
SLBRI_LATTR:
> 1
OPTKEY:
> $
```

BRI in RES (continued)

Provisioning the SLBRI_LATTR option on an MLH or DLH group pilot using the EST command

```
> EST
SONUMBER: NOW 98 01 31 PM
> (CR)
GROUPTYPE:
> MLH
PILOT_DN:
> 7235156
LCC:
> ISDNKSET
GROUP:
> BNR
SUBGRP:
> 0
NCOS:
> 0
SNPA:
> 613
KEY:
> 5
RINGING:
> Y
LATANAME:
> NILLATA
LTG: 0
> (CR)
PILOT_LEN:
> ISDN 200
SLBRI_LATTR:
> 1
MEM_LEN:
> $
OPTION:
> $
GROUPSIZE:
> 3
```

BRI in RES (continued)

Provisioning the SLBRI_LATTR option on a DNH group pilot using the EST command

```
> EST
SONUMBER: NOW 98 01 31 PM
> (CR)
GROUPTYPE:
> DNH
PILOT_DN:
> 7235159
LCC:
> ISDNKSET
GROUP:
> RESGRP
SUBGRP:
> 0
NCOS:
> 0
SNPA:
> 613
KEY:
> 1
RINGING:
> Y
LATANAME:
> NILLATA
LTG: 0
> (CR)
PILOT_LEN:
> ISDN 210
SLBRI_LATTR:
> 10
DN_LEN:
> $
OPTION:
> $
GROUPSIZE:
> 3
```

BRI in RES (continued)

Provisioning the SLBRI_LATTR option on a DNH group member using the ADD command

```
> ADD
SONUMBER: NOW 98 01 31 PM
> (CR)
GROUPTYPE:
> DNH
LINK_DN:
> 7235159
DN_LEN:
> ISDN 211 7235160
SLBRI_LATTR:
> 11
KEY:
> 1
DN_LEN:
> $
OPTION:
> $
GROUPSIZE:
> 3
```

Table DNCTINFO contains the SLBRI_LATTR option. As of the NA008 release, this table only supports the packet mode data (PMD) call type. The BRI in RES feature updates the existing PMD functionality to support SLBRI line attribute indexes. This feature also adds support for the voiceband information (VI) call type to hold the SLBRI line attribute index for VI and circuit mode data (CMD) agents.

In the NA009 release, the VI and CMD call types of a shared DN use the same physical data. As a result, the SLBRI line attribute index is always provisioned against the VI call type for either VI or CMD agents.

The following example shows two tuples from table DNCTINFO with the SLBRI_LATTR option assigned. This datafill assigns DN 6136213000 as both a VI/CMD DN and a PMD DN. The VI tuple contains the SLBRI_LATTR option for the VI/CMD call type. The PMD tuple contains the SLBRI_LATTR option for the PMD call type.

MAP display example for table DNCTINFO

```
KEY OPTIONS
-----------------------------------------------------------------
6136213000 VI VI (SLBRI_LATTR (1) $)$
6136213000 PMD PMD (NUI N) (FSA N) (RCA N) (ICS N) (CUGS N) (TCN N)
(FCPN N) (OCB N) (ICB N) (LCP N) (RPOAB N) (SLBRI_LATTR (3) $)$
```

ACRJ on BRI

The ACRJ feature allows the subscriber to block incoming calls from parties with suppressed name or number display information. The ACRJ feature operates separately from any delivery features the subscriber might have.

The BRI in RES feature extends the existing ACRJ option to ISDN BRI lines. When a call terminates to an ISDN line with ACRJ assigned, the switch determines if the call is anonymous. If the call is anonymous, the switch routes the call to the ACRJ treatment.

The ACRJ feature only applies to calls where the subscriber has intentionally blocked the available display information. Display information that is not available for any other reason is not considered anonymous. Refer to “Anonymous Caller Rejection (ACRJ)" in the RES translations section of this document for details on determining anonymity for terminating lines with ACRJ assigned.

Office control of ACRJ

The operating company can enable or disable the ACRJ feature for the office through datafill in table RESOFC. For ACRJ to operate in the office, the operating company must set field ENABLED to Y. The following figure shows sample datafill for ACRJ in table RESOFC.

MAP display example for table RESOFC

```
KEY ENABLED FEATDATA FNALANN
-------------------------------------------------------
ACRJ  Y  SUBSCR  ACRJ  N  $
```

Line control of ACRJ

The operating company can assign the ACRJ option during creation of the primary DN (PDN) using the SERVORD NEW command. The operating company can also assign the ACRJ option later using the SERVORD ADO

BRI in RES (continued)

(add option) or ADD command. The ACRJ option is assignable on a flat-rate basis only. Subscriber usage-sensitive pricing (SUSP) is not supported.

The following two examples show provisioning of the ACRJ line option using the NEW and ADO commands.

Provisioning the ACRJ line option using the NEW command

```
> NEW
SONUMBER: NOW 98 01 31 PM
> (CR)
DN:
> 7231234
LCC:
> ISDNKSET
GROUP:
> RESGRP
SUBGRP:
> 0
NCOS:
> 0
SNPA:
> 613
KEY:
> 1
RINGING:
> Y
LATANAME:
> LATA1
LTG: 0
> (CR)
LEN_OR_LTID:
> ISDN 200
OPTKEY:
> 1
OPTION:
> ACRJ
STATUS:
> INACT
KEYLIST:
> $
OPTKEY:
> $
```

Provisioning the ACRJ line option using the ADO command

```
> ADO
SONUMBER: NOW 98 01 31 PM
> (CR)
LEN_OR_LTID:
> ISDN 200
OPTKEY:
> 1
OPTION:
> ACRJ
STATUS:
> INACT
KEYLIST:
> $
OPTKEY:
> $
```

The following figure shows sample datafill for ACRJ in table KSETFEAT.

MAP display example for table KSETFEAT

```
FEATKEY FEATURE KVAR
-------------------------------------------------------
ISDN 200 1 ACRJ ACRJ INACT $
```

Activation and deactivation of ACRJ

The ACRJ subscriber can use the access codes ACRJA and ACRJD to activate and deactivate delivery of anonymous calls to rejection treatment. These access codes are datafilled in table IBNXLA.

The ACRJA code is successful if ACRJ is enabled for the office. The subscriber receives the feature not allowed (FNAL) treatment if the operating company has disabled ACRJ for the office. Activation of ACRJ from a DN on an ISDN set applies to all DNs on the set that have ACRJ. The same rule applies to ACRJ deactivation.

ACRJ treatment

Anonymous calls are routed to the existing ACRJ rejection treatment. This treatment (announcement) is provided by the digital recorded announcement machine (DRAM). Refer to “Anonymous Caller Rejection (ACRJ)" in the RES translations section of this document for details on rejection announcement datafill.

BRI in RES (continued)

Datafill tables modified by BRI in RES feature

The BRI in RES feature modifies tables LTDEF, DNCTINFO, and LCCOPT, as described in the following sections.

Note: Changes to tables KSETFEAT and KSETLINE for the ACRJ option are not required. Tables KSETFEAT and KSETLINE allow the operating company to provision ACRJ for keysets. The BRI in RES feature allows the assignment of ACRJ to ISDN BRI lines.

Table LTDEF

Table LTDEF associates the SLBRI option with an LTID. The BRI in RES feature adds the SLBRI option to the list of BRI_OPTIONS in this table. SLBRI is a BRAFS-only option, and applies to NI-2 and later sets only.

The operating company can add the SLBRI option to or delete the SLBRI option from an LTID using the SERVORD SLT command. The operating company can also edit table LTDEF to assign the SLBRI option. To add the SLBRI option to an LTID, the LTID and all associated DNs must be in an IDLE call state. This restriction applies to both the SERVORD and table editor methods of assigning the SLBRI option.

When the operating company adds the SLBRI option to an LTID, all DNs associated with the LTID are automatically flagged as SLBRI DNs. For each DN, this process creates a corresponding tuple in table DNCTINFO to hold the SLBRI_LATTR for that DN.

The SLBRI_LATTR defaults to a NIL value. To change the SLBRI_LATTR using SERVORD, the operating company must do the following:

- use the OUT (remove service) command to remove the DN from service
- use the NEW and EST commands to create the DN again

This requirement is consistent with line attribute index assignment for RES and POTS platforms.

The operating company can change the line attribute index directly using table control in table DNCTINFO (see the following section). Using table control is more convenient if the operating company is adding SLBRI to an existing LTID with associated DNs.

Assume that an SLBRI LTID exists and has associated DNs with SLBRI line attribute indexes. If the operating company removes the SLBRI option from the LTID, all the DNs lose their associated SLBRI line attribute indexes. Disassociating the DNs from the LTID is not necessary before this operation can take place, but the DNs will lose their SLBRI information. If the operating

BRI in RES (continued)

company adds the SLBRI option back to the LTID, a default NIL line attribute index is assigned to all DNs on the LTID.

To add or remove the SLBRI option in table LTDEF, all DN keys on an LTID must be idle. If the LTID has DN keys associated with a MADN, MLH, or DLH group, the switch blocks the modification attempt. This restriction does not apply if the MADN, MLH, or DLH group contains only a pilot with no secondary members. If any secondary members exist, the operating company must remove them. The operating company can then add or delete the SLBRI option.

Table DNCTINFO

Table DNCTINFO contains the optional line attribute index that the operating company can specify against a DN associated with an LTID. The BRI in RES feature adds the new voice option SLBRI_LATTR to the VI and PMD refinements of the DNCTINFO_TABLE_OPTIONS range.

Nil line attribute indexes appear in table DNCTINFO as dollar sign ($) characters. The key to this table consists of a DN and a call type. For SLBRI, the SLBRI_LATTR option consists of a single data field that contains the value of the specified line attribute index.

In the NA009 release, the VI and PMD call types are supported in table DNCTINFO. As discussed in “SLBRI DN creation" in this feature description, CMD and VI agents share the same physical data (for a given DN); therefore, both types of agents are provisioned in table DNCTINFO as a VI call type.

For an SLBRI LTID, all DNs/call types on that LTID have an entry in table DNCTINFO. The SLBRI_LATTR option automatically appears for SLBRI LTIDs. The SLBRI_LATTR option in table DNCTINFO is required for SLBRI LTID DN/call types, and cannot be deleted.

The operating company can specify a NIL line attribute index in either of the following two ways:

- Enter a dollar sign character ($) as the line attribute index using either SERVORD or table control.
- Enter the numeric value associated with internal constant NIL_LINE_ATTR_INDEX.

  As of the NA009 release, this value is fixed at the same value for the maximum line attribute index: 31999. This value may change in the future. Using the $ character ensures entry of the correct value.

BRI in RES (continued)

The line attribute index for SLBRI DNs/call types is normally specified upon initial creation and association with an SLBRI LTID. To change this value, the operating company can remove the line from service using the OUT command and create it again. The operating company can also change the line attribute index value directly using table control in table DNCTINFO.

Assume that the operating company removes the SLBRI option from table LTDEF. This procedure sets any line attribute indexes datafilled on associated DNs to NIL values. Table DNCTINFO, which stores the line attribute indexes, immediately reflects this change. This procedure does not remove tuples from table DNCTINFO. Adding the SLBRI option in table LTDEF does add tuples to table DNCTINFO.

Table LCCOPT

BRI in RES adds the ACRJ option to the list of options compatible with the ISDNKSET line class code in table LCCOPT.

Operational measurements

The BRI in RES feature does not introduce any new operational measurements (OM).

The following existing OMs in the ACRJ OM group now apply to BRI lines:

- ACRJACT counts the number of ACRJ activations.
- ACRJDACT counts the number of ACRJ deactivations.
- ACRJANN counts the number of rejected calls sent to the treatment provided by the operating company.

The TFRACRJ register of the existing OM group TRMTFR2 now applies to BRI lines. This register counts the number of times the switch actually applies ACRJ treatment. This OM is not the same as ACRJANN. In some conditions, the switch pegs only ACRJANN (it does not peg TFRACRJ). For example, assume that one hunt group member rejects a call but the hunt process proceeds to the next member. In this event, the switch pegs ACRJANN (it does not peg TFRACRJ).

Translations table flow

BRI in RES does not affect translations table flow.

BRI in RES (continued)

Limitations and restrictions

The following limitations and restrictions apply to BRI in RES:

- To operate, BRI in RES requires the NA009 RES Translations Simplification feature.
- The SLBRI option is only assignable to NI-2 and later LTIDs.
- The operating company cannot change the SLBRI option on an existing LTID using the SLT command with the CHA subcommand. To change the SLBRI option on an existing LTID, the operating company must use table control to update tables DNCTINFO and LTDEF.
- The operating company cannot change the line attribute index specified by the SLBRI_LATTR option using SERVORD commands.
- SLBRI is not supported for use with Automatic Call Distribution (ACD) groups.
- The operating company cannot modify MADN group members on SLBRI LTIDs using the SERVORD ADO or DEO (delete option) commands. The operating company must use the NEW or OUT commands to add or delete SLBRI MADN group members.
- CMD agents are provisioned against VI tuples in table DNCTINFO in the NA009 release. For DNs that share VI and CMD call types, only one tuple with a VI call type appears in table DNCTINFO. The two call types share the single SLBRI_LATTR provisioned in this tuple.
- The operating company cannot modify the SLBRI option in table LTDEF if
  - — all DN keys on the set are not idle
  - — the set has a DN key associated with a MADN or hunt group that contains secondary members in addition to the pilot
- ACRJ on ISDN BRI lines does not support SUSP billing.
- ACRJ is not compatible with the following options:
  - — Denied Termination (DTM)
  - — Automatic Call Distribution (ACD)
  - — Group Intercom (GIC)
  - — E911 PSAP Table Control
  - — Uniform Call Distribution (UCD)

BRI in RES (continued)

Interactions

The following paragraphs describe the interactions between BRI in RES and other functionalities.

SLBRI behavior with hunt groups

SLBRI is compatible with MLH, DLH, DNH, and BNN groups. The behavior and datafill for SLBRI with these different types of groups are outlined in the following sections.

MLH groups

An MLH group has a pilot and one or more members. Only one DN—the pilot DN—is associated with this type of hunt group. An SLBRI LTID can be either a member or the pilot of an MLH group. There are no additional restrictions for other agent types in the group if an SLBRI LTID is a member or the pilot (above and beyond existing agent type restrictions for ISDN members and MLH).

If an SLBRI LTID is the pilot, all SLBRI secondary members in the group inherit the SLBRI line attribute index from the pilot. If an SLBRI LTID is a secondary member and the pilot is not an SLBRI, the SLBRI secondary member defaults to a NIL line attribute index that cannot be changed. In this case, the SLBRI secondary member functions exactly as a regular ISDN member.

Each member of a hunt group can specify its own NCOS; therefore, each member can translate differently for originations. If an SLBRI member translates such that it encounters the NET GEN (RES) selector in table XLANAME, it uses the line attribute index specified for the pilot if the pilot is SLBRI. If the pilot is not SLBRI, a NIL line attribute index is used and an error treatment results. This latter case is exactly what would happen if any other non-SLBRI/non-RES agent had encountered the NET GEN (RES) selector.

Note: Although an SLBRI pilot determines the SLBRI line attribute index for all SLBRI secondary members in the group, the secondary SLBRI members may choose not to use that index by changing their NCOSes so their translations flows will not encounter the NET GEN (RES) selector in table XLANAME. The “group-wide" SLBRI line attribute index only applies when the NET GEN (RES) selector is encountered, and this can be avoided for any SLBRI members by modifying their individual translations paths through the NCOS.

DLH groups

The SLBRI interaction with DLH groups is identical to the interaction with MLH groups. The pilot, if SLBRI, determines the line attribute index to be

BRI in RES (continued)

used for every other SLBRI secondary member of the group. Again, other agent types are allowed and are not affected by SLBRIs in the group. SLBRI secondaries in a group with a non-SLBRI pilot default to a NIL line attribute index and are, in effect, regular ISDN lines.

DNH groups

DNH groups are different than MLH and DLH groups in that each member of the group (including the pilot) has its own DN and can be called to or from directly. For DNH groups, each individual LTID in the group determines whether or not it is SLBRI, and each SLBRI DN in the DNH group can have its own line attribute index.

DNH group members are basically individual lines with their own DN datafill that is hunted over. Since each member has its own line datafill, each member determines its own use of SLBRI.

PMD agents in MLH and DLH groups

As of the NA009 release, PMD agents can be provisioned in MLH and DLH groups. The interaction for PMD agents is different than the interaction for VI/CMD agents. The following description applies to both MLH and DLH groups for PMD agents.

To provision a PMD hunt group, the EST command is used to create a pilot and the PMD option is assigned. If this is done on an SLBRI LTID, the SLBRI_LATTR option is prompted for as with a typical NEW or EST operation. Additional members of the PMD hunt group cannot be added during the EST operation. They must first be created as stand-alone lines using the NEW command, and they are assigned a unique DN and the PMD option. As with a typical NEW operation, if the DN is provisioned on an SLBRI LTID, the SLBRI_LATTR option is prompted for.

Once the new PMD line is created, it can be added to the previously created MLH or DLH group using the ADD command. The LTIDs and keys of the pilot and members to be added are specified and are grouped together in the hunt group. The secondary PMD members that are added retain their original DN (that is, they do not acquire the DN of the pilot) and thus behave differently than other MLH or DLH group members, acting more like DNH group members in this respect.

Since the SLBRI_LATTR option is provisioned in table DNCTINFO against the DN/call type, the unique DN for each member means that each DN can have its own DNCTINFO tuple and thus its own unique SLBRI_LATTR. This is also unlike other MLH or DLH groups which all share one tuple corresponding to the pilot's/group's DN.

BRI in RES (continued)

Like other MLH or DLH groups, the SLBRI_LATTR option only applies to those LTIDs in the group that are flagged as SLBRI LTIDs.

PMD agents do not support DNH groups.

BNN groups

One or more DNs can be associated with a host BNN group, or subsets of that group. The host group type can be MLH, DLH, or DNH. A BNN is essentially a virtual DN that is a pointer to a pre-existing hunt group. As such, there is no explicit SLBRI interaction with BNN.

BNN is essentially a terminating side feature. That is, incoming calls to a BNN are mapped to an existing hunt group. BNNs are not originated from; rather, the originations come from the groups with which they are associated. The host group is the one that determines the use of SLBRI.

Note that since BNN provides additional DNs for a hunt group, it is possible to add SLBRI tuples to table DNCTINFO associated with these DNs using table control. These tuples, however, have no effect on call processing, and will exist as benign datafill. Only DNCTINFO datafill associated with host MLH, DLH, and DNH group pilots and members will have any bearing on call processing for BNN.

SLBRI behavior with MADN groups

SLBRI LTIDs are compatible with the single call appearance (SCA) and call appearance call handling (CACH) variants of MADN. The SLBRI interaction with these services is very similar to the SLBRI interaction with VI/CMD MLH and DLH groups.

Like VI/CMD MLH or DLH groups, a MADN group consists of multiple LTIDs/LENs and only one DN. In a similar fashion, an SLBRI primary/controller of a MADN group determines the behavior of secondary SLBRI members in the group when the NET GEN (RES) selector is encountered in table XLANAME.

A common restriction across both SCA and CACH MADN groups is that SLBRI members cannot be created or removed using the ADO and DEO commands. SLBRI members of MADN groups must be created using the NEW command and removed using the OUT command.

MADN SCA groups

An SLBRI secondary member of a MADN SCA group inherits the line attribute index associated with the primary member of that group if the primary member is an SLBRI. If the primary member is not an SLBRI, the SLBRI

secondary member receives a NIL line attribute index. An SLBRI primary member has no effect on non-SLBRI secondary members.

As with hunt groups, each member can specify its own NCOS and thus its own translations path. SLBRI secondary members that have inherited a line attribute index from an SLBRI primary member use that index only if their individual translations cause the NET GEN (RES) selector to be encountered. This can be avoided by changing translations flow for the secondary member through NCOS.

MADN CACH groups

The functionality for MADN CACH is identical to that of MADN SCA, with the following exception. The line attribute index for SLBRI members in the group is determined by the CACH controller (primary of call appearance 1), provided it too is SLBRI. The primary members of secondary call appearances have no effect, regardless of their SLBRI status. The same rules apply regarding SLBRI and non-SLBRI members and controllers, and translations flow through NCOS.

Interactions for ACRJ on BRI lines

SUPPRESS option in table NETNAMES

The SUPPRESS option in table NETNAMES allows the operating company to suppress numbers on a nodal basis, a network basis, or both. If EXTERNAL is set to Y, all DNs for interoffice calls are marked as private. If INTERNAL is set to Y, this information is not used to determine if the call is anonymous since the user cannot “unblock" this suppression.

Screening List Editing features

The Screening List Editing (SLE) features Selective Call Acceptance, Selective Call Forwarding, and Selective Call Rejection take precedence over ACRJ.

Electronic key telephone service

ACRJ can only be assigned to the primary member of a MADN SCA group. When ACRJ is assigned to the primary member, anonymous calls are rejected for the entire group.

ACRJ can only be assigned to the MADN CACH controller. When ACRJ is assigned to the controller, anonymous calls are rejected for all call appearances of the CACH group.

Note: To assign MADN features to an ISDN set, the set must first be assigned the EKTS (electronic key telephone service) option.

BRI in RES (continued)

Hunt groups

ACRJ can be assigned to pilots and individual members of MLH and DLH groups. When ACRJ is assigned to an MLH or DLH group pilot, all anonymous calls to that group are rejected and receive ACRJ treatment. When ACRJ is assigned to an MLH or DLH group member, an incoming call to that member is rejected but continues to hunt rather than receive treatment.

ACRJ can only be assigned to DNH group members on an individual line basis.

Activation/deactivation by the end user

BRI in RES requires no activation or deactivation by the end user.

Billing

BRI in RES does not affect billing.

Station Message Detail Recording

BRI in RES does not affect Station Message Detail Recording.

Datafilling office parameters

BRI in RES does not affect office parameters.

BRI in RES (continued)

Datafill sequence

SLBRI and SLBRI_LATTR options

The following table lists the tables that require datafill to implement BRI in RES for the SLBRI and SLBRI_LATTR options. The tables are listed in the order in which they are to be datafilled.

Note: These tables are datafilled through SERVORD; therefore, no datafill procedures or examples are provided. Refer to “SERVORD" for examples of using SERVORD to datafill these tables.

Datafill tables required for BRI in RES

Table	Purpose of table
LTDEF	Logical Terminal Definition. This table identifies logical terminals and both the associated LEN and the associated TEI. The BRI in RES feature adds the SLBRI option to table LTDEF. The SLBRI option is datafilled in table LTDEF using the SERVORD SLT ADD command.
DNCTINFO	Directory Number Call Type Information. This table contains the ISDN voice and data parameters on a DN/call type basis. The BRI in RES feature adds the SLBRI_LATTR voice option to table DNCTINFO. The SLBRI_LATTR option is assigned when a new DN on an LTID flagged with the SLBRI option is created using the SERVORD NEW, EST, or ADD (for non-PMD hunt groups) commands.

ACRJ option

The following table lists the table that requires datafill to implement BRI in RES for the ACRJ option.

Note: This table is datafilled automatically when the load is built; therefore, no datafill procedure or example is provided. Refer to “SERVORD" for an example of using SERVORD to assign the ACRJ option to an individual line.

Datafill table required for BRI in RES

Table	Purpose of table
RESOFC	Residential Line CLASS Office Data. This table contains data to globally enable CLASS features on a DMS-100 family switch. The operating company can enable or disable the ACRJ feature for the entire office through datafill in table RESOFC. The BRI in RES feature makes the ACRJ feature available to ISDN BRI lines.

Translation verification tools

The BRI in RES feature modifies the TRAVER tool. The modified TRAVER output shows that a call from an SLBRI DN uses its line attribute index from

BRI in RES (continued)

table DNCTINFO when the RES option is encountered in the NET GEN selector of tables XLANAME and IBNXLA.

The following example shows the output from TRAVER when it is used to verify BRI in RES.

BRI in RES (continued)

TRAVER output example for BRI in RES

```
> TRAVER L 7235056 7235057 B
TABLE KSETLINE
ISDN 56 1 DN Y 7235056 BNR 0 0 613 (RAG) (LNR) (SFC) (CFX)
(MWT) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
BNR 0 0 0 UNREST ( XLAS BNRXLA FEATXLA BNRDIG)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
AND DIGCOL
BNR NXLA BNRXLA FEATXLA 1 BNRDIG
TABLE DIGCOL
BNRDIG 7 POTS Y
TABLE IBNXLA: XLANAME BNRXLA
BNRXLA 723 NET N N 0 Y BNRDIG N N GEN ( RES )$ $
TABLE DNCTINFO
6137235056 VI VI (SLBRI_LATTR 723)
TABLE DIGCOL
BNRDIG 7 POTS Y
TABLE LINEATTR
723 IBN NONE NT NSCR 1 613 BNR NLCA NONE 0 NIL NILSFC NILLATA
0 NIL
NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
BNR ( 1) (65021) 1
 .SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING.
CALL TYPE DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.
 .KEY NOT FOUND
 .DEFAULT VALUE IS: N NP 0 NA
 .SUBTABLE AMAPRT
 .KEY NOT FOUND
 .DEFAULT VALUE IS: NONE OVRNONE N
```

BRI in RES (continued)

TRAVER output example for BRI in RES (continued)

```
TABLE HNPACONT
613 Y 717 2 ( 18) ( 1) ( 0) ( 0) 2
 .SUBTABLE HNPACODE
 .723 723 DN 613 723
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
AIN Info Analyzed TDP: no subscribed trigger.
TABLE TOFCNAME
613 723 $
TABLE DNINV
613 723 5057 ILC ISDN 57
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.

+++ TRAVER:  SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE             6137235057          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

SERVORD

SERVORD modifications

The BRI in RES feature modifies SERVORD as described in the following sections.

SLBRI option

The SLBRI option is added to table LTDEF. The SLBRI option is assigned when a new ISDN BRI NI-2 LTID is defined using the SLT ADD command.

BRI in RES (continued)

The SLT REM command can be used to remove an ISDN LTID, at which time the SLBRI option is deleted automatically.

SLBRI_LATTR option

The voice and packet mode option SLBRI_LATTR is added to table DNCTINFO.

The SLBRI_LATTR option is assigned when a new DN on an LTID flagged with the SLBRI option is created using the SERVORD NEW, EST, or ADD (for non-PMD hunt groups) commands. This option is automatically prompted for when a DN on an SLBRI LTID is created. The SLBRI_LATTR option applies to the creation of MLH, DLH, and DNH group pilots during the EST command. The SLBRI_LATTR option can also be provisioned on DNH group members using the EST and ADD commands. The SERVORD OUT command can be used to remove an ISDN BRI DN from service, at which time the SLBRI_LATTR option is deleted automatically.

ACRJ option

The existing ACRJ option is extended to ISDN BRI DNs.

The ACRJ option can be assigned either when a new ISDN BRI NI-2 LTID is established using the NEW command, or afterwards using the ADO command. The DEO command can be used to delete the option. The CHF command can be used to change the status and keylist for ACRJ. The OUT command can be used to remove an ISDN BRI DN from service, at which time the ACRJ option is deleted automatically.

QLT command

The QLT (query logical terminal) command is enhanced to display the SLBRI information for the queried LTID.

QDN command

The QDN (query DN) command is enhanced to display the SLBRI information for the queried DN on a LTID. It is also updated to display the SLBRI_LATTR value in the SLBRI LATTR field of the QDN output.

> ***Note:*** The QDN command output includes the SLBRI LATTR field only when SLBRI is present on an LTID. Because the QLT and QIT commands can show more than one DN at a time, the DN-based SLBRI_LATTR is omitted from these queries.

QIT command

The QIT (query ISDN terminal) command is enhanced to display the SLBRI information for the queried ISDN terminal.

BRI in RES (continued)

SERVORD limitations and restrictions

The following SERVORD limitations and restrictions apply to BRI in RES:

- The operating company cannot use the CDN (change DN) command to change an SLBRI DN. The following error message displays:

  ```
  ERROR: Cannot change DN of SLBRI lines with CDN.
  OUT the DN and recreate with the new DN using NEW.
  ```

- The operating company cannot change the SLBRI option on an existing LTID using the SLT CHA command. The following error message displays:

  ```
  SLBRI option can only be changed by editing tables
  LTDEF and DNCTINFO using table control.
  ```

  To change the SLBRI option on an existing LTID, the operating company must use table control to update tables DNCTINFO and LTDEF.

- The operating company cannot change the line attribute index specified by the SLBRI_LATTR option using SERVORD commands.

- The operating company cannot modify MADN group members on SLBRI LTIDs using the SERVORD ADO or DEO commands. The operating company must use the NEW or OUT commands to add or delete SLBRI MADN group members.

SERVORD prompts

The following table shows the SERVORD prompts for the BRI in RES feature.

SERVORD prompts for BRI in RES (Sheet 1 of 5)

Prompt	Valid input	Explanation
CS	Y, N, 2B, NI2	Circuit-switched service
DEFLTERM	Y, N	Default logical terminal. Enter Y to provision an integrated and a packet-only NIT with dynamic TEI. For a packet-only NIT, the TEI_TYPE of UNATEI automatically datafills.
DN	7 or 10 digits entered with no spaces or hyphens	The DN associated with the service to be established

BRI in RES (continued)

SERVORD prompts for BRI in RES (Sheet 2 of 5)

Prompt	Valid input	Explanation
DN_LEN	The DN format is 7 or 10 digits entered with no spaces or hyphens. The LEN format is: ff u dd cc *where:* ff = frame number, which is 00 to 99 u = unit number, where 0 = lower LCMI or LCME 1 = upper LCMI or LCME on the frame dd = logical drawer number, which is 00 to 23 for LCMI, 00 to 15 for LCME cc = line circuit number, which is 00 to 07 for LCMI, 00 to 31 for LCME	The DN of the member added to a DNH group and its associated LTID
DN_OR_LEN	(see preceding “Valid input" information for DN_LEN prompt)	The line's DN or LTID ***Note:*** For a MADN line or an MLH or DLH group member, if a DN is specified, the user is prompted for the LTID. If the LTID is entered, the user is not prompted for the DN.
EKTS	Y, N	Electronic key telephone set (available with feature package NTX753AA03) ***Note:*** Only a functional (BRAFS) set with dynamic TEI can be defined as an EKTS set.
FUNCTION	ADD	The action required by the service order

BRI in RES (continued)

SERVORD prompts for BRI in RES (Sheet 3 of 5)

Prompt	Valid input	Explanation
GROUP	1 to 16 alphanumeric characters	The name of an IBN customer group
GROUPSIZE	0 to 1024	The expected maximum size of the hunt group. The group size specified must be large enough to accommodate the group's expected membership.
GROUPTYPE	BNN = bridged night number CPU = call pickup DLH = distributed line hunt DNH = directory number hunt MLH = multiline hunt UA = no hunt	The type of hunt group to be established, modified, or deleted
ISSUE	0 = Stimulus, MFT, and ETSI 1 = Bellcore functional 2 = when protocol variant control feature is present	The protocol issued for the logical terminal
KEY	1 to 69	The number associated with the physical key set to which the DN is assigned
KEYLIST	1 to 69	The list of keys available on the terminal. Up to 24 keys can be specified.
LATANAME	Alphanumeric	The calling local access and transport area (LATA) name associated with the originator of the call
LCC	ISDNKSET	The line class code for the service to be established
LEN_OR_LTID	a logical terminal group name (1 to 8 alphanumeric characters), followed by a space and a terminal number (1 to 1022)	The LTID of the DN to be established

BRI in RES (continued)

SERVORD prompts for BRI in RES (Sheet 4 of 5)

Prompt	Valid input	Explanation
LINK_DN	7 or 10 digits entered with no spaces or hyphens	The DN of an existing DNH or BNN group to which new members are linked
LTG	0 to 255	Line treatment group
LTCLASS	BRAFS	The logical terminal class (based on the type of messaging exchanged between the terminal and the ISDN switch)
LTID	a logical terminal group name (1 to 8 alphanumeric characters), followed by a space and a terminal number (1 to 1022)	The logical terminal identifier
MAXKEYS	2 to 64	The maximum number of feature activators (keys) on a logical terminal used for circuit-switched service
MEM_LEN	a logical terminal group name (1 to 8 alphanumeric characters), followed by a space and a terminal number (1 to 1022)	The LTID of the member added to or deleted from a DLH or MLH group
NCOS	0 to 255	Network class of service for IBN lines, trunks, or attendant consoles; defines a set of capabilities or restrictions that allows or denies calls
OPTION	ACRJ, SLBRI, or $	Option(s) associated with a service to be established, modified, or deleted
OPTKEY	1 to 69	Key associated with the option
PILOT_DN	7 or 10 digits entered with no spaces or hyphens	The DN of a BNN or DNH group pilot or the DN associated with a DLH or MLH group
PILOT_LEN	7 or 10 digits entered with no spaces or hyphens	The LTID of a hunt group pilot

BRI in RES (continued)

SERVORD prompts for BRI in RES (Sheet 5 of 5)

Prompt	Valid input	Explanation
PS	N = no packet service B = packet service on a B-channel D = packet service on the D-channel	Packet-switched service
RINGING	Y, N	Specifies whether a ring from a telephone speaker is required in addition to the call-waiting tone heard from the handset
SET_ATTRIBUTE	SLBRI	Options to add on the terminal
SLBRI	Y, N	Designates an ISDN BRI LTID as a single-line BRI
SLBRI_LATTR	0 to 31999 or $	Line attribute index for an SLBRI DN
SNPA	3-digit number	Service numbering plan area (area code)
STATUS	ACT, INACT	Status of the option
SUBGRP	0 to 7	Subgroup of a customer group to which a station or DN belongs
TEI_TYPE	DTEI = dynamic TEI UATEI = user-assigned TEI UNATEI = user- or network-assigned dynamic TEI STEI = static TEI	Terminal endpoint identifier type ***Note:*** User-assigned dynamic TEI applies only to circuit-switched terminals.
TSPID	1 to 18 digits	Terminal service profile identifier
VERSION	FUNCTIONAL, ETSI (Europe)	Version of the protocol used by the BRAFS terminal

BRI in RES (continued)

SERVORD examples for BRI in RES

The examples in this section show the use of SERVORD commands to do the following:

- create an LTID and assign the SLBRI option to the LTID using the SLT ADD command
- create a DN on an SLBRI LTID using the NEW command
- create a DLH group pilot on an SLBRI LTID using the EST command
- create an MLH group pilot on an SLBRI LTID using the EST command
- create a DNH group pilot on an SLBRI LTID using the EST command
- add a DNH group member on an SLBRI LTID using the ADD command
- provision the ACRJ option on a PDN using the NEW command
- provision the ACRJ option on a PDN using the ADO command
- delete the ACRJ option using the DEO command
- change the status and keylist for the ACRJ option using the CHF command
- query an LTID with the SLBRI option using the QLT command
- query a DN with the SLBRI option using the QDN command
- query an ISDN terminal for SLBRI using the QIT command

Create an LTID and assign the SLBRI option to the LTID using the SLT ADD command

The following SERVORD example shows the SLT ADD command used to create the LTID ISDN 1 and assign the SLBRI option to this LTID.

BRI in RES (continued)

SERVORD example for BRI in RES in prompt mode

```
> SLT
SONUMBER:  NOW 98 01 31 PM
> (CR)
LTID:
> ISDN 1
FUNCTION:
> ADD
LTCLASS:
> BRAFS
CS:
> NI2
PS: N
> N
MAXKEYS:
> 64
DEFLTERM:
> N
TEI_TYPE:
> DTEI
TSPID:
> 9
EKTS:
> N
OPTION:
> SLBRI
OPTION:
> $
```

SERVORD example for BRI in RES in no-prompt mode

```
> SLT $ ISDN 1 ADD BRAFS NI2 N 64 N DTEI 9 N SLBRI $
```

Create a DN on an SLBRI LTID using the NEW command

The following SERVORD example shows the NEW command used to create a DN on an SLBRI LTID. If the LTID entered at the LEN_OR_LTID prompt has SLBRI assigned, the SLBRI_LATTR prompt is displayed. If the LTID is non-SLBRI, or if a LEN is entered, the SLBRI_LATTR prompt is not displayed.

BRI in RES (continued)

SERVORD example for BRI in RES in prompt mode

```
> NEW
SONUMBER:  NOW 98 01 31 PM
> (CR)
DN:
> 6755000
LCC:
> ISDNKSET
GROUP:
> ISDNGRP
SUBGRP:
> 0
SNPA:
> 619
KEY:
> 1
RINGING:
> Y
LATANAME:
> LATA1
LTG: 0
> (CR)
LEN_OR_LTID:
> ISDN 20
SLBRI_LATTR:
> 2
OPTKEY:
> $
```

SERVORD example for BRI in RES in no-prompt mode

```
> NEW $ 6755000 ISDNKSET ISDNGRP 0 619 1 Y LATA1 $ ISDN 20 2 $
```

Create a DLH group pilot on an SLBRI LTID using the EST command

The following SERVORD example shows the EST command used to create a DLH group pilot on an SLBRI LTID. If the LTID entered at the PILOT_LEN prompt has SLBRI assigned, the SLBRI_LATTR prompt is displayed. If the LTID is non-SLBRI, or if a LEN is entered, the SLBRI_LATTR prompt is not displayed.

BRI in RES (continued)

SERVORD example for BRI in RES in prompt mode

```
> EST
SONUMBER:  NOW 98 01 31 PM
> (CR)
GROUPTYPE:
> DLH
PILOT_DN:
> 7235099
LCC:
> ISDNKSET
GROUP:
> RESGRP
SUBGRP:
> 0
NCOS:
> 0
SNPA:
> 613
KEY:
> 1
RINGING:
> Y
LATANAME:
> NILLATA
LTG: 0
> (CR)
PILOT_LEN:
> ISDN 99
SLBRI_LATTR:
> 2
MEM_LEN:
> $
OPTION:
> $
GROUPSIZE:
> 3
```

SERVORD example for BRI in RES in no-prompt mode

```
> EST $ DLH 7235099 ISDNKSET RESGRP 0 0 613 1 Y NILLATA $ ISDN
99 2 $ $ 3
```

BRI in RES (continued)

Create an MLH group pilot on an SLBRI LTID using the EST command

The following SERVORD example shows the EST command used to create an MLH group pilot on an SLBRI LTID. If the LTID entered at the PILOT_LEN prompt has SLBRI assigned, the SLBRI_LATTR prompt is displayed. If the LTID is non-SLBRI, or if a LEN is entered, the SLBRI_LATTR prompt is not displayed.

SERVORD example for BRI in RES in prompt mode

```
> EST
SONUMBER:  NOW 98 01 31 PM
> (CR)
GROUPTYPE:
> MLH
PILOT_DN:
> 7235098
LCC:
> ISDNKSET
GROUP:
> RESGRP
SUBGRP:
> 0
NCOS:
> 0
SNPA:
> 613
KEY:
> 1
RINGING:
> Y
LATANAME:
> NILLATA
LTG: 0
> (CR)
PILOT_LEN:
> ISDN 98
SLBRI_LATTR:
> 10
MEM_LEN:
> $
OPTION:
> $
GROUPSIZE:
> 3
```

BRI in RES (continued)

SERVORD example for BRI in RES in no-prompt mode

```
> EST $ MLH 7235098 ISDNKSET RESGRP 0 0 613 1 Y NILLATA $ ISDN
98 10 $ $ 3
```

Create a DNH group pilot on an SLBRI LTID using the EST command

The following SERVORD example shows the EST command used to create a DNH group pilot on an SLBRI LTID. If the LTID entered at the PILOT_LEN prompt has SLBRI assigned, the SLBRI_LATTR prompt is displayed. If the LTID is non-SLBRI, or if a LEN is entered, the SLBRI_LATTR prompt is not displayed.

BRI in RES (continued)

SERVORD example for BRI in RES in prompt mode

```
> EST
SONUMBER:  NOW 98 01 31 PM
> (CR)
GROUPTYPE:
> DNH
PILOT_DN:
> 7235097
LCC:
> ISDNKSET
GROUP:
> RESGRP
SUBGRP:
> 0
NCOS:
> 0
SNPA:
> 613
KEY:
> 1
RINGING:
> Y
LATANAME:
> NILLATA
LTG: 0
> (CR)
PILOT_LEN:
> ISDN 100
SLBRI_LATTR:
> 1
DN_LEN:
> $
OPTION:
> $
GROUPSIZE:
> 3
```

SERVORD example for BRI in RES in no-prompt mode

```
> EST $ DNH 7235097 ISDNKSET RESGRP 0 0 613 1 Y NILLATA $ ISDN
100 1 $ $ 3
```

BRI in RES (continued)

Add a DNH group member on an SLBRI LTID using the ADD command

The following SERVORD example shows the ADD command used to add a DNH group member on an SLBRI LTID. If the LTID entered at the DN_LEN prompt has SLBRI assigned, the SLBRI_LATTR prompt is displayed. If the LTID is non-SLBRI, or if a LEN is entered, the SLBRI_LATTR prompt is not displayed.

SERVORD example for BRI in RES in prompt mode

```
> ADD
SONUMBER:  NOW 98 01 31 PM
> (CR)
GROUPTYPE:
> DNH
LINK_DN:
> 7235098
DN_LEN:
> 7235091 ISDN 101
SLBRI_LATTR:
> 11
KEY:
> 1
DN_LEN:
> $
OPTION:
> $
GROUPSIZE:
> 3
```

SERVORD example for BRI in RES in no-prompt mode

```
> ADD $ DNH 7235098 7235091 ISDN 101 11 1 $ $ 3
```

Provision the ACRJ option on a PDN using the NEW command

The following SERVORD example shows the NEW command used to provision the ACRJ option on a PDN.

BRI in RES (continued)

SERVORD example for BRI in RES in prompt mode

```
> NEW
SONUMBER:  NOW 98 01 31 PM
> (CR)
DN:
> 6755000
LCC:
> ISDNKSET
GROUP:
> ISDNGRP
SUBGRP:
> 0
SNPA:
> 619
KEY:
> 1
RINGING:
> Y
LATANAME:
> LATA1
LTG:0
> (CR)
LEN_OR_LTID:
> ISDN 20
OPTKEY:
> 1
OPTION:
> ACRJ
STATUS:
> INACT
KEYLIST:
> $
OPTKEY:
> $
```

SERVORD example for BRI in RES in no-prompt mode

```
> NEW $ 6755000 ISDNKSET ISDNGRP 0 619 1 Y LATA1 $ ISDN 20 1
ACRJ INACT $ $
```

Provision the ACRJ option on a PDN using the ADO command

The following SERVORD example shows the ADO command used to provision the ACRJ option on a PDN.

BRI in RES (continued)

SERVORD example for BRI in RES in prompt mode

```
> ADO
SONUMBER:  NOW 98 01 31 PM
> (CR)
DN_OR_LEN:
> ISDN 40
OPTKEY:
> 1
OPTION:
> ACRJ
STATUS:
> INACT
KEYLIST:
> $
OPTKEY:
> $
```

SERVORD example for BRI in RES in no-prompt mode

```
> ADO $ ISDN 40 1 ACRJ INACT $ $
```

Delete the ACRJ option using the DEO command

The following SERVORD example shows the DEO command used to delete the ACRJ option.

SERVORD example for BRI in RES in prompt mode

```
> DEO
SONUMBER:  NOW 98 01 31 PM
> (CR)
DN_OR_LEN:
> ISDN 20
OPTKEY:
> 1
OPTION:
> ACRJ
OPTKEY:
> $
```

BRI in RES (continued)

SERVORD example for BRI in RES in no-prompt mode

```
> DEO $ ISDN 20 1 ACRJ $
```

Change the status and keylist for the ACRJ option using the CHF command

The following SERVORD example shows the CHF command used to change the status and keylist for the ACRJ option.

SERVORD example for BRI in RES in prompt mode

```
> CHF
SONUMBER:  NOW 98 01 31 PM
> (CR)
DN_OR_LEN:
> ISDN 40
OPTKEY:
> 1
OPTION:
> ACRJ
STATUS: INACT
> ACT
KEYLIST:$
> 1
KEYLIST:
> $
OPTKEY:
> $
```

SERVORD example for BRI in RES in no-prompt mode

```
> CHF $ ISDN 40 1 ACRJ ACT 1 $ $
```

Query an LTID with the SLBRI option using the QLT command

The following SERVORD example shows the QLT command used to query an LTID with the SLBRI option.

BRI in RES (continued)

Example of the QLT command in prompt mode

```
> QLT
Enter: LTGRP
> NI2
Enter: LTNUM
> 1
LTID: NI2    1
SNPA: 613
DIRECTORY NUMBER: 7235101
LT GROUP NO: 15
LTCLASS:  BRAFS    DEFAULT LOGICAL TERMINAL: N
EKTS:  N   CACH:  N
SLBRI:  Y
CS: NI2 PS: N
ELN: N
VERSION: FUNCTIONAL  ISSUE: 2
LEN: HOST 01 1 14 02  TEI: DYNAMIC
CUSTGRP:    BNR SUBGRP: 0  NCOS: 0  RING: Y
LINE CLASS CODE: ISDNKSET
MAXKEYS: 64
OPTIONS:
SFC VI $ $ N CMD BOTH $ $ N KSMOH
ACOU 2 2 CRBL 3 3
  KEY       DN
  ---       --
    1       DN     7235101

  KEY       FEATURE
  ---       -------
   1        ACOU 1 1
   1        CRBL 3 3
   1        DBC DBC_SP
   2        AFC DBC_SP
   3        AFC DBC_SP
   24       RLS
```

Query a DN with the SLBRI option using the QDN command

The following SERVORD example shows the QDN command used to display SLBRI information for the queried DN on an LTID. The query displays the SLBRI_LATTR in the LNATTIDX field of the QDN output.

BRI in RES (continued)

Example of the QDN command in prompt mode

```
> QDN
DIRECTORY_NUMBER:
> 7235101
DN:    7235101
TYPE: SINGLE PARTY LINE
SNPA: 613   SIG:  N/A    LNATTIDX: N/A
LTID: ISDN 1
LTCLASS:  BRAFS
SLBRI LATTR: 3
LINE CLASS CODE: ISDNKSET
KEY: 1
CUSTGRP:  BNR SUBGRP: 0  NCOS: 0 RING: Y
OPTIONS:
SFC VI $ $ N CMD BOTH $ $ N
CRBL 2 2 AFC 2
```

Query an ISDN terminal for SLBRI using the QIT command

The following SERVORD example shows the QIT command used to query an ISDN terminal for SLBRI.

BRI in RES (end)

Example of the QIT command in prompt mode

```
> QIT
Enter: LTGRP
> NI2
Enter: LTNUM
> 1
LTID: NI2    1
SNPA: 613
DIRECTORY NUMBER: 7235101
LT GROUP NO: 15
LTCLASS:  BRAFS    DEFAULT LOGICAL TERMINAL: N
EKTS:  N   CACH:  N
SLBRI:  Y
CS: NI2 PS: N
ELN: N
VERSION: FUNCTIONAL  ISSUE: 2
LEN: HOST 01 1 14 02  TEI: DYNAMIC
CUSTGRP:    BNR SUBGRP: 0  NCOS: 0  RING: Y
LINE CLASS CODE: ISDNKSET
MAXKEYS: 64
OPTIONS:
SFC VI $ $ N CMD BOTH $$  N KSMOH
ACOU 2 2 CRBL 3 3

  KEY       DN
  ---       --
    1       DN     7235101

  KEY     FEATURE
  ---     -------
   1        ACOU 1 1
   1        CRBL 3 3
   1        DBC DBC_SP
   2        AFC DBC_SP
   3        AFC DBC_SP
   24       RLS
```

CND Customer Group Control for BRI

Ordering codes

Functional group ordering code: NI000060

Functionality ordering code: does not apply

Release applicability

NA009 and up

NA009 introduced CND Customer Group Control for BRI.

Requirements

CND Customer Group Control for BRI has no functional group requirements.

Description

This feature introduces a customer group control for Calling Number Delivery (CND) on integrated services digital network (ISDN) basic rate interface (BRI) lines.

Before this feature, BRI lines automatically received number delivery from other BRI lines in the same group. This feature changes the previous functionality where the system always displayed the originating number when either of the following was true:

- line option CLID was present for the customer group of the terminator
- the call connected two members of the same customer group

On a terminating customer group, option CNDBRI delivers the originating calling party number. For number delivery on BRI, these conditions must be true:

- Assign line option CLID (Calling Line Identification) in table CUSTNTWK for the customer group of the terminating line. Or set office parameter KSET_INTER_GRP_DISP to Y (yes). Intragroup calls do not require either CLID or the office parameter for number delivery.
- Assign option CNDBRI in table CUSTSTN for the customer group of the terminating line. Or assign option CND for the terminating DN.

See “Calling Line Identification" in the ISDN section of this document for more information about option CLID at the network, group, and individual DN levels.

CND Customer Group Control for BRI (continued)

Operation

Option CNDBRI, assigned to a terminator's customer group with an availability mechanism, enables delivery of the originator's number information. The SUPPRESS parameter in table DNGRPS prevents display of the calling party number (CGN) to the terminator's group. If the switch does not suppress the CGN, it presents the CGN. If the switch prevents display of the CGN, the system shows an alternate display such as “Outside Call" or another message as defined by the operating company.

Option CNDBRI uses option CLID to support inter- and intra-customer group separation. Option CLID allows group members to receive number delivery for calls that originate on the same customer group, the same network, or for all calls. For actual number delivery, option CNDBRI requires option CLID or office parameter KSET_INTER_GRP_DISP set to Y, unless the call is intragroup. Option CNDBRI has nothing to deliver without one of these availability mechanisms.

This feature changes the previous functionality where the originator's number always displayed when option CLID was active for the customer group or the terminator in table CUSTNTWK. Before this feature, option CLID provided both the availability mechanism and the delivery mechanism. Operating companies did not have the ability to set up a Centrex group with CND assigned to only some DNs in the Centrex group.

To prevent this problem, ISDN BRI lines now must have the CNDBRI customer group option or the line option CND to receive the calling number from other ISDN BRI lines. To strengthen the CND requirement for number delivery, this feature disables automatic intragroup delivery of the calling number for ISDN BRI lines. Instead, this feature allows number delivery of intragroup calls without any additional availability mechanism. Intragroup calls require only a delivery mechanism (CND or CNDBRI).

See “Calling Number Delivery (CND)" in the Residential Enhanced Services (RES) section of this document for more information about option CND.

CNDBRI customer group option

Several methods exist to enable number delivery on an ISDN set. The first method uses customer group option CNDBRI in table CUSTSTN and line option CLID in table CUSTNTWK. An ISDN subscriber in a customer group receives CND according to the type of CLID indicated (ONNET, OFFNET, or INTRAGRP). This feature does not change the function of line option CLID.

CND Customer Group Control for BRI (continued)

CND line option

Another way to receive number delivery is to use ISDN line option CND. Previously, when option CND was active on ISDN subscriber lines, number delivery occurred when numbers were available to terminators. This feature makes line option CND a delivery mechanism only. Now line option CND mirrors the functionality of customer group option CNDBRI. The CND line option now requires CLID or another availability mechanism. Calling number delivery occurs by use of CNDBRI when both of these conditions are true:

- you provision but do not activate the CND feature
- customer group option CNDBRI is present, with line option CLID or another availability mechanism

Automatic message accounting (AMA) and operational measurement (OM) counts are available with option CND. AMA and OM counts are not available with option CNDBRI.

Office parameter KSET_INTER_GRP_DISP

A third way to receive number delivery is to set office parameter KSET_INTER_GRP_DISP in table OFCENG to Y. Use of this office parameter allows number delivery for all sets, which includes ISDN BRI sets. This parameter enables number delivery only for calls from outside the customer group. A value of “Y" makes the number available, but the ISDN subsystem does not deliver the number without option CNDBRI or option CND.

Intragroup delivery

Before this feature, BRI lines automatically received number delivery from other BRI lines in the same group. Residential subscribers generally are part of one large customer group. This organization as one group allowed free number delivery from a large number of other subscribers. To prevent this condition, the system now denies BRI lines automatic intragroup delivery. You must provision BRI lines with either option CNDBRI or option CND to receive intragroup numbers.

Translations table flow

The list that follows includes the CNDBRI translation tables:

- Table OFCENG contains data engineering parameters for the office. The operating company sets parameter KSET_INTER_GRP_DISP to Y, which enables number delivery for all keysets, including ISDN BRI sets. Refer to “Office parameters used by CND Customer Group Control for BRI" in

CND Customer Group Control for BRI (continued)

this document for more information on how this feature uses office parameters.

- Table CUSTSTN identifies the station options assigned to each customer group. Access this table by the ISDN customer group name. Datafill option CNDBRI to enable the CND delivery mechanism for the group.
- Table CUSTNTWK stores the features assigned to a customer group. Access this table by the group name tuple for the ISDN customer. Datafill option CLID as the CND availability mechanism.

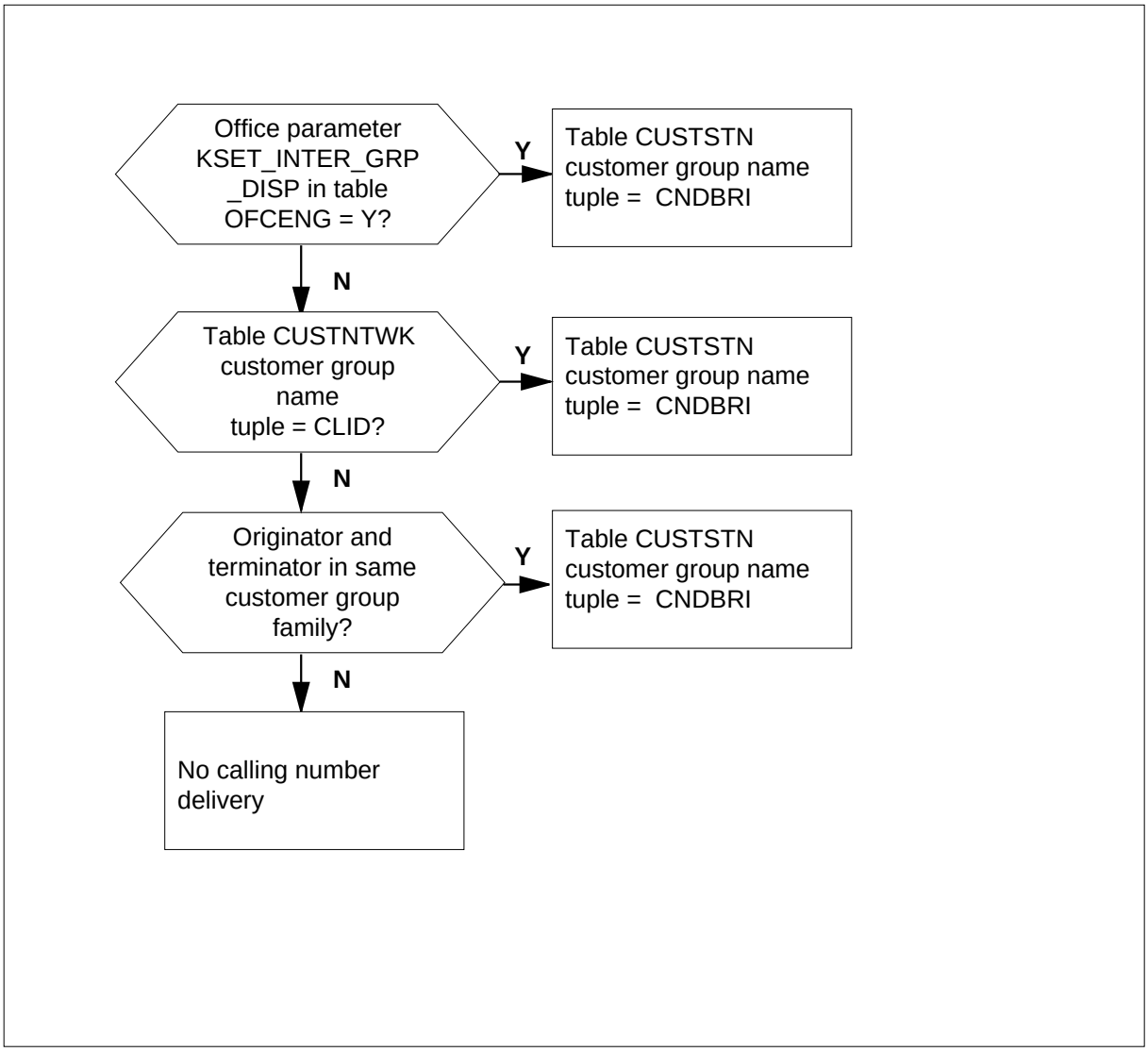
Subfield CLIDOPT of option CLID in table CUSTNTWK controls the availability of the DN delivered by the system, based on the type of network. Set this subfield to one of three network types:

- ONNET (on-network calls) for calls that originate on the same network as the called party
- OFFNET (off-network calls) for all network calls without consideration of their origin
- INTRAGRP for intragroup calls

The flowchart that follows provides the ISDN CNDBRI translation process.

CND Customer Group Control for BRI (continued)

Table flow for ISDN CNDBRI



The table that follows lists the datafill content used in the flowchart.

Datafill example for CND Customer Group Control for BRI (Sheet 1 of 2)

Datafill table	Example data
RESOFC	CND Y SUBSCR CND $
CUSTNTWK	ISDNGRP PUBLIC 1 $ (CLID OFFNET) $
AMAOPTS	CIDSUSPAUD PERIODIC 980524 0000 1HRSSUSP ON

CND Customer Group Control for BRI (continued)

Datafill example for CND Customer Group Control for BRI (Sheet 2 of 2)

Datafill table	Example data
RESFEAT	ISDN 20 1 CND CND AMA ACT 0 0
IBNXLA	ISDNGRP 65 FEAT N N N CNDA
CUSTSTN	ISDNGRP CNDBRI CNDBRI
OFCENG	KSET_INTER_GRP_DISP Y

Limitations and restrictions

The limitations and restrictions that follow apply to CND Customer Group Control for BRI:

- Only National ISDN Protocol Version Control (PVC) Functional Issue 2 terminals support the ISDN display features. Both National ISDN 1 (NI-1) and National ISDN 2 (NI-2) terminals are supported.
- The CNDBRI option only has an effect on BRI lines in the customer group.
- This feature does not support the extended I-CND parameter. This parameter allows the subscriber to control delivery of the calling party number based on its intra- or inter-Basic Business Group (BBG) status. Instead, CLID handles this separation.
- The DMS for RND service limits the scope of Redirecting Number Delivery (RND) interactions.
- This activity does not support the Bellcore requirements for ISDN uniform display.

Interactions

The paragraphs that follow describe how CND Customer Group Control for BRI interacts with other functionalities.

The CNDBRI option releases CLID from the number delivery functionality for BRI lines. CNDBRI receives all interactions, as they now exist, between the number delivery functionality of CLID and any other features. All interactions regarding availability of the number delivered (such as with originator side blocking or delivery features) remain the domain of CLID. This list does not contain these availability interactions.

Advanced Intelligent Networks (AIN)

AIN maintains its own number delivery checks and modifies these checks to accommodate the reworked number delivery functionality for BRI. The functionality of BRI number delivery is identical for AIN and non-AIN calls.

CND Customer Group Control for BRI (continued)

ISDN Call Forwarding (I-CF)/CNDBRI

Call Forward Universal (CFU), Call Forward Busy (CFB) and Call Forward Fixed (CFF)

If the CND subscriber has activated CFU, CFB, or CFF, the system delivers no calling number because the base station does not answer the call. If the system forwards a call to a CND subscriber, it delivers the originator's calling party information to the remote station. If the remote station does not subscribe to CND, the SETUP message to the remote station includes no calling number information.

Call Forward Don't Answer (CFD)

If the CNDBRI subscriber has activated CFD, the system delivers the calling number to the base station. When the base station does not answer the call within the indicated time, the system forwards the call to the remote station. If the remote station subscribes to CND, the switch delivers the originator's calling party information. If the remote station does not subscribe to CND, the SETUP message to the remote station does not include calling number information.

Redirecting Number Delivery

Redirecting Number Delivery falls under the same delivery requirements as any number delivery. To receive redirecting number, the terminator requires CLID and one of the delivery mechanisms. Previously, CLID handled the redirecting number delivery functionality.

The base DN for an I-CF subfeature has the ability to also subscribe to CNDBRI. If “Reminder Notification Sent to Base DN" is an I-CF notification parameter, the calling party number is delivered to the forwarding party. The privacy status of the calling party is still observed. The ISDN subsystem delivers no digits if the charge number is indicated as “Private."

Activation and deactivation by the user

CND Customer Group Control for BRI does not require activation or deactivation by the user.

Billing

CND Customer Group Control for BRI does not generate billing records or changes.

Station Message Detail Recording

CND Customer Group Control for BRI does not require Station Message Detail Recording.

CND Customer Group Control for BRI (continued)

Office parameters used by CND Customer Group Control for BRI

The table that follows lists the office parameters used by CND Customer Group Control for BRI. For additional information about office parameters, refer to the *Office Parameters Reference Manual*.

Office parameters used by CND Customer Group Control for BRI

Table name	Parameter name	Explanation and action
OFCENG	KSET_INTER_GRP_DISP	This parameter determines if calls that arrive from outside the customer group display information on the display set of the terminator. Use of this parameter allows number delivery for all keysets, including ISDN BRI sets. The possible values of this Boolean parameter are Y (yes) and N (no), the default value.

Datafill sequence

The table that follows lists the tables that require datafill to put CND Customer Group Control for BRI into operation.

Datafill requirements for CND Customer Group Control for BRI

Table	Purpose of table
OFCENG	Office Engineering. This table contains data on engineering parameters for the office. Refer to “Office parameters used by CND Customer Group Control for BRI" for information on how CNDBRI affects office parameters.
CUSTSTN	Customer Group Station Option. A switching unit with North American translations and Meridian Digital Centrex (MDC) or RES requires this table. This table lists the station options assigned to each customer group. Fill the tuple for the ISDN customer group name with CNDBRI to enable CND delivery for the group.
CUSTNTWK	Customer Group Network. This table stores the features that are assignable to a customer group. Fill the tuple for the ISDN customer group name with CLID to assign CND to a customer group.

CND Customer Group Control for BRI (continued)

Datafill related to CND Customer Group Control for BRI for table CUSTSTN

The table that follows provides the datafill related to CND Customer Group Control for BRI for table CUSTSTN. This table includes only those fields that apply directly to CND Customer Group Control for BRI.

Datafill related to table CUSTSTN

Field	Subfield	Entry	Explanation and action
CUSTNAME		alphanumeric (1 to 16 characters)	Customer group name. Enter the customer group name.
OPTNAME		CNDBRI	Option name. Enter the name assigned to the option, CNDBRI.
OPTION		see subfield	Option. This field consists of subfield OPTION.
	OPTION	CNDBRI	Option. Enter the name assigned to the option, CNDBRI.

Datafill example for table CUSTSTN

The figure that follows shows sample datafill for table CUSTSTN.

MAP example for table CUSTSTN

```
TABLE: CUSTSTN

CUSTNAME OPTNAME OPTION
_____________________________________________________________________
ISDNGRP  CNDBRI  CNDBRI
```

CND Customer Group Control for BRI (continued)

Datafill related to CND Customer Group Control for BRI for table CUSTNTWK

The table that follows provides the datafill related to CND Customer Group Control for BRI for table CUSTNTWK. This table includes only those fields that apply directly to CND Customer Group Control for BRI.

Datafill related to table CUSTNTWK

Field	Subfield	Entry	Explanation and action
OPTIONS		see subfields (up to 13 multiples)	Options. This field consists of subfield OPTION.
	OPTION	CLID	Option. This subfield lists options assigned to the customer group. Enter CLID for option CLID, which assigns the feature BT0072 (Calling Line Identification, or CND) to a RES or ISDN customer group.
	CLIDOPT	INTRAGRP, ONNET, or OFFNET	CLID option. Enter INTRAGRP to indicate option CLID is available only to terminating agents in the same customer group as the originating agent. Enter ONNET to activate option CLID for calls that originate in the same network for which option CLID is active. Enter OFFNET to activate option CLID for all networked calls, regardless of their origin. ***Note:*** Tuple KSET_INTER_GRP_DISP in table OFCENG overrides the value in subfield CLIDOPT. Set tuple KSET_INTER_GRP_DISP in table OFCENG to N for the value in subfield CLIDOPT to take precedence.

Datafill example for table CUSTNTWK

The figure that follows shows sample datafill for table CUSTNTWK.

CND Customer Group Control for BRI (end)

MAP example for table CUSTNTWK

```
CUSTNAME    NETNAME    NETCGID    DNREVXLA     OPTIONS
-------------------------------------------------------
IBNTST      PUBLIC      1          $         (CLID
OFFNET) $
```

Translation verification tools

CND Customer Group Control for BRI does not use translation verification tools.

SERVORD

CND Customer Group Control for BRI does not use the Service Order System (SERVORD).

Flex Calling Deactivate Conference Facility

Ordering codes

Functional group ordering code: NI000060

Functionality ordering code: not applicable

Release applicability

NA009 and up

Prerequisites

This document includes all the information for this functionality. The complete implementation may require additional software or hardware.

Description

Flexible Calling (FC) for National ISDN 2 (NI-2) terminals allows the FC subscriber to establish two or more concurrent speech calls. The calls join into a conference of up to 30 members. The FC feature allows the subscriber to:

- designate an established call as a conference call
- hold and retrieve a conference call
- bridge either an incoming or outgoing basic call into a conference call
- release, or drop, the last member to join the conference call
- transfer a conference call

NI0 Flex Calling Deactivate Conference Facility (DCC) enhances the FC feature. The assignment of the DCC feature deactivates the conference under the following conditions:

- a member of the conference releases the connection and the conference changes from three members to two members (the controller and one member)
- the drop request changes the conference from three members to the controller and one member
- the controller connects to a conference call over a B-channel and there is only one member on the conference
- the controller retrieves the conference call from hold and two members of the conference remain (the controller and one other member)

Flex Calling Deactivate Conference Facility is assigned to the terminal in table KSETFEAT, through service order (SERVORD). The FC feature is assigned prior to the DCC feature in the list of options. The DCC feature is assigned to the primary directory number (PDN) of an ISDN business set.

Flex Calling Deactivate Conference Facility (continued)

Operation

Drop

The controller presses the DROP key to clear the last call to enter the conference. The network releases the conference facility if only two members remain on the conference call.

The interactions between FC and the DROP request change with the assignment of DCC to the terminals. The network removes the conference circuit and drops the FC feature. The controller and the other member remain connected on a regular call.

Translations table flow

The Flex Calling Deactivate Conference Facility translations table is table KSETFEAT (Keyset Features). The table KSETFEAT lists the features and options associated with the keyset. The datafill for table KSETFEAT is through SERVORD.

Limitations and restrictions

The following limitations and restrictions apply to Flex Calling Deactivate Conference Facility:

- The DCC feature applies to protocol version control (PVC) functional 2 basic rate interface (BRI) ISDN NI-1 and NI-2 terminals.
- The FC feature is a prerequisite.

Interactions

Flex Calling Deactivate Conference Facility has no functionality interactions.

The following paragraphs describe the interactions between Flex Calling Deactivate Conference Facility and other and other functionalities.

Flexible Call and DROP with DCC

The interactions between FC and the DROP request change with the assignment of DCC to the terminals. The drop request removes the conference circuit and the FC feature.

Multiple FC keys

It is possible to assign multiple keys with FC and specify different conference sizes on each key. The DCC feature applies to all keys on the set.

Activation/deactivation by the end user

Flex Calling Deactivate Conference Facility requires no activation or deactivation by the end user.

Flex Calling Deactivate Conference Facility (continued)

Billing

Flex Calling Deactivate Conference Facility does not affect billing.

Station Message Detail Recording

Flex Calling Deactivate Conference Facility does not affect Station Message Detail Recording.

Datafilling office parameters

Flex Calling Deactivate Conference Facility does not affect office parameters.

Datafill sequence

The following table list the table that requires datafill to implement NI0 Flex Calling Deactivate Conference Facility.

Datafill tables required for Flex Calling Deactivate Conference Facility

Table	Purpose of table
KSETFEAT	Keyset Features contains the features and options associated with the keyset. The features FC and DCC are assigned to this table. This table is datafilled through SERVORD. No datafill procedure or example is provided. Refer to "SERVORD" for an example of datafill to this table through SERVORD.

Translation verification tools

Flex Calling Deactivate Conference Facility does not use translation verification tools.

SERVORD

SERVORD is used to assign the FC and DCC options to a terminal. SERVORD datafills table KSETFEAT with the options and features for the business set.

Parameter FC assigns the flexible calling capability to a feature key on an ISDN terminal. The FC feature is assigned to a maximum of two keys on a NI-2 ISDN terminal. The FC feature is assigned to one key on a NI-1 terminal. The maximum conference size (CONFSIZE) is unique for each FC key.

SERVORD limitations and restrictions

The following SERVORD limitations and restrictions apply to Flex Calling Deactivate Conference Facility:

- The business set requires the FC feature prior to DCC.
- the DCC feature applies to PVC functional 2 BRI ISDN NI-1 and NI-2 terminals.

Flex Calling Deactivate Conference Facility (continued)

SERVORD prompts

The following table shows the SERVORD prompts used to assign the FC and DCC option.

SERVORD prompts for Flex Calling Deactivate Conference Facility—DCC option

Prompt	Valid input	Explanation
DN_or_LEN	The directory number is seven or ten digits with no spaces or hyphens. The LEN format is as follows: frame number = 00 to 99,unit 0 = lower ISDN line concentrating module (LCMI) or ISDN line concentrating equipment(LCME) unit,unit1 = upper LCMI or LCME,logical drawer = 00 to 23 for LCMI, 00 to 15 for LCME,line circuit number =00 to 07 for LCMI, 00 to 31 for LCME	Directory number or line equipment number.Enter the line's directory number.
OPTKEY	1 to 64	Option key. Enter the number of the key to assign FC.
OPTION	FC	Option. Enter the FC option to enable the user to initiate a conference call on the terminal.
CONFSIZE	3 to 30	Conference size. Enter the number of members permitted in a conference call initiated on this terminal.
OPTKEY	1 to 64	Option key. Enter key 1 to assign DCC.
OPTION	DCC	Option. Enter the DCC option .

SERVORD example for adding Flex Calling Deactivate Conference Facility

The following SERVORD example adds Flex Calling Deactivate Conference Facility and FC options to the ISDN set. The directory number (DN) is 621-5984. The conference size for the FC option is 3. The DCC option is assigned to key 1.

Flex Calling Deactivate Conference Facility (end)

SERVORD example for Flex Calling Deactivate Conference Facility in prompt mode

```
SO:
>ADO
SONUMBER:  NOW 97 11 14 AM
> (CR)
DN_OR_LEN
> 6215984
OPTKEY:
> 3
OPTION:
> FC
CONFSIZE:
> 3
OPTKEY:
> 1
OPTION:
> DCC
OPTKEY:
> $
```

SERVORD example for Flex Calling Deactivate Conference Facility in no-prompt mode

```
> ADO $ 6215984 3 FC 3 1 DCC
```

RES Members in a MADN SCA

Ordering codes

Functional group ordering code: NI000060

Functionality ordering code: NI000060

Release applicability

NA012 and up

NA012 introduced RES Members in a MADN SCA.

Requirements

This document includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this document.

Description

This feature allows an analog Residential Enhanced Services (RES) line to be a member of a Multiple Appearance Directory Number (MADN) Single Call Arrangement (SCA) group. The same DN can appear on a RES line and an ISDN Basic Rate Interface (BRI) line and in the same SCA group. (A RES line is a 1FR with a RES option assigned, which can be the MDN option.)

From NA009, this functionality has existed for MADN Call Appearance Call Handling (CACH) group members.

The RES line cannot be the primary member of the MADN SCA group. Regardless of the type of members in the MADN SCA group, you can now add RES lines to it. The lines must be in the same customer group. You cannot create MADN SCA RES-only groups. For a MADN SCA group with ISDN and RES members, the primary member must be ISDN. For ISDN CACH sets, RES and MBS sets only get one CA per DN per set. MADN group members must be in the same customer group.

Refer to the feature description “MADN/EKTS Call Appearance Call Handling (CACH)" in the ISDN volume of this document for information on the CACH call arrangement.

Refer to the feature description “Extension Bridging (EXB)" in the RES volume of this document for information on the EXB call arrangement for RES lines.

RES Members in a MADN SCA (continued)

Refer to the feature description “MBS MADN SCA/MCA (across Switch)" in the MDC volume of this document for information on the single call arrangement and multiple call arrangement for MDC lines.

Refer to the feature description “Enhanced MADN Call Control" in the MDC volume of this document for information on SCA for both RES and MDC.

Operation

Use SERVORD to add a RES line to an existing MADN SCA group or to create a new one. SERVORD automatically updates table IBNLINES (or KSETLINE for business sets) and MADNGRP when you add a line or when you connect the MADN SCA feature with a 500/2500 telephone.

Table MDNGRP contains one tuple for each MADN group or MADN CACH CA that has at least one member.

Query commands

The QLEN command shows the attributes of a LEN. Use this command to see the MDN SCA attributes for a LEN and its features.

QLEN command example

```
>QLEN
DN OR LEN:
>1 0 0 13
------------------------------------------------------
LEN:   HOST 01 0 00 13
TYPE: MULTIPLE APPEARANCE DIRECTORY NUMBER
SNPA: 613
DIRECTORY NUMBER:   7230000   (NON-UNIQUE)
LINE CLASS CODE:   1FR
IBN TYPE: MADN
MADN INFO-TYPE:SCA  PRIMARY:N RING:ALWAYS
MADN GROUP INFO-DENIAL_TRMT:SILENCE BRIDGING:Y
          CONF_SIZE:3 BRIDGE_TONE:Y INIT_STAT:NONPRIVATE
CUSTGRP: RESGRP SUBGRP:0 NCOS:0
SIGNALLING TYPE: DGT
LINE TREATMENT GROUP:
LINE ATTRIBUTE INDEX: 301
CARDCODE: 6X17AA  GND:N PADGRP:STDLN BNV:NL  MNO:N
PM NODE NUMBER:  34
PM TERMINAL NUMBER:  14
OPTIONS: NONE
RES OPTIONS: NONE
```

RES Members in a MADN SCA (continued)

The QDN command shows the attributes of a DN. Use this command to see the MDN SCA attributes for a DN, the members of the group, and the line-specific qualities of the DN.

QDN command example

```
>QDN
DIRECTORY NUMBER:
>7230000
------------------------------------------------------
DN:   7230000 (NON-UNIQUE)
TYPE: MULTIPLE APPEARANCE DIRECTORY NUMBER
SNPA: 613  SIG: N/A  LNATTIDX: N/A
LTID: ISDN  1
LTCLASS: BRAFS
LINE CLASS CODE: ISDNKSET
KEY: 1
CUSTGRP:  RESGRP  SUBGRP:0 NCOS:0 RING:Y
MADN INFO-TYPE:SCA  PRIMARY:Y
MADN GROUP INFO-DENIAL_TRMT:SILENCE BRIDGING:Y
          CONF_SIZE:3 BRIDGE_TONE:Y INIT_STAT:NONPRIVATE
OPTIONS:
SFC VI $ $ N
MADN MEMBER LENS INFO:
   ISDN 1 KEY:1      SCA PRIMARY:Y  RING:ALWAYS  NCOS:0
   HOST 01 0 00 13   SCA PRIMARY:N  RING:ALWAYS
```

Translations table flow

The list that follows includes the RES Members in a MADN SCA translations tables:

- Table KSETLINE (business set and data unit line assignment) contains the DN appearances and MADN information for business sets (ISDN and MBS) and data units. SERVORD automatically updates this table when you add a line or when you connect the MADN SCA feature with an MBS or an ISDN set.
- Table IBNLINES (IBN line assignment) contains line assignments for each 500/2500 set assigned to an IBN or RES line. SERVORD automatically updates this table when you add a line or when you connect the MADN SCA feature with a 500/2500 telephone.
- Table MDNGRP (Multiple Appearance DN Group) contains one tuple for each MADN group or MADN CACH CA that has at least one member. The tuple contains a list of options, attributes, or both, assigned to the MADN group. SERVORD automatically updates table MDNGRP when

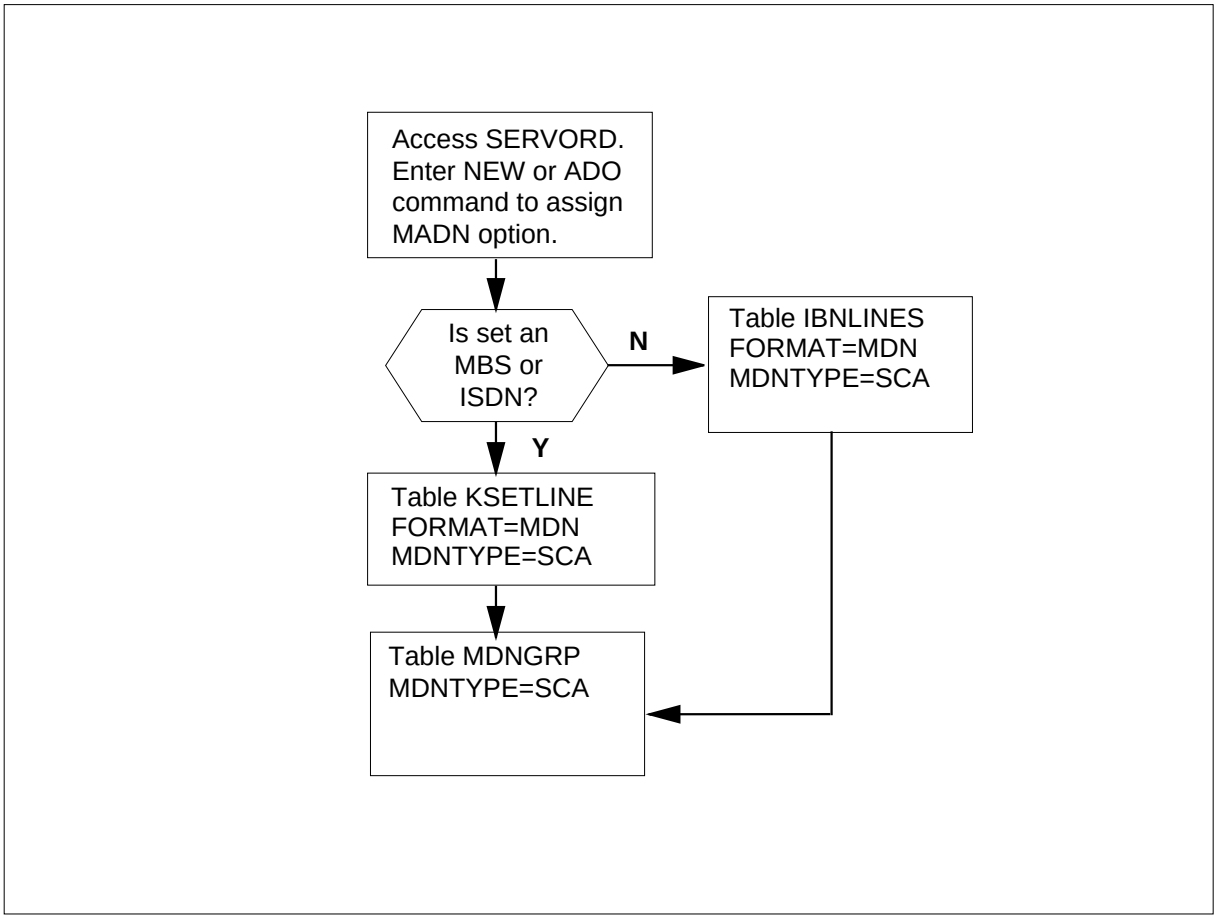
RES Members in a MADN SCA (continued)

you create a new MADN group. To create a new MADN group, make a new DN of type MDN with the NEW or ADO command.

- Table MDNMEM (Multiple Appearance DN Members) contains entries for each member of a MADN group. SERVORD automatically updates table MDNMEM when you create MADN members.

The flowchart that follows provides the RES Members in a MADN SCA translations process.

Table flow for RES Members in a MADN SCA



RES Members in a MADN SCA (continued)

Limitations and restrictions

The limitations and restrictions that follow apply to RES Members in a MADN SCA:

- Residential MADN SCA group members are compatible with the following LCCs only: 1FR, IBN, RES, PSET, and ISDNKSET.
- ISDN MADN members require National ISDN-2 (NI2) customer premises equipment with Protocol Version Control Functional Issue 2.
- ISDN sets require V3.2 Beta or above for the M5317TDX, and V4.0 or above for the M5317TDE.
- The RES line cannot be the primary member of the MADN SCA group.
- You cannot have RES-only MADN SCA groups.

Interactions

The paragraph that follows describes how RES Members in a MADN SCA works with other functionalities.

RES members can work with all functionalities that are compatible with both RES sets and MADN groups.

Activation and deactivation by the user

RES Members in a MADN SCA does not require activation or deactivation by the user.

Billing

RES Members in a MADN SCA does not generate MADN billing records or changes.

Station Message Detail Recording

RES Members in a MADN SCA does not require Station Message Detail Recording.

Office parameters used by RES Members in a MADN SCA

RES Members in a MADN SCA does not generate office parameters.

RES Members in a MADN SCA (continued)

Datafill sequence

The table that follows lists the tables that require datafill to put RES Members in a MADN SCA into operation.

Note: SERVORD automatically updates these tables. Refer to the "SERVORD" section for an example of using SERVORD to update these tables.

Datafill requirements for RES Members in a MADN SCA

Table	Purpose of table
KSETLINE	Key set line contains the DN appearances for business sets and data units. Each DN related key on a business set and data unit has an entry.
IBNLINES	Integrated business network (IBN) lines contains the assignments for each 500 or 2500 set assigned as an IBN or residential enhanced services (RES) line.
MDNGRP	MADN group contains the information about each member connected with each MADN group.
MDNMEM	MADN members contains entries for each member of a MADN group. SERVORD automatically updates table MDNMEM when you create MADN members.

Translation verification tools

The figure that follows shows sample TRAVER output for RES Members in a MADN SCA.

RES Members in a MADN SCA (continued)

TRAVER output example for RES Members in a MADN SCA

```
>traver l 6212508 6212507 b
TABLE IBNLINES
HOST 00 0 01 25 0 DT MDN RES 6212508 301 613_P621_301 L613_NILLA_4 613
SCA 0 Y N $
TABLE LINEATTR
301 1FR NONE NT 0 0 NILSFC 0 NIL NIL 00 613_P621_301 L613_NILLA_4 $
LCABILL OFF–BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
613_P621_301 NSCR 613 P621 NONE Y RESGRP 0 0 $ $
TABLE RATEAREA
L613_NILLA_4 L613 NIL NILLATA $
TABLE DNATTRS
613 621 2508
   (PUBLIC (NAME 2508_POTS) (NONUNIQUE)$)
    (PRIVATE (NAME PRV_2508_POTS)(NONUNIQE)$)$$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESGRP 0 0 0 $ (XLAS RESXLA FEATXLA NDGT)$
TABLE CUSTHEAD:CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
RESGRP NXLA RESXLA FEATXLA 1 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE IBNXLA: XLANAME RESXLA
RESXLA 6 NET N N 0 N RES N N DOD N 301 613_P621_301 L613_NILLA_4 NONE$
TABLE DIGCOL
RES specified: RES digit collection
```

RES Members in a MADN SCA (continued)

TRAVER output example for RES Members in a MADN SCA (continued)

```
TABLE LINEATTR
301 1FR NONE NT 0 0 NILSFC 0 NIL NIL 00 613_P621_301 L613_NILLA_4$
LCABILL OFF – BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
613_P621_301 NSCR 613 P621 NONE Y RESGRP 0 0 $$
TABLE RATEREA
L613_NILLA_4 L613 NIL NILLATA $
TABLE STDPRTCT
P621 (1)(0)3
 .SUBTABLE STDPRT
WARNING:CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
 .6 910 N NP 0 NA
 .SUBTABLE AMAPRT
 .KEY NOT FOUND
 .DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 717 2 (18) (1)(0)(0)2$
 .SUBTABLE HNPACODE
 .621 621 DN 613 621
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 2507 L SLCM 04 0 01 07
```

RES Members in a MADN SCA (continued)

TRAVER output example for RES Members in a MADN SCA (continued)

```
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.
TABLE LCASCRCN
613 L613 (29) OPTL N N
 .SUBTABLE LCASCR
 .621 622
TABLE PFXTREAT
OPTL NP Y NP UNDT
AIN Info Collected TDP: no subscribed trigger
TABLE FNPA7DIG
TUPLE NOT FOUND
AIN Info Analyzed TDP: no subscribed trigger.
AIN Term Attempt TDP: no subscribed trigger.
+++TRAVER:SUCCESSFUL CALL TRACE+++
DIGIT TRANSLATION ROUTES
1 LINE          6136212507    ST
TREATMENT ROUTES. TREATMENT IS:GNCT
1 T120
+++TRAVER:SUCCESSFUL CALL TRACE+++
```

SERVORD

You can now add a MADN SCA group to a RES/1FR line in SERVORD. You can use the ADO, DEO, NEW, and OUT commands with the existing option MDN, and the existing MDNTYPE of SCA with the line class code (LCC) of RES and 1FR. Use the NEW command to create a new call appearance of a RES MDN SCA member. Use the ADO command to add a RES MDN SCA feature to an existing DN. Use the OUT command to remove a RES MDN SCA group by placing its DN on intercept. Use the CHF command to change from a MADN CACH group to a MADN SCA group.

Use the DEO command to remove a RES MDN SCA call appearance from a DN. You can only use the DEO command to delete option MDN from a line if the set is the last one in the MADN group.

RES Members in a MADN SCA (continued)

SERVORD limitations and restrictions

The SERVORD limitations and restrictions that follow apply to RES Members in a MADN SCA:

- Residential MADN SCA group members are compatible with the following LCCs only: 1FR, IBN, RES, PSET, and ISDNKSET.
- A RES member of a MADN SCA group cannot be the primary member.
- You cannot have RES-only MADN SCA groups.
- When you use the ADO command to add MDN SCA to a RES line, SERVORD deletes options that are incompatible with MADN.

SERVORD prompts

The table that follows provides the SERVORD prompts used to create and add RES Members in a MADN SCA on RES lines.

SERVORD prompts for RES Members in a MADN SCA (Sheet 1 of 2)

Prompt	Correct input	Explanation
DN	7 or 10 digits with no spaces or hyphens	Describes the DN that you are adding or changing
LATANAME	alphanumeric	Describes the calling local access and transport area (LATA) name connected with the originator of the call
LCC_ACC	1FR	Describes the line class code for the service that you are establishing
LEN_OR_LTID	1 to 8 alphanumeric digits, a space, and a terminal number (1 to 1022)	Describes the LEN or the logical terminal identifier (LTID) of the DN that you are creating or changing
LTG	0 to 255	Describes the line treatment group
OPTION	MDN	Describes the option related to the service you are creating, changing, or deleting
PRIMARY	N, Y	Describes if the LEN or LTID is the primary member of the MADN group. The RES line cannot be the primary member of a MADN SCA group.

RES Members in a MADN SCA (continued)

SERVORD prompts for RES Members in a MADN SCA (Sheet 2 of 2)

Prompt	Correct input	Explanation
MDNTYPE	SCA	Describes the call arrangement type for the MADN group
RINGING	N, Y	Describes if ringing is on the line

Note: SERVORD automatically enters data in tables IBNLINES, KSETLINE, MDNGRP, and MDNMEM when you add, change, delete, or create a new MADN SCA group.

SERVORD example to create a new CA for RES Members in a MADN SCA

The SERVORD example that follows shows how to create a new CA for RES Members in a MADN SCA with the NEW command in prompt mode.

RES Members in a MADN SCA (continued)

SERVORD example for RES Members in a MADN SCA in prompt mode

```
>NEW
SONUMBER:  NOW 99 4 13 AM
>
DN:
> 7230000
LCC ACC:
> 1FR
LATANAME:
> NILLATA
LTG: 0
>
LEN_OR_LTID:
> 1 0 1 1
OPTION:
> MDN
MDNTYPE:
> SCA
PRIMARY:
> N
RINGING:
> Y
DENIAL_TRMT:
>TONE
BRIDGING:
>N
OPTION:
>DGT
OPTION:
>$
```

The SERVORD example that follows shows how to create a new CA for RES Members in a MADN SCA with the NEW command in no-prompt mode.

SERVORD example for RES Members in a MADN SCA in no-prompt mode

```
>NEW $ 7230000 1FR NILLATA 0 1 0 1 1 MDN SCA N Y TONE N
DGT $
```

SERVORD example to add RES Members in a MADN SCA

The SERVORD example that follows shows how to add RES Members in a MADN SCA to a line with the ADO command in prompt mode.

RES Members in a MADN SCA (end)

SERVORD example for RES Members in a MADN SCA in prompt mode

```
>ADO
SONUMBER:  NOW 99 4 13 AM
>
DN_OR_LEN:
> 1 0 1 1
OPTION:
> MDN
MDNTYPE:
> SCA
PRIMARY:
> N
RINGING:
> Y
DENIAL_TRMT:
> TONE
BRIDGING:
>N
OPTION:
>DGT
OPTION:
>$
```

The SERVORD example that follows shows how to add RES Members in a MADN SCA to a line with the ADO command in no-prompt mode.

SERVORD example for RES Members in a MADN SCA in no-prompt mode

```
>ADO $ 1 0 1 1 MDN SCA  N Y TONE N DGT $
```

3 Datafilling NI0 NI98 Enhancements Ph2

The following chapter describes the NI0 NI98 Enhancements Ph 2, NI000061, functionality.

BRI Rapid Messaging

Ordering codes

Functional group ordering code: NI000061

Functionality ordering code: Not applicable

Release applicability

NA010 and up

BRI Rapid Messaging was introduced in NA010.

Prerequisites

BRI Rapid Messaging has the following prerequisites:

- Rapid Messaging
- Rapid Messaging - XPM 1
- BRI Maintenance for Rapid Messaging

Description

Basic Rate Interface (BRI) Rapid Messaging (RM) provides the mechanisms for the DMS-100 switch to monitor and control the rate of SAPI 0 D-channel messaging for terminals associated with the provisioned logical terminal identifier (LTID) on an integrated services digital network (ISDN) BRI interface. RM control provides a means both to monitor D-channel messaging and to take terminals out-of-service if the rate of messaging exceeds the provisionable thresholds.

The following office parameters and options provide provisioning support for RM:

- Time measurement interval (TMEAS). TMEAS is an office parameter that dictates the time interval in which RM performs calculations to determine if a BRI terminal is in an RM state.
- Default overload messaging limit (DEFOML). DEFOML is an office parameter that dictates the maximum number of D-channel Q.931 messages and call processing controls allowed before RM applies its controls to the BRI terminal.
- Overload messaging limit (OML). OML dictates the maximum number of messages allowed before RM applies its controls. When operating company personnel assign OML to an LTID, OML overrides DEFOML.
- Overload condition treatment (OCT). OCT is a per LTID option that dictates the treatment applied to a terminal in an RM state.

BRI Rapid Messaging (continued)

Implementation of these parameters and options includes BRI basic rate access functional set (BRAFS) circuit-switched (CS) terminals. Implementation does not include Meridian feature transparency (MFT), basic rate access (BRA) stimulus terminals, and PVC Issue 1 terminals.

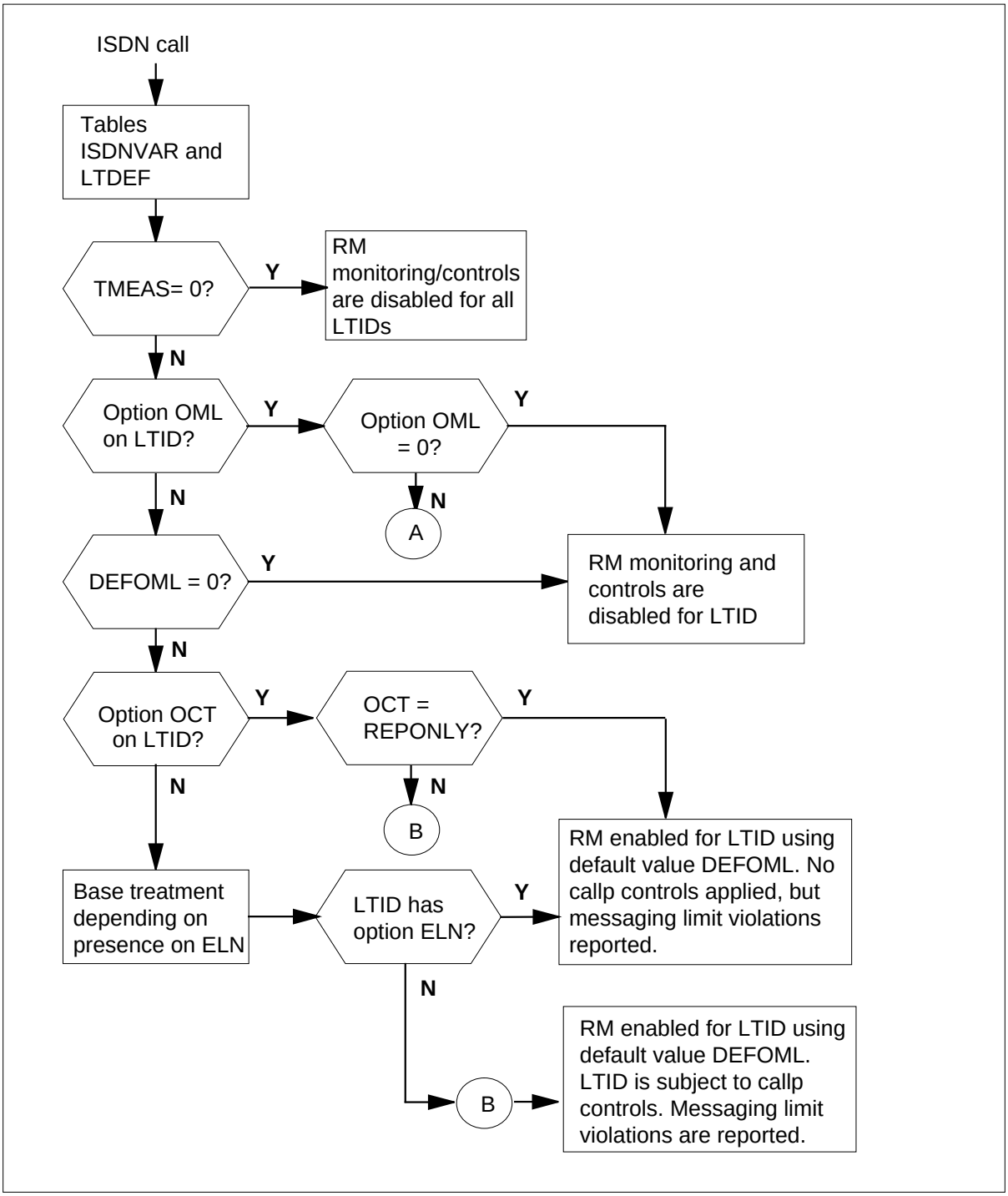
Operation

BRI RM provides support for the office parameters that dictate when and how the DMS-100 switch applies RM controls. The office parameters TMEAS and DEFOML and the options OML and OCT provide this support through table ISDNVAR and table LTDEF, respectively.

Refer to the following flowchart as needed.

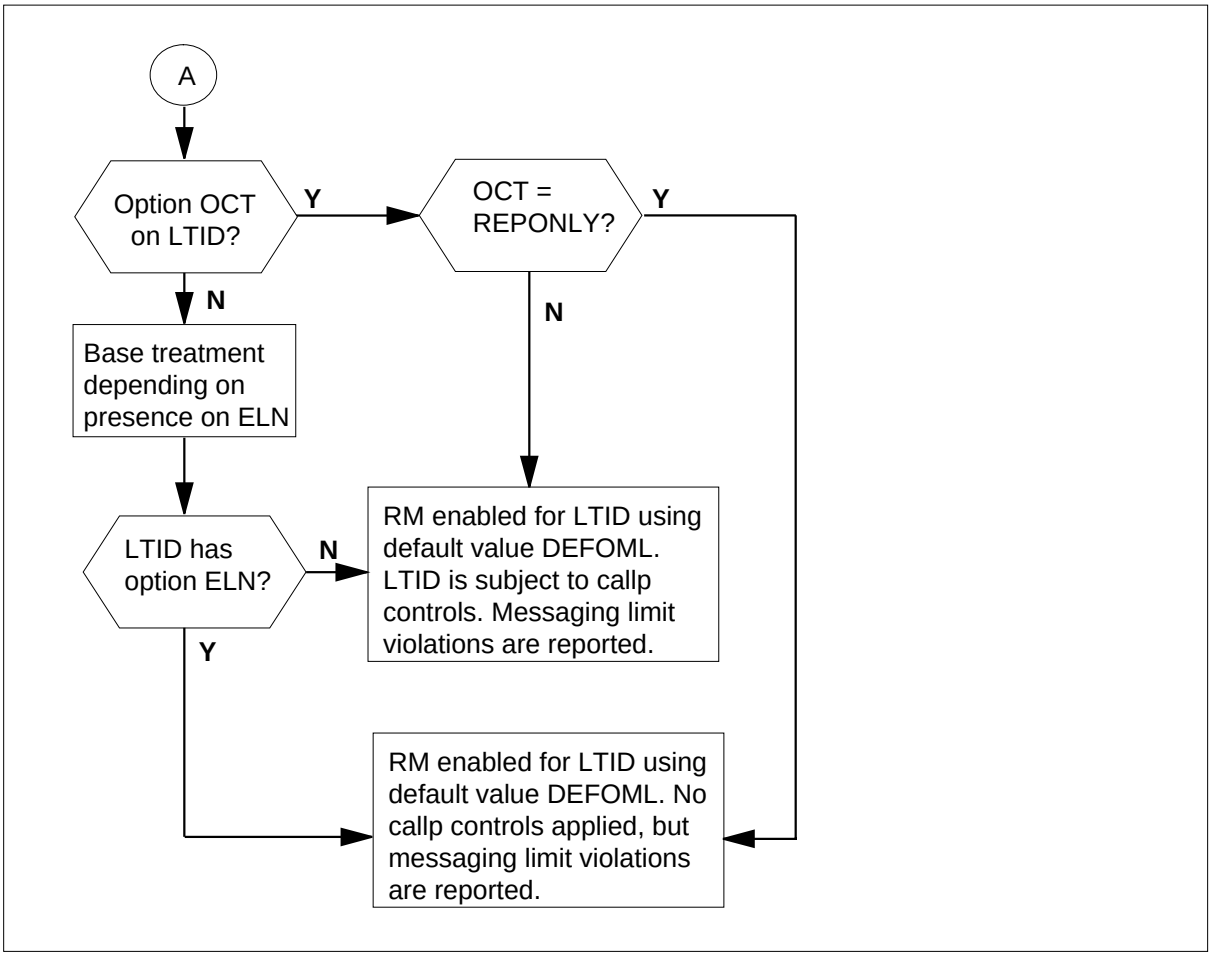
BRI Rapid Messaging (continued)

Table flow for BRI Rapid Messaging



BRI Rapid Messaging (continued)

Table flow for BRI Rapid Messaging (continued)



The office parameter TMEAS in table ISDNVAR allows the DMS-100 switch to monitor D-channel messaging. TMEAS dictates the time intervals in which RM makes calculations to determine if a BRI terminal is in an RM state.

The TMEAS default value is zero (0), which means RM message counting is inactive for all LTIDs. The operating company personnel must enter a value to activate RM controls.

When an office upgrades to NA010, the TMEAS default value is zero (0). To activate RM, set the TMEAS value to another number. Valid numbers range from 0 to 900 s with increments of 30 s. Update the TMEAS value using the CHA command as shown in the following example.

BRI Rapid Messaging (continued)

Table ISDNVAR office parameter TMEAS change (CHA) command

```
>table isdnvar

>pos tmeas
      TMEAS 0
>cha
>y
VARVAL: 0
>120
TUPLE TO BE CHANGED:
      TMEAS 120
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE CHANGED
```

When operating company personnel change the TMEAS value, the following events occur:

- The current measurement interval is cancelled.
- All Q.931 message counts are set to zero (0).
- A new measurement interval begins.
- RM states remain unchanged.

The office parameter DEFOML is in table ISDNVAR. DEFOML dictates the maximum number of messages allowed before RM applies controls and/or log messages to a terminal. The overload messaging limit parameter is DEFOML for terminals that are not assigned the OML option.

The DEFOML default value is zero (0), which means RM message control is initially inactive for all LTIDs. The operating company personnel must enter a non-zero value to initiate the default setting for all eligible terminals in an office.

When an office upgrades to NA010 or a later release, the DEFOML default value is zero (0). To activate DEFOML, set the DEFOML value to another number. Valid numbers range from 0 to 150 messages per minute with increments of 15. Update the DEFOML value using the CHA command as shown in the following example.

BRI Rapid Messaging (continued)

Table ISDNVAR office parameter DEFOML change (CHA) command

```
>table isdnvar

>pos defoml
      DEFOML      0
>cha
>y
VARVAL: 0
>60
TUPLE TO BE CHANGED:
      DEFOML      60
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE CHANGED
```

When operating company personnel change the DEFOML value, the following events occur:

- Q.931 message counts for LTIDs using DEFOML when the OML option is not specified in the LTDEF tuple are set to zero (0).
- RM states remain unchanged.

Option OML is an LTID option used to override the DEFOML setting. Option OML is valid for BRAFS CS LTIDs. Values that range from 0 to 150 messages per minute in increments of 15 are the datafill for OML. If operating company personnel leave the OML set to zero (0), RM is off for the LTID.

Operating company personnel can use the ADD command to assign option OML as shown in the following example.

BRI Rapid Messaging (continued)

Table LTDEF option OML add (ADD) command

```
>table ltdef
>add
>y
LTKEY:
>ni2 466
LTAP:
>2b
LTCLASS:
>brafs
OPTION:
>dtei
OPTION
>tspid 1234567898
TSPID:
>123456789
OPTION:
>pvc
VERSION:
>functional
ISSUE:
>2
OPTION:
>nitype
NITYPE:
>ni2
OPTION:
>oml
LIMIT:
>30
OPTION:
>$
TUPLE TO BE ADDED:
NI2 466 2B
BRAFS (DTEI ) (TSPID 123456789) (PCV FUNCTIONAL
2) (NITYPE NI2) (OML 30) $

ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
>Y
TUPLE ADDED
```

The operating company personnel can use the CHA (change) command, which is used to update an existing tuple, to add or modify option OML. To modify option OML, refer to the following example.

BRI Rapid Messaging (continued)

Table LTDEF option OML change (CHA) command

```
>table ltdef
>pos ni2 5
NI2 5 2B
BRAFS (NITYPE NI2) (PVC FUNCTIONAL 2) (DTEI )
(TSPID 6137234205) (OML 30) $
>cha
>y
LTAP: 2B
>
LTCLASS: BRAFS
>
OPTION: NITYPE
>
NITYPE: NI2
>
OPTION: PVC
>
VERSION: FUNCTIONAL
>
ISSUE: 2
>
OPTION: DTEI
>
OPTION: TSPID
>
TSPID: 6137234205
>
OPTION: OML
>
LIMIT: 30
>135
OPTION:
>$
TUPLE TO BE CHANGED
NI2 5 2B BRAFS (NITYPE NI2) (PVC FUNCTIONAL 2)
(DTEI ) (TSPID 6137234205) (OML 135) $

ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
>Y
TUPLE CHANGED
```

When operating company personnel change any LTDEF tuple, whether it is RM related or not, the following events occur:

- Q.931 message counts for the LTID are set to zero (0).
- RM states remains unchanged.

BRI Rapid Messaging (continued)

Option OCT is an LTID option the operating company personnel uses to override the default treatment assigned to an LTID. The following two treatments are valid for the OCT option:

- The REPONLY setting causes a terminal in a RM state to generate a log report describing the condition.
- The REPCTRL setting causes RM to take a terminal in an RM state out-of-service and generate log reports describing the condition.

When operating company personnel change a temporary or permanent out-of-service LTID to OCT REPONLY, the following events occur:

- The RM temporary out-of-service terminals return to RM in-service after they remain out-of-service for one full measurement interval.
- RM permanent out-of-service terminals remain RM permanent out-of-service.

Option OCT has assignment restrictions for the REPCTRL value. The REPCTRL value and the ELN (essential line) option are mutually exclusive on an LTID. If operating company personnel attempt to assign both options, then the system generates an error message and the ADD or CHA command is rejected.

If the OCT option is not provisioned on an LTID, a default treatment applies to the terminal. For terminals assigned option ELN, the REPONLY treatment applies. For terminals that are not assigned option ELN, the REPCTRL treatment applies. If a default value is used, the OCT option does not display in the tuple and does not appear in the QLT output.

Operating company personnel can use the ADD command in table LTDEF to assign option OCT as shown in the following example.

BRI Rapid Messaging (continued)

Table LTDEF option OCT ADD command

```
>table ltdef
>add
>y
LTKEY:
>ni2 466
LTAP:
>2b
LTCLASS:
>brafs
OPTION:
>dtei
Option
>tspid 1234567898
TSPID:
>123456789
OPTION:
>pvc
VERSION:
>functional
ISSUE:
>2
OPTION:
>nitype
NITYPE:
>ni2
OPTION:
>oct
TREATMENT:
>reponly
OPTION:
>$
TUPLE TO BE ADDED:
NI2 466 2B
BRAFS (DTEI ) (TSPID 123456789) (PCV FUNCTIONAL
2) (NITYPE NI2) (OCT REPONLY) $

ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
>Y
TUPLE ADDED
```

Operating company personnel can use the ADD or CHA command to add or modify option OCT. The following example shows how to add option OCT using the CHA command.

BRI Rapid Messaging (continued)

Table LTDEF option OCT CHA command

```
>table ltdef
>pos ni2 5
NI2 5 2B BRAFS (NITYPE NI2) (PVC FUNCTIONAL 2)
(DTEI ) (TSPID 6137234205) $
>cha
>y
LTAP: 2B
>
LTCLASS: BRAFS
>
OPTION: NITYPE
>
NITYPE: NI2
>
OPTION: PVC
>
VERSION: FUNCTIONAL
>
ISSUE: 2
>
OPTION: DTEI
>
OPTION: TSPID
>
TSPID: 6137234205
>
OPTION:
>oct
TREATMENT:
>reponly
OPTION:
>$
TUPLE TO BE CHANGED
NI2 5 2B
BRAFS (NITYPE NI2) (PVC FUNCTIONAL 2) (DTEI )
(TSPID 6137234205) (OCT REPONLY) $

ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
>Y
TUPLE CHANGED
```

When an office upgrades to NA010, the RM feature provides the ability to query to determine if options OML and OCT are assigned to an LTID. Refer to the QLT (Query) command as shown in the following example.

BRI Rapid Messaging (continued)

QLT command

```
>qlt ni2 1
- — — — — — — — — — — — — — — — — — — — — — — -
LTIF: NI2   1
SNPA: 613
DIRECTORY NUMBER: 7234201
LT GROUP NO:      15
LTCLASS: BRAFS    DEFAULT LOGICAL TEMINAL: N
EKTS: N     CACH: N
SLBRI:N
CS: NI2 PS: N
ELN: N
VERSION: FUNCTIONAL ISSUE: 2
TSPID:      6137234201
OML: 120
OCT: REPCTRL
LEN: HOST 02 0 07 03 TEI: DYNAMIC
CUSTGRP: BNR SUBGRP: 0 NCOS: 0 RING: Y
LINE CLASS CODE: ISDNKSET
MAXKEYS: 64
OPTIONS:
SFC VI $ $ N CMD BOTH $ $ N KSMOH
AR NOAMA $ DCC CRBL 3 3 ACB NOAMA $ TRANSFER
EXP CTALL DROP FC 3

KEY   DN          CALLTYPE
- — — — — -      - — — — — — — -
1     DN          7234201 VI & CMD

KEY   FEATURE
- — — — — — — — -
1     AR NOAMA $
1     DCC
1     ACOU  2     2
1     CRBL  3     3
1     DBC   DBC_SP
2     AFC   DBC_SP
3     AFC   DBC_SP
4     AFC   DBC_SO
5     AFC   DBC_SP
6     AFC   DBC_SP
9     FC    3
10    DROP
11    TRANSFER EXP CTALL
12    ACB NOAMA $
24    RLS
```

BRI Rapid Messaging (continued)

BRI terminal monitoring

RM monitors D-channel traffic from a BRI terminal within the XMS-based peripheral module (XPM) for each LTID. A register maintains a running count of the D-channel messages from each terminal during each time measurement interval (TMEAS). The XPM compares this count to the messaging limit allowed for a terminal. When the incoming message count exceeds the limit, RM places the terminal in one of the three following states:

- near overload
- temporary out-of-service
- permanent out-of-service

Each non-initializing terminal associated with a default LTID shares the same messaging limit and contributes to the same message count. Also, a single RM state governs each terminal.

Near overload

A terminal is in a near-overload state when the D-channel traffic reaches its messaging limit within a TMEAS. On reaching the limit, the switch sends a NOTIFY message to the terminal stating that an out-of-service state is imminent. No messaging restrictions are placed on a terminal in a near-overload state.

Temporary out-of-service

RM places a terminal in a temporary out-of-service state when either of the following conditions apply:

- a terminal exceeds the messaging limit twice in a single TMEAS
- a terminal exceeds the messaging limit for two consecutive TMEAS

If either of these conditions occur, the switch sends a NOTIFY message to the terminal stating that the terminal is out-of-service. The terminal remains out-of-service for the duration of the TMEAS and for the duration of the following TMEAS. While the terminal is in a temporary out-of-service state, RM restricts messaging to and from the terminal (see “Out-of-service messaging restrictions").

At the end of the temporary out-of-service interval, RM returns the terminal to an in-service state. Next, the switch sends a NOTIFY message to the terminal stating that the terminal is back in-service.

Permanent out-of-service

RM places a terminal that continuously exceeds its messaging limits in a permanent out-of-service state. This state occurs when a terminal reaches a

temporary out-of-service state 10 times within a fixed 30 minute interval. The switch sends a NOTIFY message to the terminal stating that the terminal is out-of-service. While the terminal is in a permanent out-of-service state, RM restricts messaging to and from the terminal (see “Out-of-service messaging restrictions"). The terminal does not return to an in-service state until a request is made from the MAP command interpreter (MAPCI) interface.

Out-of-service messaging restrictions

Terminals placed in an out-of-service state (temporary or permanent) are restricted from sending or receiving Q.931 messages except for messages related to normal call clearing. The DMS-100 switch ignores any messages not associated with normal call clearing.

The DMS-100 switch processes messages associated with normal call clearing from both the user-to-network and network-to-user directions. These messages include the following:

- DISCONNECT
- RELEASE
- RELEASE COMPLETE

Active calls Calls in a Q.931 state 10 (S10) are active calls and remain unaffected when RM places a terminal in a temporary or permanent out-of-service state. RM restrictions apply to the call prohibiting any additional feature processing.

Call setup If the switch acknowledges the SETUP message before placing the terminal in an out-of-service state, calls are allowed to proceed and connect. RM restrictions are then applied to the call.

Call terminations If during a call offering RM places a terminal in an out-of-service state, the call continues and the terminal can connect to the call. RM then applies restrictions to the call.

Messaging controls

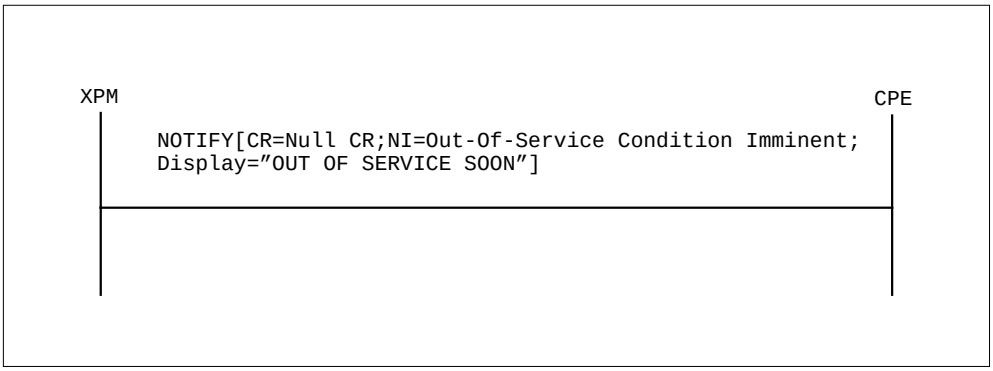
The DMS-100 switch sends three possible Q.931 NOTIFY messages to the terminal to indicate the RM state. These messages contain the following information:

- display text
- ASN.1 encoded notification indicator

BRI Rapid Messaging (continued)

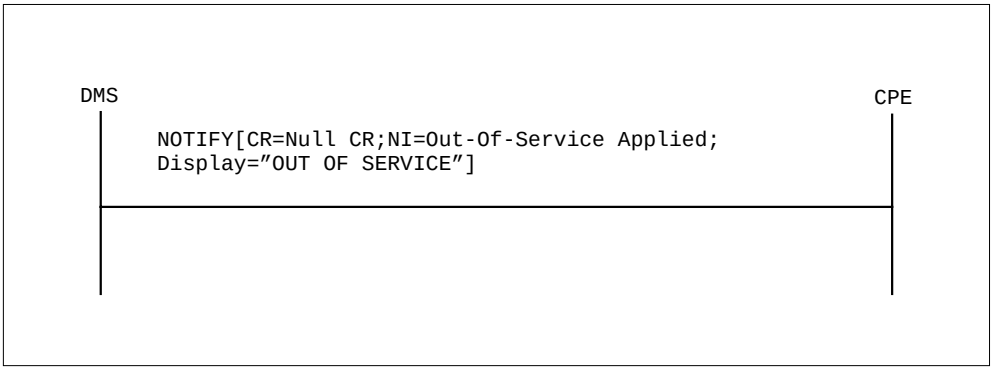
Out-of-service soon This notification contains the ASN.1 encoded component stating that the out-of-service condition is imminent and displays “OUT OF SERVICE SOON" as shown in the following figure.

Out-of-service condition imminent notification



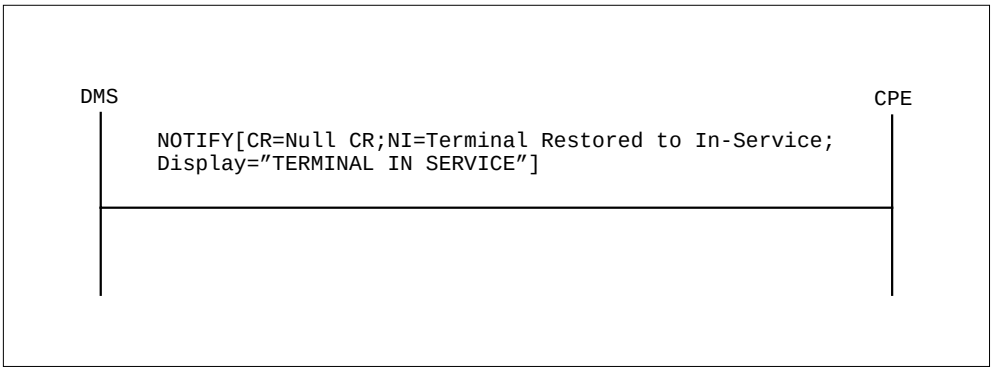
Out-of-service This notification is the same for both temporary and permanent out-of-service states. The notification contains an ASN.1 encoded component stating the application of the out-of-service state and displays “OUT OF SERVICE" as shown in the following figure.

Out-of-service applied notification



In-service When a terminal returns to an in-service state from either a temporary or permanent out-of-service state, RM notifies the terminal of this change. This notification contains an ASN.1 encoded component stating that in-service state is restored and displays “TERMINAL IN SERVICE" as shown in the following figure.

Restored to in-service notification



Translations table flow

Rapid Messaging does not affect translations.

Limitations and restrictions

The following limitations and restrictions apply to BRI Rapid Messaging:

- RM is implemented for BRI BRAFS CS LTIDs only.
- RM does not apply to MFT and BRA stimulus terminals.
- RM does not apply to PVC Issue 1 terminals.
- DMS-100 switch does not consider RM out-of-service conditions when determining if a call appearance is available for a terminating Multiple Appearance Directory Number/Electronic Key Telephone Service (MADN/EKTS).
- RM does not update terminal call appearance lamp when an LTID returns to RM in-service from RM out-of-service.

Interactions

The following paragraphs describe the interactions between BRI Rapid Messaging and BRI Terminating Call Processing for the following areas:

- BRI Terminating Basic Call
- Additional Call Offering Unrestricted (ACOU)
- Multiline Hunt (MLH)
- Multiple Appearance Directory Number/Electronic Key Telephone Service (MADN/EKTS)
- Automatic Call Back (ACB)

BRI Rapid Messaging (continued)

BRI Terminating Basic Call

When RM places a BRI LTID out-of-service, RM prevents BRI basic calls from terminating to any terminal associated with the BRI LTID. RM inhibits ACOU for any such termination attempts. However, the system initiates any applicable terminating busy service, such as Call Forwarding Busy. If there is no applicable terminating busy service, busy treatment returns to the call originator.

Additional Call Offering Unrestricted

When RM places a BRI LTID out-of-service, RM inhibits ACOU for calls to any BRI terminal associated with the LTID.

Multiline Hunt

When RM places a BRI LTID out-of-service, RM makes the terminals associated with the LTID unavailable for selection in any MLH searching algorithm.

Multiple Appearance Directory Number/Electronic Key Telephone Service

When the DMS-100 switch offers a terminating BRI call to a MADN/EKTS call appearance whose LTID is RM out-of-service, the system does not send a SETUP message to the BRI terminal. In addition, the switch makes the terminal a non-associated member of the terminating call as if the terminal had returned a RELEASE COMPLETE message back to the DMS-100 switch in response to a SETUP message.

A special case exists in which all members of a MADN/EKTS call appearance are terminals associated with LTIDs that are RM out-of-service. In this case, the following events occur:

- The DMS-100 switch does not offer the terminating call to the call appearance.
- The system does not send a SETUP message to any of the BRI terminals.
- The system does not initiate any applicable terminating busy service and does not choose an alternate call appearance even if the call appearance call handling (CACH) applies.
- The treatment given to the originating call is the same as if all the BRI terminals respond to the SETUP message with a RELEASE COMPLETE message. The system clears the call.

Automatic Callback

If the terminating party for a call is RM out-of-service, RM inhibits activation of any automatic call back queuing that can occur for the call.

BRI Rapid Messaging (continued)

Activation/deactivation by the end user

BRI Rapid Messaging requires no activation or deactivation by the end user.

Billing

BRI Rapid Messaging does not affect billing.

Station Message Detail Recording

BRI Rapid Messaging does not affect Station Message Detail Recording.

Datafilling office parameters

The following table shows the office parameters used by BRI Rapid Messaging. For more information about office parameters, refer to *Office Parameters Reference Manual.*

Office parameters used by BRI Rapid Messaging

Table name	Parameter name	Explanation and action
ISDNVAR	TMEAS	Dictates the measurement interval RM uses to monitor and control D-channel messaging.
ISDNVAR	DEFOML	Dictates the default value for how many messages per minute RM requires to consider a terminal in an RM state.

Datafill sequence

The following table lists the tables that require datafill to implement BRI Rapid Messaging. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for BRI Rapid Messaging

Table	Purpose of table
ISDNVAR	Integrated Services Digital Network Variable table contains a listing of the ISDN office parameters and their associated variables.
LTDEF	Logical Terminal Definition table contains a listing of logical terminals, their associated line equipment numbers (LEN), and the terminal equipment interfaces (TEI).

Datafilling table ISDNVAR

The following table shows the datafill specific to BRI Rapid Messaging for table ISDNVAR. Only those fields that apply directly to BRI Rapid Messaging

BRI Rapid Messaging (continued)

are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table ISDNVAR

Field	Subfield or refinement	Entry	Explanation and action
VARNAME		TMEAS,DEFOML	Enter the office parameter TMEAS or DEFOML.
VARVAL		0-900 s, 0-150 s	Enter the office parameter value for the selected office parameter. Enter 0-900 in increments of 30 for TMEAS. Enter 0-150 in increments of 15 for DEFOML.

Datafill example for table ISDNVAR

The following example shows sample datafill for table ISDNVAR.

MAP display example for table ISDNVAR

```
VARNAME                                          VARVAL

-------------------------------------------------------
TMEAS                                              60
DEFOML                                             60
```

Datafilling table LTDEF

The following table shows the datafill specific to BRI Rapid Messaging for table LTDEF. Only those fields that apply directly to BRI Rapid Messaging are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDEF

Field	Subfield or refinement	Entry	Explanation and action
		OML	Overload messaging limit. If OML is provisioned on an LTID, OML overrides the office parameter DEFOML.
		OCT	Overload condition treatment. If OCT is provisioned on an LTID, OCT overrides the defaults setting.

BRI Rapid Messaging (end)

Datafill example for table LTDEF

The following example shows sample datafill for table LTDEF.

MAP display example for table LTDEF

```
LTKEY       LTAP                                          CLASSREF

-------------------------------------------------------------------

ISDN 100    2B  BRAFS(NITYPE NI2)(PVC FUNCTIONAL 2)(DTEI)
                (TSPID 6137234207)(OML 60)(OCT REPONLY)
```

Translation verification tools

BRI Rapid Messaging does not use translation verification tools.

SERVORD

BRI Rapid Messaging does not use SERVORD.

You must datafill OCT and OML through table control and not through SERVORD.

DMS-PH X.121 Full Address Translations

Ordering codes

Functional group ordering code: NI000061

Functionality ordering code: not applicable

Release applicability

NA010 and up

DMS-PH X.121 Full Address Translations was introduced in NA010.

Prerequisites

DMS-PH X.121 Full Address Translations has no prerequisites.

Description

DMS-PH X.121 Full Address Translations provides full digit analysis and translations for ISDN X.25 packet calls with X.121 address formats. This feature applies to routing X.121 call originations in the packet handler (PH) of the DMS-100 switch. For information about routing ISDN calls based on other routing characteristics, see “ISDN BRI Routing" in the translations section of this document.

Operation

Before this feature, X.121 calls routed out of the switch to the packet public-switched network (PPSN). The PPSN gateway then performed full digit translations and routing for the call. This feature allows the DMS-PH to continue digit analysis and translations of X.121 calls. The DMS-PH conducts full address translations of X.121 calls by

- analyzing the call request packet
- routing the call
- defining the LATA attribute

Analyzing the call request packet

For packet service, the call request packet defines the routing characteristics for a call. The call request packet generated by a basic rate interface (BRI) terminal contains the

- calling party address
- called party address
- optional RPOA code (see “Defining the LATA attribute" in this feature description)

DMS-PH X.121 Full Address Translations (continued)

The DMS-PH identifies packet calls by the call address. Packet call addresses have two formats, E.164 and X.121. E.164 is the addressing system used for ISDN packet-switched networks in North America. (For information about the E.164 addressing system, see “ISDN BRI Routing" in the translations section of this document.) X.121 is the addressing system of the PPSN.

Note: Because there are two addressing systems for packet calls, a subscriber can access the X.121 network by dialing a prefix digit. The prefix digit for X.121 calls is 0.

The format for the X.121 addressing system is DNIC-NTN. The following table explains the components of the X.121 addressing system.

X.121 addressing system

Component		Explanation
DNIC		Data network identification code is a 4-digit network identifier. The first three digits represent a country code. The last digit represents a network number. ***Note:*** A country can have more than one country code if the number of networks in the country exceeds nine.
NTN		National terminal number is a 10-digit code with the format DNPA-DCO-XXXX.
	DNPA	Data numbering plan area is 3-digit code equivalent to the area code in the E.164 address system.
	DCO	A 3-digit code that identifies the data network central office.
	XXXX	A 4-digit code that identifies a line or terminal within the central office.
Note: The maximum number of digits permitted in an X.121 address is 14 (plus the prefix digit 0).		

Routing the call

Datafill in translations tables determines the routes of calls. To continue routing X.121 calls within the DMS-PH, tables IBNXLA and STDPRTCT.STDPRT require the correct datafill.

Table IBNXLA

Table IBNXLA (IBN Translation) stores data for digit translations of calls. Table IBNXLA determines a call is X.121 by the prefix digit 0 and then routes

DMS-PH X.121 Full Address Translations (continued)

the call out of the DMS-PH or continues translations. Table IBNXLA has the switch format (SFMT) selector that indicates a change in address format for a call. This format change provides X.121 support for translations within the DMS-PH. Selector SFMT provides information about whether to continue translations for the call or route the call out of the DMS-PH. Subfield XLA_OR_ROUTE of selector SFMT controls whether to translate or route the call. The two options for subfield XLA_OR_ROUTE are X to translate or R to route.

Before this feature, the standard datafill for X.121 calls in subfield XLA_OR_ROUTE was the R option only. The R option routes X.121 calls out of the DMS-PH and to a PPSN gateway to continue translations. This feature continues to support the R option for X.121 calls.

This feature provides X.121 support for the X option as datafill for subfield XLA_OR_ROUTE. To continue X.121 call routing in the DMS-PH, enter selector SFMT and the X option in table IBNXLA. The use of selector SFMT with the X option allows a line attribute index to datafill in table IBNXLA. The line attribute index allows the call to route to table LINEATTR. Table LINEATTR provides a pretranslator name for the call to index table STDPRTCT.

When setting up X.121 call routing, use an unused line attribute index in table LINEATTR. If this is not done, X.121 call routing will clash with existing translations in table STDPRTCT. This is because table STDPRTCT is referenced through table LINEATTR from table XLAPLAN. Therefore, in addition to a new line attribute index in table LINEATTR, corresponding tuples must be added in tables XLAPLAN and STDPRTCT in order to define new X.121 translations.

For example, if the X selector is used with SFMT in table IBNXLA to reference an existing line attribute such as E.164, the E.164 translations datafilled in table STDPRTCT will be applied to an X.121 call. As a result the X.121 call will not route correctly or the translation itself can fail.

The X selector used with SFMT introduces the independent capability of the DMS to partially translate and route X.121 calls. Therefore, it is incorrect to use a line attribute in table LINEATTR that is not assigned for X.121 call routing. It is advisable to add datafill in tables LINEATTR, XLAPLAN, and STDPRTCT that define X.121 line attributes and translations.

Note: For an explanation of fields and subfields for table IBNLXA, refer to “Datafilling table IBNXLA" in this feature description.

DMS-PH X.121 Full Address Translations (continued)

Table STDPRTCT.STDPRT

Like table IBNXLA, the standard pretranslator tables require the correct datafill to continue X.121 translations. Table STDPRTCT (Standard Pretranslator Control) is the main translations table used by X.121 packet calls. Table STDPRTCT analyzes the digits of calls to determine a route. Subtable STDPRT (Standard Pretranslator) conducts the actual pretranslation by screening for prefix or control digits of calls.

Table STDPRTCT.STDPRT has a pretranslator route selector that defines the next stage of translations. For X.121 calls, the pretranslator route selector can have one of two values, T or F. Selector T routes translations to an office route table. Selector F indexes another pretranslator table to analyze more digits before routing the call. The value a technician enters depends on whether additional digit analysis is necessary to route calls correctly. A technician sets up digit analysis in the pretranslations tables in one stage or multiple stages.

One stage translations If analysis of the DNIC only can route calls correctly, a technician enters selector T for the pretranslator route selector. In example 1, calls with the DNIC 1234 route to table OFRT 50. Because the pretranslator route selector is T, translations occurs in one stage as the call accesses table STDPRTCT.STDPRT once.

Example 1 - Datafill example for one stage translations in table STDPRTCT.STDPRT

```
FROMDIGS     TODIGS                        PRETRTE
_____________________________________________________
1234         1234            T DD 0 OFRT 50 2 14 NONE
```

One stage translations is workable for up to 14 digits. If analysis of the DNIC only does not route calls correctly, a technician can enter additional digits after the DNIC. In example 2, calls route to table OFRT 53. In this example, table STDPRTCT.STDPRT analyzes two segments of the dialed number, the DNIC and DNPA. Because the call accesses the pretranslator table once, the analysis of the two segments occurs in one stage. An option to this type of one stage translations is multiple stage translations explained in the next section.

Example 2 - Datafill example for one stage translations in table STDPRTCT.STDPRT

```
FROMDIGS     TODIGS                        PRETRTE
_____________________________________________________
4444723      4444723           T DD 0 OFRT 53 2 14 NONE
```

DMS-PH X.121 Full Address Translations (continued)

Multiple stage translations If DNIC analysis only does not route calls correctly, a technician can use multiple stages to analyze the digits after the DNIC. Multiple stage translations means that a call indexes the pretranslator tables more than once before routing the call. A technician enters selector F to analyze the dialed segments of a call in multiple stages. Selector F has recursive functionality to support analysis of the dialed segments (DNIC, DNPA, DCO, and XXXX) of X.121 calls. Multiple stage translations is useful if analysis of a dialed segment provides more than one route.

Examples 3, 4, and 5 show the recursive analysis of the DNIC, DNPA, and DCO in multiple stages. Example 3 shows the analysis of calls with the DNIC 7777. To continue digit analysis in another stage, the technician enters selector F and the pretranslator DNICDNPA as datafill. Calls with the DNIC 7777 then index to another pretranslator table, shown in example 4.

Example 3 - Datafill example for multiple stage translations in table STDPRTCT.STDPRT

```
FROMDIGS     TODIGS                    PRETRTE
_____________________________________________
7777         7777              F 4 NONE DNICDNPA
```

Example 4 shows the analysis of calls where DNIC-DNPA is 7777-454. To continue digit analysis in another stage, the technician enters selector F and the pretranslator DNICDNPADCO as datafill. Calls where DNIC-DNPA is 7777-454 then index to another pretranslator table, shown in example 5.

Example 4 - Datafill example for multiple stage translations in table STDPRTCT.STDPRT

```
FROMDIGS     TODIGS                    PRETRTE
_____________________________________________
7777454      7777454           F 4 NONE DNICDNPADCO
```

Example 5 shows the analysis of calls where DNIC-DNPA-DCO is 7777-454-677. The technician enters selector T to route calls with these digit segments to table OFRT 50.

Example 5 - Datafill example for multiple stage translations in table STDPRTCT.STDPRT

```
FROMDIGS     TODIGS                    PRETRTE
_____________________________________________
7777454677   7777454677      T DD 0 OFRT 50 2 14 NONE
```

DMS-PH X.121 Full Address Translations (continued)

Note: For an explanation of fields and subfields for table STDPRTCT.STDPRT, refer to “Datafilling table STDPRTCT.STDPRT" in this feature description.

Defining the LATA attribute

Table LATAXLA (Local Access and Transport Area Translation) defines the attributes of calls as intra-LATA or inter-LATA, and intrastate or interstate. X.121 calls are either intra-LATA or inter-LATA. Calls that originate and terminate in the same local access and transport area (LATA) are intra-LATA calls. Calls that originate from one LATA and terminate in another are inter-LATA calls. If table LATAXLA determines that a X.121 call is inter-LATA, the assignment of a registered private operating agency (RPOA) is necessary. An RPOA code is the 4-digit DNIC of an interexchange carrier. To select an interexchange carrier, subscribers can dial the RPOA code before the number. In the following example, 1235 is the RPOA code for the dialed number 051686137238404:

1235 051686137238404

If the subscriber does not dial the RPOA, table DNCTINFO provides the RPOA code. Table DNCTINFO (Directory Number Call Type Information) stores the preselected service data for the subscriber. The Service Order System (SERVORD) provides datafill content in table DNCTINFO.

As translations continue, the RPOA code becomes part of the RPOA selection utility of the call request packet. Table STDPRTCT.STDPRT selector T maps the RPOA to an office routing table.

Translations table flow

The DMS-PH X.121 Full Address Translations tables are described in the following list:

- Table IBNXLA translates the call or routes the call out of the DMS-PH. Selector SFMT switches the address format to X.121. Option X with selector SFMT continues digit analysis by routing the call to table LINEATTR (Line Attribute). Option R with selector SFMT routes the call out of the DMS-PH to a routing table.
- Selector T in table STDPRTCT.STDPRT translates the call in one stage. Translations then continue to a routing table. Selector F routes the call again to the pretranslation table to analyze more digits.
- Table OFRT defines the common-language location identifier (CLLI) of a trunk. The call routes to the CLLI.

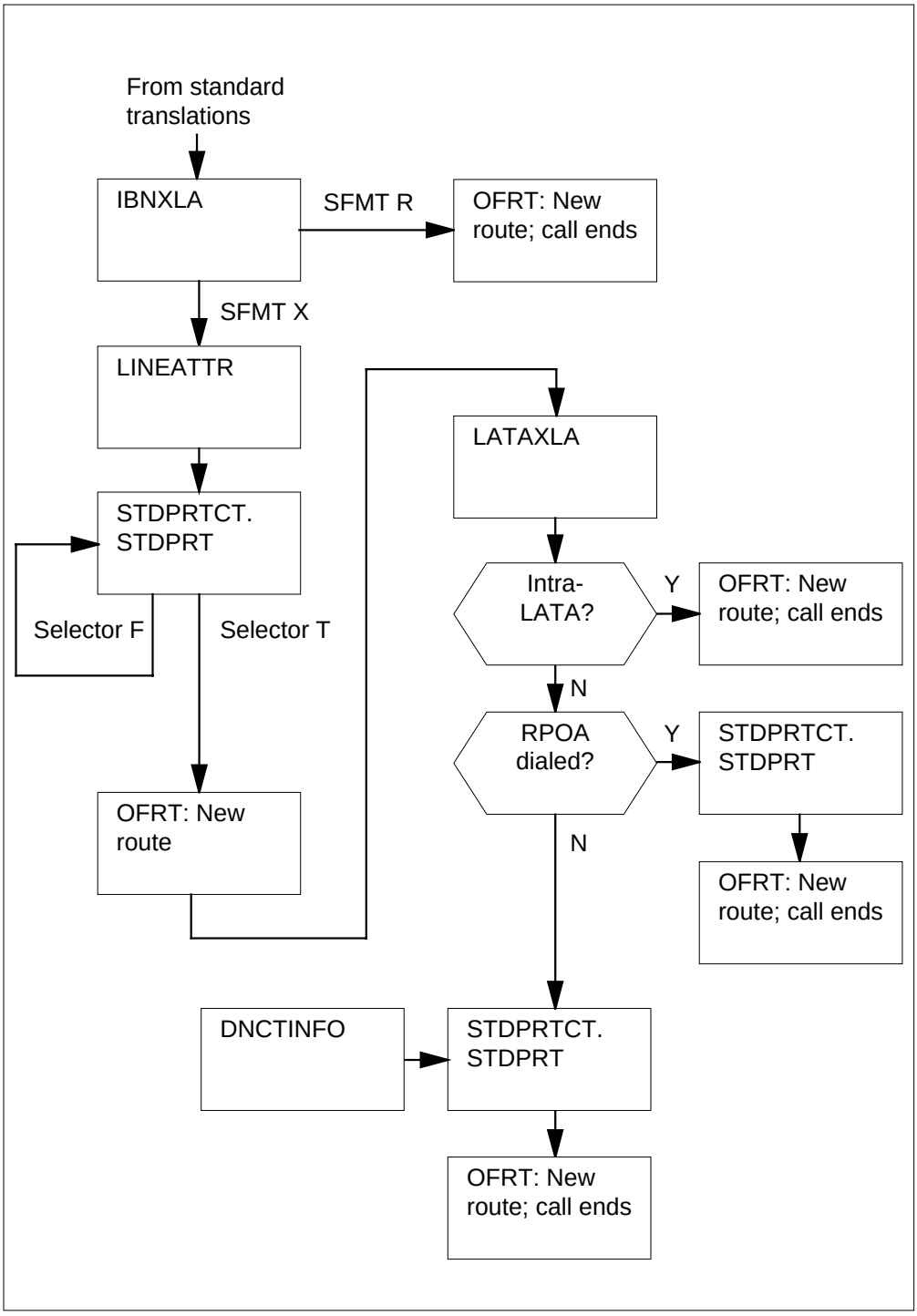
DMS-PH X.121 Full Address Translations (continued)

- Table LATAXLA determines the LATA attribute of the call.
  - — If the call is intra-LATA, RPOA indexing is not necessary. The call uses the previous route from table OFRT, and the call completes.
  - — If the call is inter-LATA, RPOA indexing is necessary, and the call routes to table STDPRTCT.
- Tables STDPRTCT and STDPRTCT.STDPRT map the RPOA to a routing table. If the subscriber does not dial the RPOA code, table DNCTINFO provides the RPOA code.
- Table OFRT provides a new route based on RPOA translations, and the call completes.

The DMS-PH X.121 Full Address Translations translation process is shown in the flowchart that follows.

DMS-PH X.121 Full Address Translations (continued)

Table flow for DMS-PH X.121 Full Address Translations



DMS-PH X.121 Full Address Translations (continued)

The following table lists the datafill content used in the flowchart. In this example, note that

- Translations continue in table IBNXLA with the SFMT selector and X option.
- The DNIC (5168) in table STDPRTCT.STDPRT is enough to route the call. Selector T routes the call in one stage.
- The call is inter-LATA as determined in table LATAXLA.
- Table DNCTINFO provides the preselected RPOA (1235). (SERVORD provides datafill content in table DNCTINFO.)

Datafill example for DMS-PH X.121 Full Address Translations

Datafill table	Example data
IBNXLA	PKT 0 SFMT 1 15 1 X 81
LINEATTR	81 IBN NONE NT NSCR 1 613 X121 NLCA NONE 0 NIL NILSFC LATA1 0 NIL NIL 12 N $
STDPRTCT	X121 (1) (0) 2
STDPRT	5168 5168 T DD 0 OFRT 50 2 14 NONE
OFRT	50 N D PKTOUTX121A 3 N N
LATAXLA	LATA1 05168 INTER INTER STD
STDPRTCT	RPOA (1) (65021) 0
STDPRT	1235 1235 T DD 0 OFRT 50 2 14 NONE
OFRT	50 N D PKTOUTX121B 3 N N

Limitations and restrictions

DMS-PH X.121 Full Address Translations does not support full digit analysis and translations for X.75 tandem calls.

Interactions

DMS-PH X.121 Full Address Translations has no functionality interactions.

Billing

DMS-PH X.121 Full Address Translations does not affect billing.

Datafilling office parameters

DMS-PH X.121 Full Address Translations does not affect office parameters.

DMS-PH X.121 Full Address Translations (continued)

Datafill sequence

The following table lists the tables that require datafill to implement DMS-PH X.121 Full Address Translations. The tables are listed in the order in which they are to be datafilled.

Note: For a description of all datafill tables required for BRI routing of X.121 calls and calls based on other routing characteristics, refer to “ISDN BRI Routing" in the translations section of this document.

Datafill tables required for DMS-PH X.121 Full Address Translations

Table	Purpose of table
IBNXLA	Integrated Business Network Translation provides a translator for the call. This table contains selector SFMT, which switches the call to the X.121 address format. Also, this table contains the X and R options to translate or route the call.
STDPRTCT. STDPRT	Standard Pretranslator, a subtable of STDPRTCT, is the main translations table used for the call. Table STDPRTCT.STDPRT conducts the actual pretranslation by screening for control digits. Table STDPRTCT.STDPRT then defines the next translations stage. Table STDPRTCT.STDPRT contains selectors T and F. Selector T routes the call to an office route table. Selector F recycles the call into another pretranslation table to analyze more digits.
LATAXLA	Local Access and Transport Area Translation determines whether the call is intra-LATA or inter-LATA.
DNCTINFO	Directory Number Call Type Information contains the default RPOA for the originating DN when there is no RPOA specified in the call request packet. SERVORD provides datafill content for this table; no example datafill is provided.

Datafilling table IBNXLA

The following table shows the datafill specific to DMS-PH X.121 Full Address Translations for table IBNXLA. Only those fields that apply directly to

DMS-PH X.121 Full Address Translations (continued)

DMS-PH X.121 Full Address Translations are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
KEY		see subfields	Key field. This field includes subfields XLANAME and DGLIDX.
	XLANAME	alphanumeric	Translator name. Enter the original translator name.
	DGLIDX	numeric	Digilator index. Enter the digits to be replaced.
RESULTS		see subfields	Result. This field includes subfield TRSEL.
	TRSEL	SFMT	Switch format selector. Enter selector SFMT to switch the address format to X.121. Datafill subfields MINDIGS, MAXDIGS, ESC_DIGITS and XLA_OR_ROUTE.
	MINDIGS	0 to 18	Minimum digits. Enter a number between 0 and 18 to represent the minimum digits.
	MAXDIGS	0 to 18	Maximum digits. Enter a number between 0 and 18 to represent the maximum digits.
	ESC_DIGITS	1	Escape digits. Enter 1 to indicate that one escape digit is interpreted. The prefix digit 0 is the escape digit for X.121 calls.
	XLA_OR_ ROUTE	X or R	Translate or route. Enter X to continue translations, and datafill subfield LINATTR. Enter R to indicate that the call directs to a routing table that contains the CLLI of a trunk. Datafill subfield TAB_OR_CLLI.
	LINATTR	numeric	Line attribute. Enter the line attribute index to table LINEATTR.
	TAB_OR_ CLLI	T or S	Table or CLLI. Enter T to indicate a routing index for the call, and datafill subfields TABID and KEY. Enter S to route directly to a CLLI table, and datafill subfield CLLI.

DMS-PH X.121 Full Address Translations (continued)

Datafilling table IBNXLA (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
	TABID	OFRT, OFRT2, OFRT3, OFRT4	Table identifier. Enter the name of the routing table.
	KEY	numeric	Key. Enter the index to the routing table.
	CLLI	alphanumeric	CLLI. Enter the CLLI to identify the trunk.

Datafill example for table IBNXLA

The following example shows sample datafill for DMS-PH X.121 Full Address Translations in table IBNXLA. The tuple shows selector SFMT with the X option.

MAP display example for table IBNXLA selector SFMT with option X

```
XLANAME          DGLIDX          RESULT
-------------------------------------------------------------
PKT              0     SFMT  1  15  1  X  81
```

Datafilling table STDPRTCT.STDPRT

The following table shows the datafill specific to DMS-PH X.121 Full Address Translations for table STDPRTCT.STDPRT. Only those fields that apply directly to DMS-PH X.121 Full Address Translations are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table STDPRTCT.STDPRT (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
FROMDIGS		numeric	From digits. Enter the first number of the range of digits translated.
TODIGS		numeric	To digits. Enter the last number of the range of digits translated.
PRETRTE		see subfields	Pretranslation route. This field contains subfield PRERTSEL.

DMS-PH X.121 Full Address Translations (continued)

Datafilling table STDPRTCT.STDPRT (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
	PRERTSEL	T or F	Pretranslator route selector. Enter T to indicate a routing index for the call, and datafill subfields TYPCALL, NOPREDIG, EXTRTEID, MINDIGSR, MAXDIGSR, and POS. Enter F to recycle into another pretranslator table to look at more digits. This field contains subfields NUMDIGSIN, DTONETYPE, and PRETRANSYS.
	TYPCALL	DD	Type of call. Enter DD (direct dial).
	NOPREDIG	0	Number of prefix digits. Enter 0.
	EXTRTEID	alphanumeric	External route identifier. This field contains subfields TABID and KEY.
	TABID	OFRT, OFR2, OFR3, OFR4	Table name. Enter the table name to which the system routes translations. Enter OFRT, OFR2, OFR3, or OFR4 for an office route.
	KEY	1 to 1023	Index. Enter the index in the specified table to which the system routes translation. Enter the route reference number, 1 to 1023.
	MINDIGSR	0 to 14	Minimum digits received. Enter the minimum number of digits collected before the system routes the call.
	MAXDIGSR	0 to 14	Maximum digits received. Enter the maximum number of digits collected.
	POS	NONE	Position. The value of this field is NONE.
	NUMDIGSIN	0 to 7	Number of digits. Enter the number of digits the system received before sending dial tone.
	DTONETYPE	NONE	Dial tone type. Enter NONE.
	PRETRANSYS	alphanumeric (1 to 4 characters)	Pretranslator. Enter the name of the pretranslator that translations must route for pretranslation of the remaining digits.

Datafill examples for table STDPRTCT.STDPRT

The following examples show sample datafill for DMS-PH X.121 Full Address Translations in table STDPRTCT.STDPRT.

The following MAP display shows sample datafill in table STDPRTCT.STDPRT with selector T. Selector T routes the call to table OFRT 50.

MAP display example for table STDPRTCT.STDPRT selector T

```
FROMDIGS    TODIGS                      PRETRTE
________________________________________________________
5168        5168          T DD 0 OFRT 50 2 14 NONE
```

The following MAP display shows sample datafill in table STDPRTCT.STDPRT with selector F. Selector F routes the call to another pretranslation table to continue digit analysis.

MAP display example for table STDPRTCT.STDPRT selector F

```
FROMDIGS    TODIGS                      PRETRTE
________________________________________________________
5168        5168                F   4 NONE NIC1
```

Datafilling table LATAXLA

The following table shows the datafill specific to DMS-PH X.121 Full Address Translations for table LATAXLA. Only those fields that apply directly to DMS-PH X.121 Full Address Translations are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LATAXLA (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
LATACODE		see subfields	LATA code. This field contains subfields LATANAME and DIGITS.
	LATANAME	alphanumeric	Calling LATA name. Enter the LATA name (defined in table LINEATTR).
	DIGITS	numeric (0 to 15 digits)	Enter a string up to 15 digits. Include the prefix digit 0 plus the required digits (DNIC, DNPA, DCO, or XXXX) in the order dialed.

DMS-PH X.121 Full Address Translations (continued)

Datafilling table LATAXLA (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
LATA		INTER or INTRA	LATA call attribute. Enter INTER to define the digits as inter-LATA. Enter INTRA to define the digits as intra-LATA.
STATE		INTER or INTRA	State call attribute. Enter INTER to define the digits as interstate. Enter INTRA to define the digits as intrastate.
EATYPE		STD	Equal access call type. Enter STD.

Datafill example for table LATAXLA

The following example shows sample datafill for DMS-PH X.121 Full Address Translations in table LATAXLA.

MAP display example for table LATAXLA

```
LATACODE          LATA          STATE      EATYPE
_____________________________________________________
   LATA1          05168       INTER INTER STD
```

Translation verification tools

The following example shows the output from TRAVER when it is used to verify routing for an X.121 packet call originating in the DMS-100 switch.

In a simulation, the TRAVER command provides all the information normally contained in the call request packet. In the TRAVER command shown at the top of the following output example

- *l* indicates that the DN of the originating line follows, and *7238201* is the DN
- *051686137238404* indicates the dialed digits
- *b* indicates that the type of trace required is “both," meaning that both a table trace and a digit trace are to be performed

Note: The line numbers in the TRAVER output example are shown for reference purposes only. Line numbers do not appear in an actual TRAVER session.

DMS-PH X.121 Full Address Translations (continued)

TRAVER output example for DMS-PH X.121 Full Address Translations

traver l 7238201 051686137238404 b

```
   Warning: Routing characteristics default to 64kx25
1  TABLE KSETLINE
2  PKT 201 1 DN N 7238201 BNR 0 0 613 $ BRI PMD
3  TABLE NCOS
4  BNR 0 0 0  UNREST (XLAS BNRXLA FEATXLA BNRDIG)$
5  TABLE CUSTHEAD:CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
   DIGCOL
6  BNR NXLA BNRXLA FEATXLA 1 BNRDIG
7  TABLE DIGCOL
8  TUPLE NOT FOUND
9  Default is RPT
10 TABLE RTECHAR
11 .PACKET ( BC 64KX25 $)$
12 TABLE XLAMAP
13 .PACKET BNRXLA ( XLA PKT)$
14 TABLE IBNXLA: XLANAME PKT
15 PKT 0 SFMT 1 15 1 X 81
16   ADDRESS FORMAT CHANGED TO X.121
17 TABLE LINEATTR
18 81 IBN NONE NT NSCR 1 613 X121 NLCA NONE 0 NIL NILSFC LATA1 0 NIL
   NIL 12 N $
19 LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
20 TABLE PXLAMAP
21 .Tuple not found. Default to old pretranslator name.
22 TABLE STDPRTCT
23 X121 ( 1) ( 0) 2
24 .SUBTABLE STDPRT
25 WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
26 BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
27 DOCUMENTATION
28 .5168 5168 T DD 0 OFRT 50 2 14 NONE
29 Originator is not an AIN agent, therefore AIN info is not processed.
30 ..TABLE OFRTMAP
31 ...Tuple not found. Default to old index.
32 ..TABLE OFRT
33 .. 50 N D PKTOUTX121A 3 N N
34 ..EXIT TABLE OFRT
                              –continued–
```

DMS-PH X.121 Full Address Translations (continued)

TRAVER output example for DMS-PH X.121 Full Address Translations (continued)

```
35 TABLE LATAXLA
36 lata1 05168 inter inter std
37 X121 preselected RPOA is 1 2 3 5
38 DN has preselected RPOA found in table DNCTINFO
39 Start RPOA translation
40 TABLE PXLAMAP
41 .Tuple not found. Default to old pretranslator name.
42 TABLE STDPRTCT
43 RPOA ( 1) (65021) 0
44 .SUBTABLE STDPRT
45 WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
46 BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
47 DOCUMENTATION
48 .1235 1235 T DD 0 OFRT 50 2 14 NONE
49 ..TABLE OFRTMAP
50 ...Tuple not found. Default to old index.
51 ..TABLE OFRT
52 .. 50 N D PKTOUTX121B 3 N N
53 ..EXIT TABLE OFRT

+++TRAVER: SUCCESSFUL CALL TRACE+++


DIGIT TRANSLATION ROUTES
1 PKTOUTX121B     51686137238404  ST

TREATMENT ROUTES.  TREATMENT IS:  GNCT
1 T120

+++TRAVER: SUCCESSFUL CALL TRACE+++

                                  –end–
```

The routing process shown in the preceding TRAVER example is as follows:

1. In lines 1 and 2, table KSETLINE begins translations. Table KSETLINE provides the customer group name (BNR) to index table NCOS (Network Class of Service).
2. In lines 3 to 6, tables NCOS and CUSTHEAD provide the customer group translator (BNRXLA) to index table XLAMAP.
3. In lines 10 and 11, the RCNAME name of the call (PACKET) and the default routing characteristics (64KX25) provide an index to table RTECHAR (Routing Characteristics).

DMS-PH X.121 Full Address Translations (end)

4. In lines 12 and 13, the customer group translator (BNRXLA) and the RCNAME of the call (PACKET) index to table XLAMAP (Translations Map).
5. In lines 14 to 16, table IBNXLA provides a line attribute index (81). Selector SFMT in table IBNXLA uses the X option to allow a line attribute index to datafill in table IBNXLA. The digit 0 indicates a change in address format to X.121.
6. In lines 17 to 19, table LINEATTR provides a pretranslator index (X121) to table STDPRTCT.
7. In lines 22 to 34, standard pretranslations occur. The tuple in table STDPRTCT.STDPRT provides a route index (50) to table OFRT. Table OFRT provides a new route (PKTOUTX121A).
8. In lines 35 to 39, the LATA from table LINEATTR provides an index to table LATAXLA. The tuple indicates that the call is inter-LATA. Table DNCTINFO provides a preselected RPOA code to the selection utility of the call request packet. RPOA translations start.
9. In lines 42 to 50, the RPOA from table DNCTINFO provides an index to table STDPRTCT. The tuple in table STDPRTCT.STDPRT provides a route index (50) to table OFRT.
10. In lines 51 to 53, table OFRT provides a new route (PKTOUTX121B). The call completes.

DN Sharing with Different Circuit-Mode Call Types

Ordering codes

Functional group ordering code: NI000061

Functionality ordering code: not applicable

Release applicability

NA010 and up

-Mode Call Types was introduced in NA010.

Prerequisites

This document includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this document.

Description

-Mode Call Types provides the ability for ISDN basic rate interface (BRI) subscribers to share a directory number (DN) between the voiceband information (VI) and the circuit-mode data (CMD) call types. The VI and the CMD call types are both circuit-mode call types, or high-speed voice and data on the B-channels.

The two DN-sharing NI-2 logical terminals (LTID) must be on the same ISDN BRI interface, or line equipment number (LEN). This feature applies to basic rate access functional signaling (BRAFS) LTIDs only. The Additional Call Offering (ACO) feature, which includes the SERVORD option AFC (Additional Functional Calls), is no longer necessary to allow two simultaneous VI and CMD call terminations on the same DN.

Note: This feature does not affect the low-speed D-channel data call type, packet-mode data (PMD).

Background

Prior to NA008, DN sharing was not available for the existing ISDN BRI interfaces (1B, 2B, and NI-2). Every LTID on the interface had a separate, unique DN, except non-initializing terminals (NIT), which by definition share DNs. SERVORD options VI and CMD assigned different call types to different DNs.

In NA008, the ISDN Packet Shared DN feature introduced *shared DN configurations*. A shared DN configuration allows the circuit-mode call types (CMD *or* VI) to share a DN with the PMD call type on different LTIDs. The SERVORD option CRBL (Call Reference Busy Limit) replaced options CMD

DN Sharing with Different Circuit-Mode Call Types (continued)

and VI for NI-2 terminals sharing DNs. Option CRBL controls the number of VI and CMD call terminations that can occur on a DN. All call types associated with a shared DN configuration must be in the same customer group.

In the NA008 release, the ISDN Packet Single DN feature introduced *single DN configurations*. A single DN configuration uses the same DN for PMD or VI/CMD call appearances. The single DN appears on two different keys of the same LTID.

Prior to NA010, the ACO feature, which includes the SERVORD option AFC, was necessary to allow two simultaneous VI and CMD call terminations on the same DN.

Single and shared DN configurations

You can configure an interface in the following ways for NA008 and up, with the ISDN Packet Single DN and the ISDN Packet Shared DN features:

- A circuit and a packet DN on *different LTIDs on the same interface* can be shared.

  The same DN appears on two different LTIDs on the same interface. On one LTID, the DN handles VI and CMD call types. On the other LTID, the DN processes PMD calls.

- A circuit and a packet DN on the *same LTID* can be shared.

  The circuit and packet appearances of the same DN are on the same LTID. The LTID is a 2BD or NI-2 LTID, also known as an integrated LTID.

- A circuit and a packet DN on *different interfaces* can be shared.

For NA010 and up, the DN Sharing with Different Circuit-Mode Call Types feature allows DN sharing of the *CMD and VI* call appearances of a DN on one interface between two different LTIDs. ACO is no longer needed to support two simultaneous VI and CMD terminations on the same DN.

NA010 interface configurations

With this feature, you can assign separate VI and CMD call appearances (CA) on an NI-2 interface to have the same DN. You can configure an interface in the following ways for NA010 and up:

- eight fully initializing terminals (FIT)
- one FIT and up to seven NITs
- any combination of eight NI-2 LTIDs

DN Sharing with Different Circuit-Mode Call Types (continued)

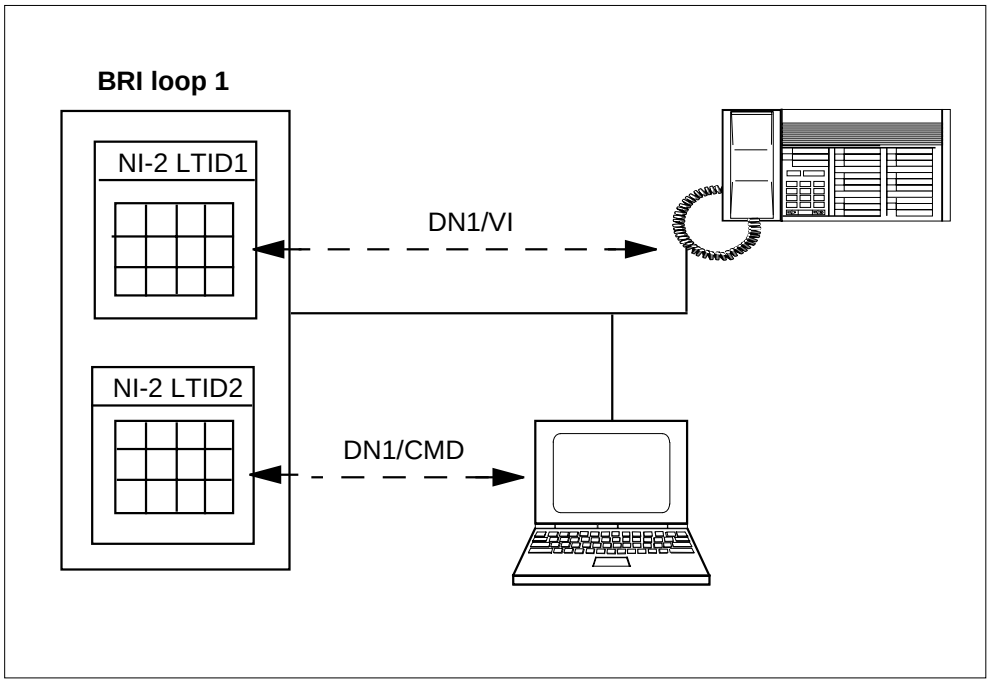
Note: The terminals that share the CMD call appearances must be on the same interface.

Operation

The circuit appearances of a DN can now share a DN between two NI-2 LTIDs on the same interface. The shared DN with access to voice is on one NI-2 LTID, and the shared DN with access to circuit-mode data appears on another NI-2 LTID. Both LTIDs must be on the same loop. The voice appearance of the shared DN can be either a Basic Call or a Multiple Appearance DN (MADN) appearance.

With this configuration, a subscriber with separate voice and user-interactive circuit-mode data (UID) terminals can use the same DN for transmitting voice and data simultaneously. Because the VI and the CMD DN appearances are on separate LTIDs, you assign services separately. You can assign different features to each call type.

The following figure shows the same DN in use for both the CMD and the VI call types, which are on different LTIDs, on the same loop.



SERVORD

Datafill a shared DN for CMD call types by the Service Order System (SERVORD). To allow shared DNs, this feature changes the following commands to prompt for the LEN in addition to the DN information (to

DN Sharing with Different Circuit-Mode Call Types (continued)

distinguish between call types): ADO, DEO, CDN, CHF, CHG, CHL, and DSP. (You can also still specify the LTID at the DN_OR_LEN prompt.)

See the “SERVORD" section at the end of this feature description for error messages this feature creates.

Option CRBL

SERVORD option CRBL (Call Reference Busy Limit) allows the operating company personnel to limit the number of active calls on a call type basis. Use the CRBL option for National ISDN-2 (NI-2) sets instead of the NUMC or AFC (Additional Functional Calls) options, which are disallowed for NI-2 sets. CRBL allows a greater number of keys to be used than option NUMC.

Use option CRBL to identify circuit-mode call types (VI and CMD) for the DN. A CRBL value of n, 0 identifies a VI call type. A CRBL value of 0, n identifies a CMD call type (where n > 0).

Table editor commands

The following sections describe the changes this feature makes to table editor query commands.

QDNWRK

The QDNWRK command displays a summary or details about software-assigned DNs. This command displays multiple LTIDs and the different call types, options, and information about each LTID that has a shared DN.

DN Sharing with Different Circuit-Mode Call Types (continued)

QDNWRK command example

```
>QDNWRK R 6136211113 6136211113 NLCC $
D
DN:          6211113
CALLTYPE:        VI
-------------------
TYPE:  SINGLE PARTY LINE
SNPA:  613    SIG:  N/A   LNATTIDX: N/A
LTID:  ISDN     803
LTCLASS:  BRAFS
LINE CLASS CODE: ISDNKSET
KEY:  1
CUSTGRP:             BNR   SUBGRP: 0  NCOS: 0  RING: Y
OPTIONS:
SFC VI $ $ N
CRBL 1 0

CALLTYPE:        CMD
-------------------
TYPE:  SINGLE PARTY LINE
SNPA:  613    SIG:  N/A   LNATTIDX: N/A
LTID:  ISDN     804
LTCLASS:  BRAFS
LINE CLASS CODE: ISDNKSET
KEY:  1
CUSTGRP:             BNR   SUBGRP: 0  NCOS: 0  RING: Y
OPTIONS:
SFC CMD BOTH $ $ N
CRBL 0 1

CALLTYPE:        PMD
-------------------
TYPE:  SINGLE PARTY LINE
SNPA:  613    SIG:  N/A   LNATTIDX: N/A
LTID:  ISDN     805
LTCLASS:  BRAFS
LINE CLASS CODE: ISDNKSET
KEY:  2
CUSTGRP:             BNR   SUBGRP: 0  NCOS: 0  RING: N
OPTIONS:
NONE
```

QLT

The QLT command displays logical terminal information. The display for an LTID with a shared DN shows the call type for each shared DN. Keys without a shared DN are blank under the CALLTYPE heading.

DN Sharing with Different Circuit-Mode Call Types (continued)

QLT command example

```
>QLT ISDN 804
_____________________________________________________________
LTID:  ISDN      804
SNPA:  613
DIRECTORY NUMBER:      6211113
LT GROUP NO:  0
LTCLASS:  BRAFS    DEFAULT LOGICAL TERMINAL:  N
EKTS:  N        CACH: N
CS: NI2 PS: D   TEI: DYNAMIC
ELN: N
VERSION: FUNCTIONAL    ISSUE: 2
CUSTGRP:        BNR  SUBGRP: 0  NCOS: 0  RING: 6
LINE CLASS CODE: ISDNKSET
MAXKEYS:  64
OPTIONS:
SFC CMD BOTH $ $ N
CRBL 0 1

   KEY           DN                      CALLTYPE
   ---           --                      --------
    1           DN          6211113        CMD

   KEY          FEATURE
   ---          -------
    1             CRBL   0   1
    1             DBC    DBC_SP
```

QIT

The QIT command displays the service information for an ISDN terminal. The call type displays for each shared DN. Keys without a shared DN are blank under the CALLTYPE heading.

DN Sharing with Different Circuit-Mode Call Types (continued)

QIT command example

```
>QIT ISDN 804
_____________________________________________________________________
LTID:  ISDN      804
SNPA:  613
DIRECTORY NUMBER:      6211113
DPN GROUP NO:  0
LTCLASS:  BRAFS    DEFAULT LOGICAL TERMINAL:  N
EKTS:  N        CACH: N
CS: NI2 PS: D   TEI: DYNAMIC
ELN: N
VERSION: FUNCTIONAL    ISSUE: 2
CUSTGRP:        BNR  SUBGRP: 0  NCOS: 0  RING: 6
LINE CLASS CODE: ISDNKSET
MAXKEYS:  64
OPTIONS:
SFC CMD BOTH $ $ N
CRBL 0 1

   KEY           DN                      CALLTYPE
   ---           --                      --------
    1           DN          6211113        CMD

   KEY          FEATURE
   ---          -------
    1             CRBL   0   1
    1             DBC    DBC_SP
```

QDN

The QDN command queries DNs on an LTID. This command displays multiple LTIDs, and the different call types, options, and information about each LTID that has a shared DN.

The call type displays after the DN. The VI and CMD data shows applicable MADN, DN group, or hunt information (not shown in this example). The PMD data also shows applicable hunt information (not shown in this example).

DN Sharing with Different Circuit-Mode Call Types (continued)

QDN command example

```
>QDN 7211113
_____________________________________________________________
DN:          6211113
CALLTYPE:        VI
-------------------
TYPE:  SINGLE PARTY LINE
SNPA:  613    SIG:  N/A   LNATTIDX: N/A
LTID:  ISDN     803
LTCLASS:  BRAFS
LINE CLASS CODE: ISDNKSET
KEY:  1
CUSTGRP:             BNR   SUBGRP: 0  NCOS: 0  RING: Y
OPTIONS:
SFC VI $ $ N
CRBL 1 0

CALLTYPE:        CMD
-------------------
TYPE:  SINGLE PARTY LINE
SNPA:  613    SIG:  N/A   LNATTIDX: N/A
LTID:  ISDN     804
LTCLASS:  BRAFS
LINE CLASS CODE: ISDNKSET
KEY:  1
CUSTGRP:             BNR   SUBGRP: 0  NCOS: 0  RING: Y
OPTIONS:
SFC CMD BOTH $ $ N
CRBL 0 1

CALLTYPE:        PMD
-------------------
TYPE:  SINGLE PARTY LINE
SNPA:  613    SIG:  N/A   LNATTIDX: N/A
LTID:  ISDN     805
LTCLASS:  BRAFS
LINE CLASS CODE: ISDNKSET
KEY:  2
CUSTGRP:             BNR   SUBGRP: 0  NCOS: 0  RING: N
OPTIONS:
NONE
```

DN Sharing with Different Circuit-Mode Call Types (continued)

Translations table flow

The DN Sharing with Different Circuit-Mode Call Types translations tables are described in the following list:

- Table KSETLINE contains the DN appearances for business sets and data units. SERVORD updates this table with one entry for each DN-related key on a business set and a data unit. This feature can apply to the DN, MADN, Group Intercom (GIC), and Automatic Call Distribution (ACD) formats. Table KSETLINE displays the circuit-mode data call types of a shared DN (either VI, CMD, or VI and CMD). The key to the table is the LTID and key number.
- Table KSETFEAT lists the line features that are assigned to the business sets and data units in table KSETLINE. SERVORD updates this table with one entry for each feature assigned to a keyset line. SERVORD assigns the shared DN for the desired call type according to a key on each LTID. SERVORD updates this table with the CRBL option and the call types of the shared DN.

The following table shows example datafill content for these tables.

Datafill example for DN Sharing with Different Circuit-Mode Call Types

Datafill table	Example data
KSETLINE	ISDN 19 1 DN Y 7235119 GRPNM 0 0 613 (LNR) (SFC) (CFX) (MWT) $ BRI VIISDN 22 1 DN Y 7235119 GRPNM 0 0 613 (SFC) $ BRI CMDISDN 23 1 DN Y 7235120 GRPNM 0 0 613 (SFC) $ BRI VI_CMD
KSETFEAT	ISDN 19 1 DN Y 7235119 GRPNM 0 0 613 (LNR) (SFC) (CFX) (MWT) $ BRI VIISDN 22 1 DN Y 7235119 GRPNM 0 0 613 (SFC) $ BRI CMDISDN 23 1 DN Y 7235120 GRPNM 0 0 613 (SFC) $ BRI VI_CMD

-Mode Call Types does not affect translations table flow.

Limitations and restrictions

The following limitations and restrictions apply to DN Sharing with Different Circuit-Mode Call Types:

- This feature applies to BRAFS LTIDs only.
- This feature does not allow a DN with different circuit-mode call types to be shared on the same NI-2 LTID, since this functionality already exists. To establish a shared DN on the same LTID, define a DN that has access to both the VI and CMD circuit call types, and define their CRBL option values respectively.

DN Sharing with Different Circuit-Mode Call Types (continued)

Interactions

-Mode Call Types has no functionality interactions.

Activation/deactivation by the end user

-Mode Call Types requires no activation or deactivation by the end user.

Billing

-Mode Call Types does not affect billing.

Station Message Detail Recording

-Mode Call Types does not affect Station Message Detail Recording.

Datafilling office parameters

-Mode Call Types does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement DN Sharing with Different Circuit-Mode Call Types. The tables are listed in the order in which they are to be datafilled.

Note: These tables are datafilled through SERVORD; therefore, no datafill procedure or example is provided. Refer to “SERVORD" for an example of using SERVORD to datafill these tables.

Datafill tables required for DN Sharing with Different Circuit-Mode Call Types

Table	Purpose of table
KSETLINE	Table KSETLINE contains the DN appearances for business sets and data units. One entry is required for each DN-related key on a business set and a data unit. Table KSETLINE displays the circuit call types associated with a shared DN. The circuit call type displayed is either VI, CMD or VI and CMD. The key is the LTID.
KSETFEAT	Table KSETFEAT lists the line features that are assigned to the business sets and data units in table KSETLINE. One entry is required for each feature assigned to a keyset line. SERVORD updates this table with option CRBL.

Translation verification tools

-Mode Call Types does not use translation verification tools.

SERVORD

Use SERVORD to provision shared DNs. SERVORD automatically updates tables KSETFEAT and KSETLINE.

DN Sharing with Different Circuit-Mode Call Types (continued)

Commands

This feature changes the following commands:

- NEW

  The NEW command allows sharing of a DN that has different circuit-mode call types between two NI-2 LTIDs. Both LTIDs must have the logical terminal class of BRAFS. This command rejects an attempt to assign a second CMD DN appearance if the first belongs to a hunt group.

- ADO

  If you specify a shared DN at the DN_OR_LEN prompt, the LEN prompt displays for the LTID. If you enter an LTID at the DN_OR_LEN prompt, the LEN prompt does not display.

- DEO

  If you specify a shared DN at the DN_OR_LEN prompt, the LEN prompt displays for the LTID. If you enter an LTID at the DN_OR_LEN prompt, the LEN prompt does not display.

- CDN

  If you specify a shared DN, all DN appearances change to the new DN specified.

- CHF

  If you specify a shared DN, the LEN prompt displays for the LTID. If you enter an LTID at the DN prompt, the LEN prompt does not display.

- CHG

  If you specify a shared DN, changing the customer group will change the customer group for all DN appearances.

- CHL

  If you specify a shared DN at the DN_OR_LEN prompt, the LEN prompt displays for the LTID. If you enter an LTID at the DN prompt, the DN_OR_LEN prompt does not display. Specify the LTID to change Screening List Editing (SLE) options on a shared DN that is already assigned to another LTID of a different call type.

- DSP

  If you specify a shared DN at the DN_OR_LEN prompt, the LEN prompt displays for the LTID. If you enter an LTID at the DN_OR_LEN prompt, the LEN prompt does not display.

- SUS

DN Sharing with Different Circuit-Mode Call Types (continued)

If you specify a shared DN at the DN prompt, the LEN prompt displays for the LTID. If you enter an LTID at the DN prompt, the LEN prompt does not display. A message displays to indicate a shared DN.

- RES

  If you specify a shared DN at the DN prompt, the LEN prompt displays for the LTID. If you enter an LTID at the DN prompt, the LEN prompt does not display. A message displays to indicate a shared DN.

- PLP

  If you specify a shared DN at the DN prompt, the LEN_OR_LTID prompt displays. If you enter an LTID at the DN prompt, the LEN_OR_LTID prompt does not display. A message displays to indicate a shared DN.

- EST

  The EST command allows creation of a hunt group and pilot DN for a DN with the PMD call type previously assigned to another LTID. This command disallows creation of two separate hunt groups that have the same pilot DN with both CMD call types. For shared DNs, there are two hunt groups allowed: PMD and circuit.

- OUT

  The OUT command removes a DN appearance from one of the LTIDs of a shared DN and leaves the other DN in service. A message displays to indicate that the DN is a shared DN and is still in use by another LTID. To out a shared DN, perform the OUT command on both appearances of the DN.

- SWLT

  If the LTID to be swapped contains a shared DN, the LTIDs must be on the same interface.

- ADD

  The ADD command allows a shared DN as a hunt group member.

Hunt groups

A DN shared between different LTIDs and circuit-mode voice and data call types also supports hunt groups. To establish a DNH pilot that is shared with PMD, do the following. Use the NEW command to assign the DN to a key on the first LTID with call type PMD. Use the EST command to assign the DN to a key on the second LTID, with the CMD call type as the DNH pilot. You can also add the DN as a pilot DN first and then add the same DN to the second LTID as a different call type.

You can also add an MLH member that is shared with PMD.

DN Sharing with Different Circuit-Mode Call Types (continued)

SERVORD limitations and restrictions

The following SERVORD limitations and restrictions apply to DN Sharing with Different Circuit-Mode Call Types:

- This feature applies to BRAFS LTIDs only.

Error messages

The following table describes the error messages you can encounter when using the previous SERVORD commands on shared DNs.

SERVORD error messages for DN Sharing with Different Circuit-Mode Call Types (Sheet 1 of 3)

Message	Description
`Duplicate appearances of a Shared DN are not allowed`	You cannot assign a shared DN with the same circuit-mode call type to different LTIDs.
`Cannot define shared circuit DN appearances on the same logical terminalUse CRBL instead`	You cannot assign a DN already assigned to the same LTID. Use the CRBL option to define VI and CMD appearances for one DN on the same LTID.
`DN sharing of circuit DN appearances are supported on NI-2 logical terminals only`	You cannot assign a shared DN already assigned to a 2B LTID.
`DN is assigned to NON ISDN lineSharing of DN not allowed for Non ISDN lines`	You cannot assign a shared DN already assigned to a non-ISDN terminal.
`Sharing allowed only on ISDN BRAFS DN`	You cannot assign a shared DN already assigned to a BRAFMFT ISDN terminal. You also cannot assign a shared DN already assigned to a BRAFS terminal to a BRAFMFT terminal.
`DN IS A MEMBER OF HUNT GROUP PLEASE USE ADD COMMAND.`	You cannot assign a CMD call type of a DN appearance that is a member of a hunt group. Use the ADD command for hunt group member assignments.
`WARNING: Input DN is shared. Only the CIRCUIT-MODE VOICE call appearance will be suspended.`	You cannot suspend service on an LTID with a DN that is already assigned to another LTID of a different call type.
`WARNING: Input DN is shared. Only the CIRCUIT-MODE DATA call appearance will be suspended.`	You cannot suspend service on an LTID with a DN that is already assigned to another LTID of a different call type.

DN Sharing with Different Circuit-Mode Call Types (continued)

SERVORD error messages for DN Sharing with Different Circuit-Mode Call Types (Sheet 2 of 3)

Message	Description
WARNING: Input DN is shared. Only the CIRCUIT-MODE call appearance will be suspended.	You cannot suspend service on a DN on an NI-1 LTID. The DN on the NI-1 LTID is shared with a packet appearance on a different LTID.
WARNING: Input DN is shared. Only the CIRCUIT-MODE VOICE call appearance will be restored.	You cannot restore service on an LTID with a DN that is already assigned to another LTID of a different call type.
WARNING: Input DN is shared. Only the CIRCUIT-MODE DATA call appearance will be restored.	You cannot restore service on an LTID with a DN that is already assigned to another LTID of a different call type.
WARNING: Input DN is shared. Only the CIRCUIT-MODE call appearance will be restored.	You cannot restore service on a DN on an NI-1 LTID. The DN on the NI-1 LTID is shared with a packet appearance on a different LTID.
DN_CT CANNOT BE ADDED TO DNH GROUP BECAUSE THE OTHER CALLTYPE IS NOT A MEMBER OF THIS DNH GROUP.	After assigning a shared DN to different LTIDs with different CMD call types, you attempted to establish the shared DN as a DNH pilot on the second LTID only. Both call appearances of the shared DN must be in the same hunt group.
THIS DN CALLTYPE CANNOT BE A MEMBER OF ANOTHER HUNT GROUP	You attempted to add the second shared DN circuit-mode call appearance as a different DNH pilot than the first. Shared DN circuit-mode call type call appearances must be in the same hunt group.
WARNING: Input DN is shared and is still in use.	You cannot out a DN that is already assigned to another LTID of a different call type. The DN is shared, and is still in use by another terminal.
ERROR: DN SHARING IS NOT ALLOWED. PILOT DN NOT FREEADD TO TABLE HUNTGRP FAILED COULD NOT CREATE HUNT GROUP	You tried to establish a DNH pilot that is shared with a VI call type DN that is not a hunt group member.
DN IS INVALIDis not compatible to share DNswith a DNH pilot DN<nxxxxxx> IS ALREADY ASSIGNED OR INVALID	You tried to establish a DNH pilot that is shared with a VI call type DN that is in a different DNH group.
DN_CT CANNOT BE ADDED TO DNH GROUP BECAUSE THE OTHER CALLTYPE IS NOT A MEMBER OF THIS DNH GROUP.	After assigning a shared DN to different LTIDs with different CMD call types, you attempted to add the shared DN as a DNH member on the second LTID only. Both call appearances of the shared DN must be in the same hunt group.

DN Sharing with Different Circuit-Mode Call Types (continued)

SERVORD error messages for DN Sharing with Different Circuit-Mode Call Types (Sheet 3 of 3)

Message	Description
`WARNING: Input DN is shared. Only the CIRCUIT-MODE VOICE call appearance will be plugged up.`	You attempted to plug up a DN that is already assigned to another LTID of a different call type. Only the voice (VI) appearance plugs up.
`WARNING: Input DN is shared. Only the CIRCUIT-MODE DATA call appearance will be plugged up.`	You attempted to plug up a DN that is already assigned to another LTID of a different call type. Only the circuit-mode data (CMD) appearance plugs up.
`WARNING: Input DN is shared. Only the CIRCUIT-MODE call appearance will be plugged up.`	You attempted to plug up service on a DN on an NI-1 LTID. The DN on the NI-1 LTID is shared with a packet appearance on a different LTID.

SERVORD prompts

The following table shows the SERVORD prompts used to add an option to a DN that is shared between different circuit-mode call types.

SERVORD prompts for DN Sharing with Different Circuit-Mode Call Types (Sheet 1 of 3)

Prompt	Valid input	Explanation
ABS	VOICE, VBD, CMD	Authorized bearer services option limits the bearer services to which a circuit-switched call can subscribe. Voice is for analog, VBD is for voiceband data, and CMD is for circuit-mode data.
CMD	0 to 16	Indicates the number of active calls that you can assign for the CMD call type for the DN
CS	Y, N, 2B, NI2	Indicates whether circuit-switched service
DEFLTERM	N	Identifies an LTID as a default logical terminal
DN_OR_LEN	Refer to DN and LTID in table Prompts in the “Service order tables" section of this manual for information on valid inputs.	Specifies the line's DN or LTID. For a MADN line or MLH/DLH members, if a DN is specified the user is prompted for the LTID. If the LTID is entered, the user is not prompted for the DN. For shared DNs with different circuit-mode call types, enter the DN or the LTID. If you do not enter the LTID, the LEN prompt appears.
FUNCTION	ADD, REM, ATT, DET, CHA	Specifies the action required by the service order. Used with the SLT command.

DN Sharing with Different Circuit-Mode Call Types (continued)

SERVORD prompts for DN Sharing with Different Circuit-Mode Call Types (Sheet 2 of 3)

Prompt	Valid input	Explanation
GROUP	1 to 16 alphanumeric characters	Identifies the name of an IBN customer group
KEY	1 to 69	Specifies the number associated with the physical key set to which the DN is assigned
LATANAME	alphanumeric	Specifies the calling local access and transport area (LATA) name associated with the call originator
LCC	ISDNKSET	Specifies the line class code for the service to be established
LEN	Refer to DN and LTID in table Prompts in the “Service order tables" section of this manual for information on valid inputs.	Specifies the LTID of the shared DN to which the option is added, for shared DNs with different circuit-mode call types
LEN_OR_LTID	1 to 8 alphanumeric digits, a space, and a terminal number (1 to 1022)	Specifies the LTID of the DN to be changed or deleted. Consists of the logical terminal group name (LTGRP) and the terminal number.
LTCLASS	BRAFS	Specifies the class of logical terminal based on the type of messaging exchanged between the terminal and the ISDN switch. DN Sharing with Different Circuit-Mode Call Types applies to BRAFS only.
LTG	0 to 255	Specifies the line treatment group. Default is 0.
LTID	1 to 8 alphanumeric digits, a space, and a terminal number (1 to 1022)	Specifies the logical terminal identifier. Consists of the LTGRP and the terminal number.
MAXKEYS	2 to 64	Specifies the maximum number of feature activators (keys) on a logical terminal used for circuit-switched service
NCOS	0 to 255	Specifies the network class of service for IBN lines, trunks, or attendant consoles; defines a set of capabilities or restrictions that allows or denies calls.
OPTION	CRBL	Specifies the Call Reference Busy Limit option

DN Sharing with Different Circuit-Mode Call Types (continued)

SERVORD prompts for DN Sharing with Different Circuit-Mode Call Types (Sheet 3 of 3)

Prompt	Valid input	Explanation
OPTKEY	1 to 69	Specifies the key associated with the option
PS	N, B, D	Indicates packet-switched service. N means no packet service; B means packet service on a B-channel; D means packet service on the D-channel.
RINGING	Y, N	Specifies whether a ring from a telephone speaker is required in addition to the call-waiting tone heard from the handset
SNPA	3-digit number	Specifies the DN's service numbering plan area (area code)
SUBGRP	0 to 7	Specifies the subgroup of a customer group to which a station or DN belongs
TEI_TYPE	STEI, DTEI, UATEI, UNATEI	Specifies the type of terminal endpoint identifier (TEI) assignment. STEI is for static; DTEI is for dynamic; UATEI is for user assigned; UNATEI is for user or network assigned. User-assigned dynamic TEI applies to circuit-switched terminals only.
VI	0 to 16	Indicates the number of active calls that you can assign for the VI call type for the DN

SERVORD example for creating shared DNs

The following example shows the SLT ADD and NEW command sequence used to create a shared DN.

DN Sharing with Different Circuit-Mode Call Types (continued)

Example of the SLT ADD command in prompt mode

```
>SLT
SONUMBER:     NOW  97  8 18 PM
>
LTID:
>ISDN 1
FUNCTION:
> ADD
LTCLASS:
>BRAFS
CS:
>NI2
PS:
>N
MAXKEYS:
>64
DEFLTERM:
> N
TEI_TYPE:
>DTEI
TSPID:
>N
ABS:
>$
```

Example of the SLT ADD command in no-prompt mode

```
> SLT ISDN1 ADD BRAFS NI2 N 64 N DTEI N $
```

The following SLT ADD command example shows another NI-2 BRAFS LTID being added.

DN Sharing with Different Circuit-Mode Call Types (continued)

Example of the SLT ADD command in prompt mode

```
>SLT
SONUMBER:     NOW  97  8 18 PM
>
LTID:
>ISDN 2
FUNCTION:
> ADD
LTCLASS:
>BRAFS
CS:
>NI2
PS:
>N
MAXKEYS:
>64
DEFLTERM:
> N
TEI_TYPE:
>DTEI
TSPID:
>N
ABS:
>$
```

Example of the SLT ADD command in no-prompt mode

```
> SLT ISDN2 ADD BRAFS NI2 N 64 N DTEI N $
```

The following example shows the NEW command sequence, which must follow the SLT ADD, to assign a DN to an LTID. The same DN, 7235001, is added to the different LTIDs already added to the loop.

DN Sharing with Different Circuit-Mode Call Types (continued)

Example of the NEW command in prompt mode

```
>NEW
SONUMBER:     NOW  97  8 18 PM
>
DN:
>7235001
LCC:
> ISDNKSET
GROUP:
>ISDNGRP
SUBGRP:
>0
NCOS:
>0
SNPA:
>613
KEY:
>1
RINGING:
>Y
LATANAME:
> NILLATA
LTG:
>0
LEN_OR_LTID:
>ISDN 2
OPTKEY:
>1
OPTION:
>CRBL
VI:
>0
CMD:
>1
OPTION:
>$
```

Example of the NEW command in no-prompt mode

```
> NEW 7235001 ISDNKSET ISDNGRP 0 0 6 1 3 1 Y NILLATA 0 ISDN2 1 CRBL
0 1 $
```

DN Sharing with Different Circuit-Mode Call Types (continued)

Example of the NEW command in prompt mode

```
>NEW
SONUMBER:     NOW  97  8 18 PM
>
DN:
>7235001
LCC:
> ISDNKSET
GROUP:
>ISDNGRP
SUBGRP:
>0
NCOS:
>0
SNPA:
>613
KEY:
>1
RINGING:
>Y
LATANAME:
> NILLATA
LTG:
>0
LEN_OR_LTID:
>ISDN 1
OPTKEY:
>1
OPTION:
>CRBL
VI:
>1
CMD:
>0
OPTION:
>$
```

Example of the NEW command in no-prompt mode

```
> NEW 7235001 ISDNKSET ISDNGRP 0 0 6 1 3 1 Y NILLATA 0 ISDN1 1 CRBL
1 0 $
```

The following example output from table KSETLINE shows the two tuples that are automatically datafilled when the previous SLT ADD and NEW commands are used. The tuples show the same DN on different LTIDs on the same LEN with different circuit-mode call types.

DN Sharing with Different Circuit-Mode Call Types (end)

MAP display example for table KSETLINE

```
KSETKEY  FORMAT              DNRESULT
_____________________________________________________
ISDN 1   1  DN  Y  7235001  ISDNGRP  0 0 613 (SFC) $ BRI
VI
ISDN 2   1  DN  Y  7235001  ISDNGRP  0 0 613 (SFC) $ BRI
CMD
```

SERVORD example for adding an option to a shared DN

The following example shows the ADO command sequence to add an option to a shared DN. If you do not specify the LTID at the DN_OR_LEN prompt, the LEN prompt appears. You must specify an LTID to add options to a shared DN that is already assigned to another LTID of a different circuit-mode call type.

Example of the ADO command in prompt mode

```
>ADO
SONUMBER:     NOW  97  8 18 PM
>
DN_OR_LEN:
>7235001
LEN:
> ISDN 1
OPTKEY:
>1
OPTION:
>CNAMD
BILLING OPTION: NOAMA
>
OPTKEY:
>$
```

Example of the ADO command in no-prompt mode

```
> ADO 7235001 ISDN 1 1 CNAMD $
```

4 Introduction to PRI translations

Understanding PRI translations

This section provides an introduction to Northern Telecom's implementation of the integrated services digital network (ISDN) primary rate interface (PRI) and defines translations as it pertains to PRI capabilities.

Components of a telephone call briefly describes the two components of a telephone call: the signaling component, and the voice and data component.

ISDN overview briefly explains ISDN and PRI.

Translations process explains what translations are and how the translation process works.

How translation tables are datafilled explains how to access data stored in the translations data base.

Terms used in translations explains translations terminology.

Components of a telephone call

A telephone call has two components:

- signaling component
- voice and data component

The signaling component of a telephone call contains the supervisory and address signals that switching offices use to control the setting up, monitoring, and taking down of the call.

The voice and data component contains only the information being transferred between the initiator and the recipient of the call.

ISDN overview

ISDN is a communications network that provides users with multiple services through a single access point, and integrates voice, data, image, and messaging across the network. Northern Telecom's implementation of ISDN in the

DMS-100 Family of switches enables telephone operating companies to deliver a flexible range of digital services cost-effectively and efficiently, ensuring that ISDN offers major benefits to both service suppliers and users.

ISDN is built on the standards defined in the Consultative Committee on International Telephony and Telegraphy (CCITT) I-series and Q-series recommendations. These standards specify transmission protocols which ensure compatibility in the many telecommunications and office systems interfaces that form a communications network. For example, recommendation Q.931 defines the content of messages used to control calls over ISDN interfaces.

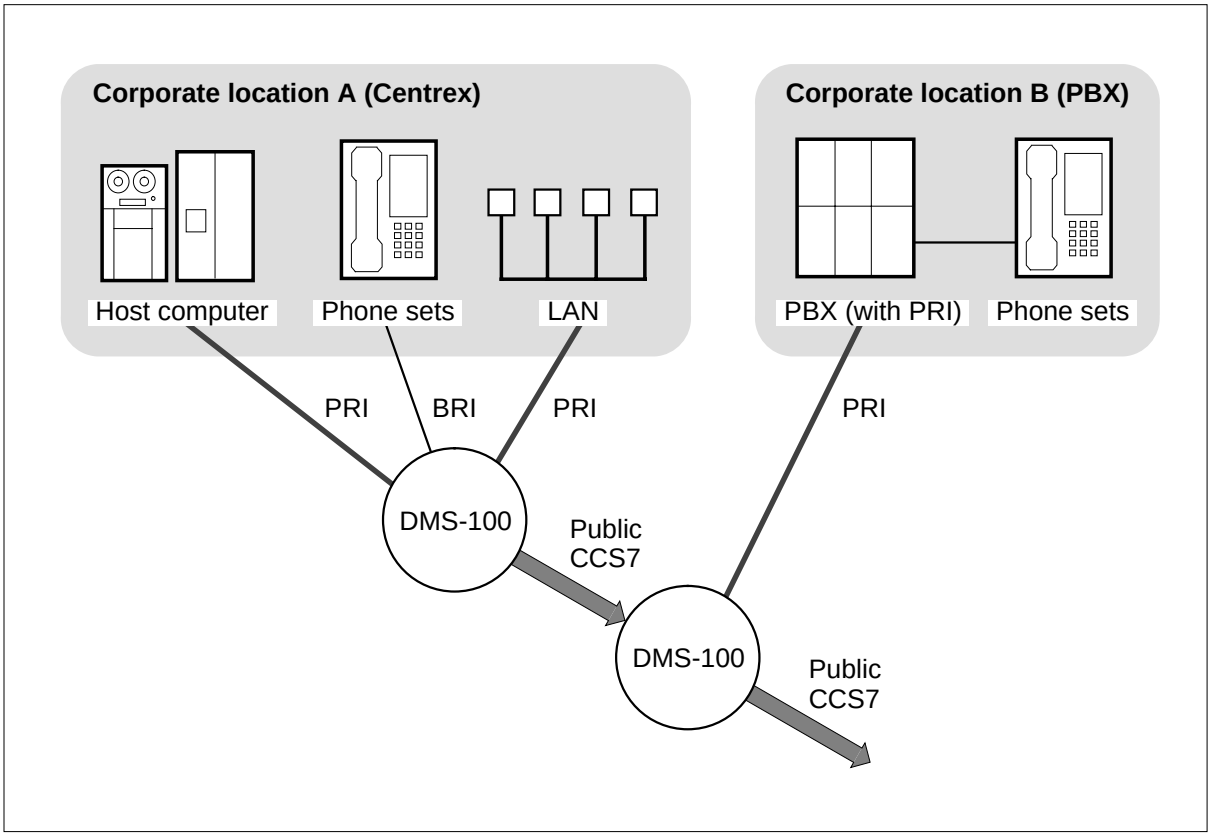
ISDN provides a variety of circuit-switched and packet-switched features to the customer. Many ISDN-compatible computers, data terminals, and telephone sets can access these advanced features through a single modular connector at the customer premises.

An ISDN switch offers customers two methods of accessing the voice and data networks: basic rate interface (BRI) for line service, and primary rate interface (PRI) for trunk service. Both types of interface consist of time-division multiplexed (TDM), bidirectional, digital channels known as B- and D-channels.

Both BRI and PRI also provide access to third-party vendors, known as enhanced service providers (ESP), which provide, for example, weather report, ticket office, and stock market services.

Increasingly, businesses are managing hybrid networks of public and private facilities, and Northern Telecom's ISDN PRI implementation helps solve the connectivity and consistency problems inherent in these networks. Figure 4-1 illustrates a typical corporate ISDN network, showing PRI as an access connection between the DMS-100 and customer premises equipment (CPE) such as PBXs and LANs, and as a trunk interface between central offices (CO).

Figure 4-1 A typical ISDN network



Primary rate interface

PRI is an international standard for the interface between a customer's equipment and public network switches or other PBXs. PRI allows PBXs, interexchange carriers, and computers to be connected to the ISDN switch over digital trunks. PRI provides the interface within a corporate network for basic call and network business services. PRI is made up of three protocol layers and the services that these layers provide.

Signaling for PRI

PRI allows PBXs, interexchange carriers, and computers to be connected to the ISDN switch over digital trunks. Figure 4-2 illustrates a typical PRI configuration.

PRI provides twenty-three 64-kbit/s bidirectional B-channels, and one 64-kbit/s D-channel. This signaling method is referred to as 23B+D signaling.

PRI uses a digital primary rate transmission facility. In North America, the DS-1 standard 1.544-Mbit/s 24-channel format is used to carry ISDN signals for PRI between the ISDN exchange termination and a PBX, such as the Meridian 1 Communication System.

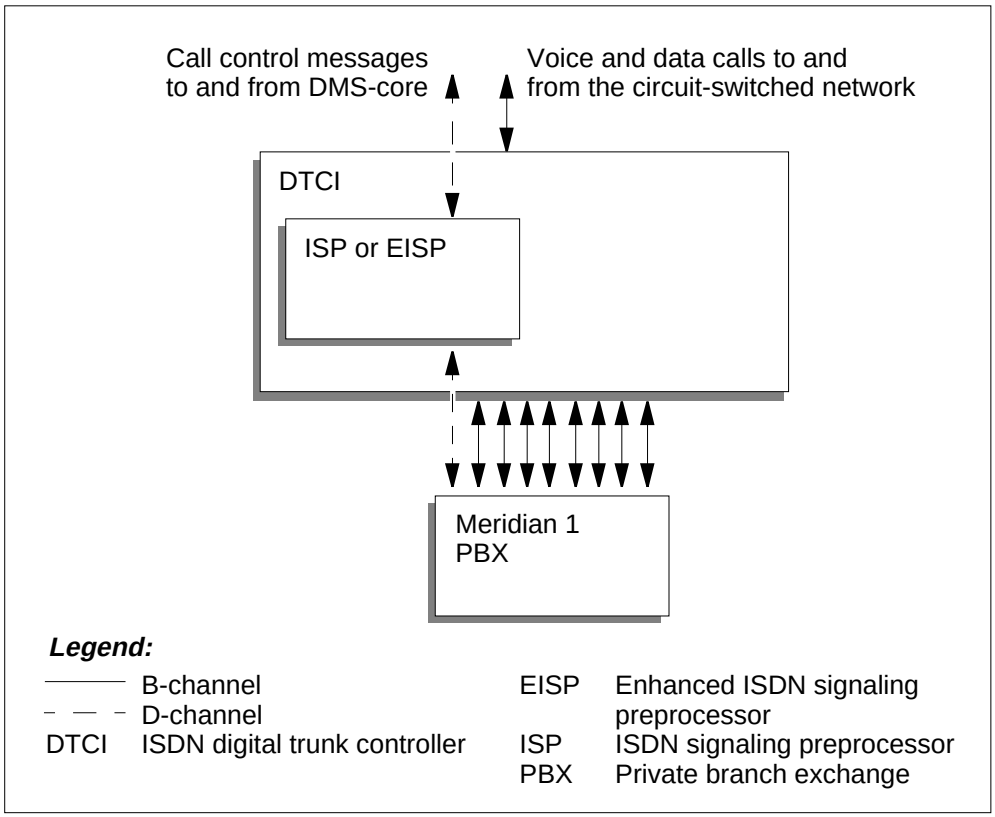
One DS-1 link configured for PRI carries 24 channels. If one channel is used for the ISDN D-channel, the remaining 23 channels can be datafilled as PRI B-channels. One D-channel can support up to 479 B-channels, on a maximum of 20 DS-1 links, provided that all DS-1 links reside on the same ISDN peripheral. This capability is referred to as nB+d.

Northern Telecom's PRI implementation provides a 64-kbit/s or a 56-kbit/s D-channel. At the 64-kbit/s rate, the data stream is composed entirely of data (no bits are used for control information). If a 56-kbit/s DS-1 link is used, the B- and D-channels must also run at 56 kbit/s.

PRI supports circuit-switched voice and data access to the circuit-switched network. PRI also supports the following features:

- Integrated services access (ISA), also known as call-by-call service selection, which allows PRI trunk types to be dynamically re-allocated to accommodate changing traffic levels. Supported call types include public, DID/DOD, private, OUTWATS, INWATS, FX, and tie.
- Calling line identification, which displays the calling party number on the telephone set of the called party. A privacy option can be used to suppress the calling number display.
- Network call redirection service, which includes call forwarding, call pickup, and call transfer.
- Network ring again (NRAG) between DMS switches, which operates when the links between the DMS switches are PRI or CCS7 trunks.

Figure 4-2 Primary rate interface configuration



PRI works with a number of existing telephony agents, including

- POTS and MDC (lines and trunks)
- business sets, attendant consoles, and data units
- stimulus and functional signaling
- PRI PBX and intertoll trunks
- CAMA trunks
- equal access interexchange carrier (EAIEC) trunks
- Automatic Message Recording 5 (AMR5) trunks
- coin lines
- dialed loopback trunks
- operator (OP) trunks
- emergency service bureau (ESB) trunks

Flexible timers

The North American protocol variant of recommendation Q.931 network layer (OSI layer 3) duplicates the functions of timers provided by the European PRI (ETSI), Australian PRI (AUST PRI), and Japanese PRI (INS 1500). Previously hard-coded timers are now data-driven. This means that when the timer values need to be changed, an entry in a data table is changed. This software infrastructure maximizes the use of common procedures, minimizes unnecessary code redundancy between protocol variants, and increases maintainability of ISDN PRI software.

ISDN signaling methods

DMS-100 ISDN supports two signaling methods to communicate between the subscriber's terminal and the switch: functional (Bellcore) and stimulus (Meridian feature transparency).

Functional (Bellcore)

Functional signaling is based on a peer-to-peer exchange of information between an intelligent terminal and the network. This signaling method allows users to access new network features and services, and makes ISDN standardization easier. Functional signaling is used for National ISDN-1 implementation, which conforms to Bellcore standards.

Stimulus medium feature transparency

Stimulus signaling provides a master/slave relationship between the network and the CPE. The terminal reports feature key activation to the network, and the network interprets the report and returns prompts (such as audible tones and indicator lamp states) to the CPE.

Meridian feature transparency for BRI (BRAMFT) is an extended stimulus signaling protocol supported by the M5317T, M5317TX, and M5317TDX sets. The BRAMFT protocol allows the M5317TX and M5317TDX sets to support all MDC features currently available on non-ISDN Meridian business sets.

Preparing to datafill PRI

This section contains datafill information for ISDN PRI interface translations. The chapters describe the tables that must be datafilled for the feature capabilities.

Functional group codes

The following functional groups are required for PRI:

- NI0 ISDN Base, NI000007
- NI0 NI-1 PRI i/w 4E/5ESS, NI000012
- NI0 ISDN PRI Base, NI000022

Capability datafill sequence

Datafill the PRI capabilities in the following order:

1. PRI Base Service
2. PRI Call Routing
3. PRI Backup D-Channel
4. PRI Bearer Capability (BC) Routing
5. PRI Calling Line Identification Blocking
6. PRI DISPLAY Information Element Blocking
7. PRI Equal Access (EA)
8. PRI Flexible Timers
9. PRI ISDN Treatments
10. PRI Message Waiting Indicator (MWI)
11. PRI Network Name Delivery
12. PRI Network Ring Again (NRAG)
13. PRI two B-channel transfer (TBCT)
14. ISDN Even Call Distribution
15. PRI Call Screening
16. PRI Calling Name Delivery
17. PRI Hotel/Motel SCOCS
18. PRI SUSP for CNAME

Note 1: Capabilities 3 to 18 can be datafilled in any order. Capabilities 1, 2, 8, and 9 are required; all others are optional. Capabilities 2, 4, 7, 14, and 17 affect TRAVER translations. PRI capabilities not listed do not require datafill by the operating company.

Note 2: Translations information on the Dialable Wideband Service (DWS) capability, along with a description of this capability, is located in the *Dialable Wideband Service Services Guide*.

Note 3: Translations information on and the description of the DataSPAN capability is located in the *Translations Guide*.

Table and capability relationships

Some tables are used in more than one capability. It is possible to datafill more than one capability simultaneously. The following table lists the PRI tables and the capabilities required for them.

Table 4-1 PRI table and capability cross-reference (Sheet 1 of 2)

Table	Capability
BCDEF	Bearer Capability Routing
BCCOMPAT	Bearer Capability
CARRMTC	Base Service
CLLI	Base Service
CUSTNTWK	Network Name DeliveryNetwork Ring Again
HNPACONTsubtable RTEMAP	Bearer Capability Routing
HNPACONTsubtable RTEREF	Bearer Capability Routing
IBNMAP	Bearer Capability Routing
IBNRTE	Bearer Capability Routing
IBNXLA	Bearer Capability Routing
ISAXLA	PRI Call Routing
ISDNPARM	DISPLAY Information Element Blocking
ISDNPROT	Flexible Timers
LTCALLS	PRI Call RoutingBearer Capability RoutingCalling Line Identification BlockingEqual Access
LTCINV	Base Service
LTCPSINV	Base Service
LTDATA	PRI Call RoutingTwo B-channel transferCalling Line Identification BlockingISDN Treatments
LTDEF	Base Service
LTGRP	Base Service
LTMAP	Base Service

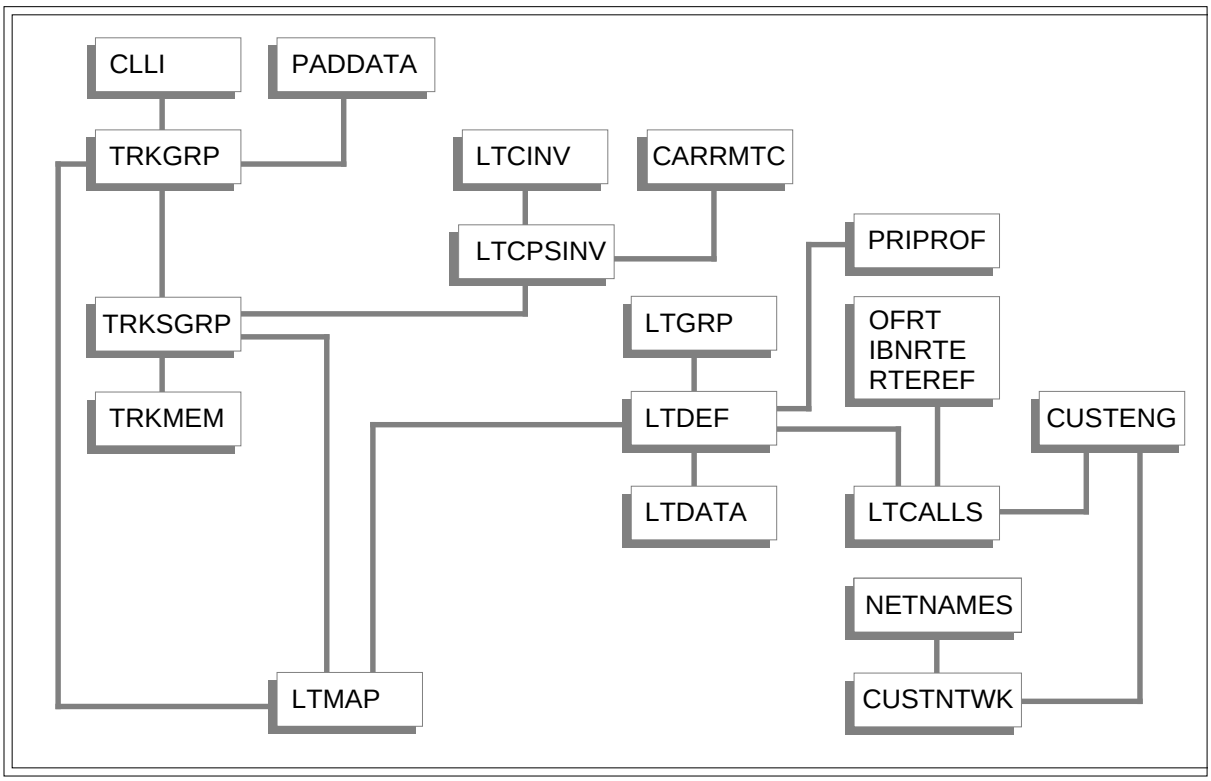
Table 4-1 PRI table and capability cross-reference (Sheet 2 of 2)

Table	Capability
MSGRTE	Message Waiting IndicatorNetwork Ring Again
NETNAMES	Message Waiting IndicatorNetwork Name DeliveryNetwork Ring Again
OFRT	Bearer Capability Routing
OFRTMAP	Bearer Capability Routing
PADDATA	Base Service
PRIPROF	Base Service
PXLAMAP	Bearer Capability Routing
RCNAME	Bearer Capability Routing
RTECHAR	Bearer Capability Routing
TRKGRP	Base ServiceBearer Capability Routing
TRKMEM	Base Service
TRKSGRP	Base ServiceBackup D-ChannelDISPLAY Information Element Blocking
XLAMAP	Bearer Capability Routing

Table datafill dependencies

Figure 4-3 shows the base datafill dependencies which exist between many of the PRI tables.

Figure 4-3 Table datafill dependencies



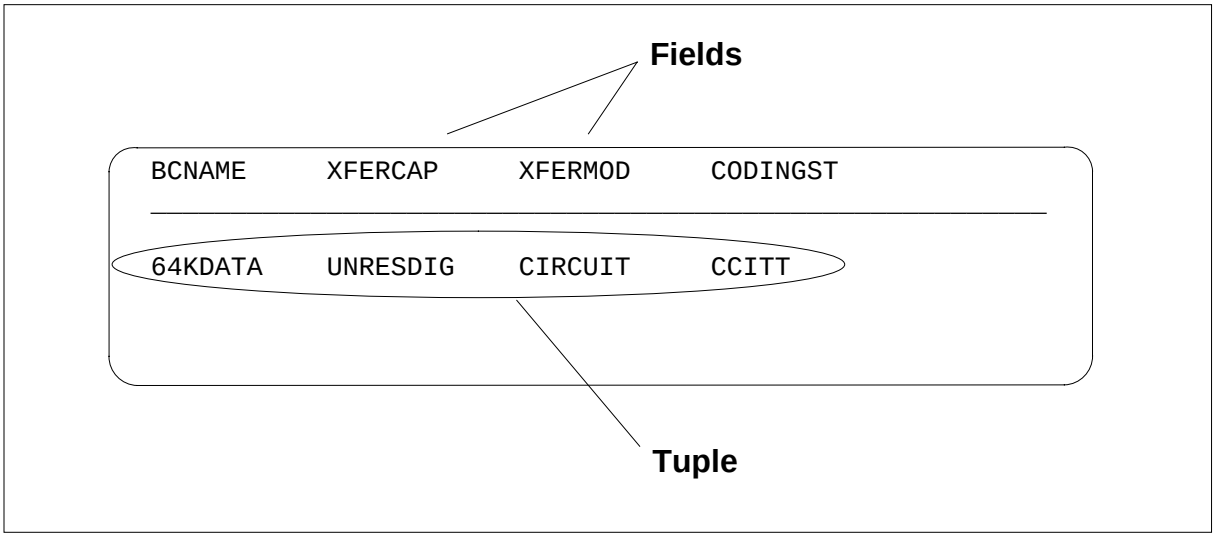
Translations process

Translations is a process where the system accesses and processes information in data tables. Certain tables must be datafilled in a specific sequence to ensure the smooth operation of the network.

Translation database

The data that is used to process translations is contained in internal DMS tables. These tables consist of vertical columns known as fields and horizontal rows known as tuples. Figure 4-4 shows example fields and tuples on a MAP display.

Figure 4-4 Example of fields and tuples on a MAP display



How translation reads tables

Each table that is used by translation has a specific function. Translation typically accesses a combination of tables to obtain all the information needed to translate and route a call.

Certain fields in each table index the next table or set of tables. Any of the fields in the table can be used to key other tables.

DMS translation involves reading specific tuples in designated data tables to determine the path that a call takes to route it to its destination as well as the termination point of a call.

The number and sequence of tables accessed by a given call varies according to several factors (for example, the origin and destination of the call, the number of digits dialed, and the signaling system used on the incoming trunk group).

Translation analyzes information collected during call processing using the trunk group tables. Information in the trunk group tables indexes one of the translation tables. Each translation table in turn indexes another until the call is fully translated and can be routed.

How translation tables are datafilled

The process for datafilling translation tables varies depending on whether the switch is being datafilled for the first time, a batch change supplement (BCS) update is being applied, or routine modifications are being made to a few tables.

Initial datafill and BCS updates

Northern Telecom does the initial datafill of the DMS-100 switch when the office is commissioned and provisioned.

Subsequent updates for each BCS are done by a dump and restore process, in which operating company data that is integrated with an active software release is dumped and temporarily stored, pending an update of that software by Northern Telecom.

Routine modifications

The operating company makes routine changes, additions, and modifications to the datafill in individual tables as required, using the table editor facility at the MAP. For complete information on using the table editor, refer to the *Basic Translations Tools Guide*.

Terms used in translations

data

The entered values in a table. Also known as the datafill.

datafill

The entry of data into a table.

data dictionary

A unit of software that maintains descriptions of the various tuples, fields, and domains for the datafill tables manipulated by table control.

data schema

The format of data for a particular database table.

field

The vertical column of a table. Refer to figure Figure 4-4.

formatter

A device that converts any type face known to the data dictionary from its human-readable character representation to its procedure-oriented type enforcing language (PROTEL) representation and from its PROTEL representation to its human-readable character representation.

key

A piece of information by which a particular tuple in the logical and customer schema is uniquely identified. Keys have an ordering and a validity property. The user therefore can ask for a specific key (such as the first, next, or last key) from the set of used keys.

range

The range of a field is the set of data values that can be entered in the field.

subfield
A subset of a field.

subtable
A subset of a table.

table
Two-dimensional entities in which data associated with hardware and software in the DMS-100 Family switches are stored.

table control
Software used to manipulate tables in DMS-100 Family switches.

table editor
In a DMS switch, software that supports an enhanced set of table control functions at the user interface, using data dictionary, formatter, and table control. Operating company personnel can modify or add tuples to a table.

tuple
A horizontal row in a data table. Refer to figure Figure 4-4.

value
An entry in a field or subfield.

Functional groups for ISDN PRI

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

NI0 NI-1 PRI, NI000011

To operate, NI0 NI-1 PRI requires NI0 ISDN PRI Base, NI000022.

NI0 NI-1 PRI Interworking 4E/5ESS, NI000012

To operate, NI0 NI-1 PRI Interworking 4E/ESS requires NI0 NI-1 PRI, NI000011.

NI0 NI-1 PRI Networking, NI000013

To operate, NI0 NI-1 PRI Networking requires NI0 NI-1 PRI, NI000011.

NI0 ISDN PRI Base, NI000022

NI0 ISDN PRI Base has no prerequisites.

5 Datafilling NI0 NI-1 PRI

The following chapter describes the NI0 NI-1 PRI, NI000011, functionality.

PRI Backup D-Channel

Ordering code

Functionality 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

This capability 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 in-service (INS) state and the backup D-channel is in the standby (STB) state, and 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, a switch of activities to the STB D-channel occurs automatically. Switching manually to a backup D-channel can also be done from a MAP terminal.

Operation

Datafill the DCHBCKUP subfields in table TRKSGRP to define the backup D-channel. Datafill the DCHNL subfields in table TRKSGRP in the Base Service capability for the primary D-channel. The DCHNL subfields are the same as the DCHBCKUP subfields.

Translations table flow

PRI Backup D-Channel does not affect translations.

Limitations and restrictions

PRI Backup D-Channel has no limitations or restrictions.

Interactions

PRI Backup D-Channel has no functionality interactions.

PRI Backup D-Channel (continued)

Activation/deactivation by the end user

PRI Backup D-Channel requires no activation or deactivation by the end user.

Billing

PRI Backup D-Channel does not affect billing.

Station Message Detail Recording

PRI Backup D-Channel does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Backup D-Channel does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI Backup D-Channel. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Backup D-Channel

Table	Purpose of table
TRKSGRP	Defines the attributes of the PRI trunk group's D-channels.

Datafilling table TRKSGRP

The following table shows the datafill specific to PRI Backup D-Channel for table TRKSGRP. Only those fields that apply directly to PRI Backup D-Channel are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKSGRP (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
SGRPKEY		see subfields	Subgroup key. Datafill subfields CLLI and SGRP as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually.
	CLLI	alphanumeric	Trunk group name. From table CLLI, enter the trunk group name to which the subgroup belongs.
	SGRP	0 (zero)	Subgroup. Enter 0 (zero).
SGRPVAR		see subfields	Subgroup variable refinement

PRI Backup D-Channel (continued)

Datafilling table TRKSGRP (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	DCHBCKUP	see subfields	D-channel backup. Defines the backup D-channel to be used for the interface. ***Note:*** Refer to “Datafilling Base Service" when datafilling the primary D-channel. The subfields must be datafilled twice, once for the primary D-channel and once for the backup D-channel, and be in the same tuple. The tuple automatically ends after a backup D-channel is datafilled.
	PMTYPE	DTCI or LTC	Peripheral module type. Enter DTCI or LTC.
	DTCINO	0 to 511	DTCI number. Enter a number from 0 to 511 for the DTCI number. ***Note:*** Use when PMTYPE is DTCI.
	LTCNO	0 to 511	LTC number. Enter a number from 0 to 511 for the LTCI number. ***Note:*** Use when PMTYPE is LTC.
	DTCICKTNO	0 to 19	DS-1 circuit number. Enter a number from 0 to 19 for the DS-1 circuit number. ***Note:*** Use when PMTYPE is DTCI.
SGRPVAR (continued)	LTCCKTNO	0 to 19	DS-1 circuit numberEnter a number from 0 to 19 for the DS-1 circuit number. The primary D-channel must be datafilled on a lower DS-1 circuit number than the backup D-channel. ***Note:*** Use when PMTYPE is LTC.
	DTCICKTTS	1 to 24	D-channel time slot number. Enter a number from 1 to 24 for the time slot number of the D-channel. A commonplace value is 24. ***Note:*** Use when PMTYPE is DTCI.

PRI Backup D-Channel (continued)

Datafilling table TRKSGRP (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	LTCCKTTS	1 to 24	D-channel time slot number. Enter a number from 1 to 24 for the time slot number of the D-channel. A commonplace value is 24. ***Note:*** Use when PMTYPE is LTC.
	DCHRATE	56K or 64K	D-channel rate. Enter 56K or 64K for the data rate of the D-channel. ***Note:*** This field must be compatible with subfield ZLG in table CARRMTC. If subfield ZLG is set to ZCS, DCHRATE must be 56K; if ZLG is B8ZS, DCHRATE must be 64K.
	HDLCTYPE	HDLC	High level data link type. Enter HDLC for high level data link.

Datafill example for table TRKSGRP

The following example shows sample datafill for table TRKSGRP.

MAP display example for 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 HDLC
(  DTCI 0 1 24 64K HDLC)$
```

PRI Backup D-Channel (end)

Error messages for table TRKSGRP

The following error messages apply to table TRKSGRP.

Error messages for table TRKSGRP

Error message	Explanation and action
NO OF D-CHANNELS EXCEEDS MAXIMUM LIMIT	The maximum number of D-channels that can be configured in the DTCI is 32. When a new tuple is added to table TRKSGRP, the tuple is accepted if the current number of D-channels configured on the PM is less than the maximum allowed. If it is greater, table LTMAP is checked to determine how many of the D-channels are mapped to an LTID. If the number of mapped D-channels is less than the maximum, the tuple is accepted. If not, this message is displayed.

Translation verification tools

PRI Backup D-Channel does not use translation verification tools.

SERVORD

PRI Backup D-Channel does not use SERVORD.

PRI Base Service

Ordering code

Functionality group ordering codes: NI000011, NI000012, NI000022

Functionality ordering code: not applicable

Release applicability

BCS36 and up

Prerequisites

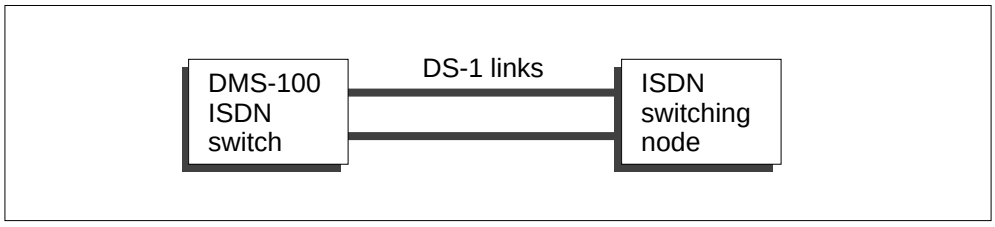
To operate, PRI Base Service has the following prerequisites:

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

Description

PRI Base Service is the capability which provides the base features of ISDN PRI voice and data service. This capability establishes a PRI interface from the DMS-100 switch to another switching node at the far end. As shown in the following figure, the interface is implemented on DS-1 links between the two nodes.

PRI Base Service



PRI can be used to connect the DMS-100 switch to the following Northern Telecom products:

- DMS-100 switch
- DMS-250 switch
- Meridian 1 Options 11-81 (SL-1 system) private branch exchange (PBX)
- Meridian 1 Options 111-211 (SL-100 system) PBX

The DMS-100 switch can also be connected to a number of switches produced by vendors other than Northern Telecom.

PRI Base Service (continued)

ISDN uses time-division multiplexed digital channels to carry information. The ISDN PRI interface consists of B-channels and D-channels. The B-channels carry circuit-switched voice or data between the DMS-100 switch and the switching node at the far end. The D-channels carry the call control messages for the B-channels.

A PRI interface can be implemented on a number of DS-1 links. Each B-channel and D-channel occupies one time slot on a DS-1.

Each DS-1 link can handle 24 B-channels or 23 B-channels and one D-channel. As one D-channel can support up to 479 B-channels, a PRI interface can consist of 479 B-channels and one D-channel over a maximum of 20 DS-1 links. However, for traffic considerations and protection against equipment failure, a lower D-channel-to-B-channel ratio is recommended. Typical installations have one D-channel for every one or two DS-1 links (a ratio of one D-channel for 23 or 47 B-channels).

Refer to the *Dialable Wideband Service Services Guide* for information on DWS and H-channels.

The PRI interface supports 15-Digit International Dialing. 15-Digit International Dialing is a regulatory requirement that expands the maximum number of digits that can be dialed during an international call from 12 to 15. The cutover from the current 12-digit International Numbering Plan to the 15-Digit International Numbering Plan is scheduled to occur at 2359 Coordinated Universal Time on December 31, 1996.

For more information on 15-Digit International Dialing, refer to “15-Digit International Dialing" (Functional group ordering code LOC00004) in the LOC translations section in this document.

Operation

The datafill for the Base Service capability defines the hardware, trunks, and logical terminals involved in the PRI interface.

PRI hardware

The DS-1 links between the switching nodes are terminated in the DMS-100 switch at the ISDN digital trunk controller (DTCI) or ISDN line trunk controller (LTCI) peripheral module.

Each DTCI supports a maximum of 20 links on 10 DS-1 cards. Typically, one D-channel is assigned for every two DS-1 links. All the DS-1 B-channels serviced by a D-channel must be located on the same DTCI or LTCI.

Information relating to the DTCI and LTCI is datafilled in tables LTCINV and LTCPSINV.

The signaling information carried in the D-channel is processed in the ISDN signaling preprocessor (ISP) card in the DTCI. The ISP card can support a maximum of 32 D-channels in the DTCI. The ISP card is located in slot 16 and must be datafilled in table LTCINV.

PRI trunks

In PRI terms, a trunk is a B- or D-channel, and a trunk group is the collection of B- and D-channels forming the PRI interface. The trunk group can be implemented across a number of DS-1 links. PRI trunk groups are defined in tables CLLI, PADDATA, TRKGRP, and CARRMTC.

Unlike other trunk group types, a PRI trunk group has no subgroups as such, but the trunk's D-channel is defined in table TRKSGRP. (There must be one D-channel defined for each trunk group.) The B-channels, also known as trunk group members, are defined in table TRKMEM.

Logical terminals

In ISDN applications, the concept of the logical terminal clarifies the situation in which more than one physical terminal can be associated with a single line card.

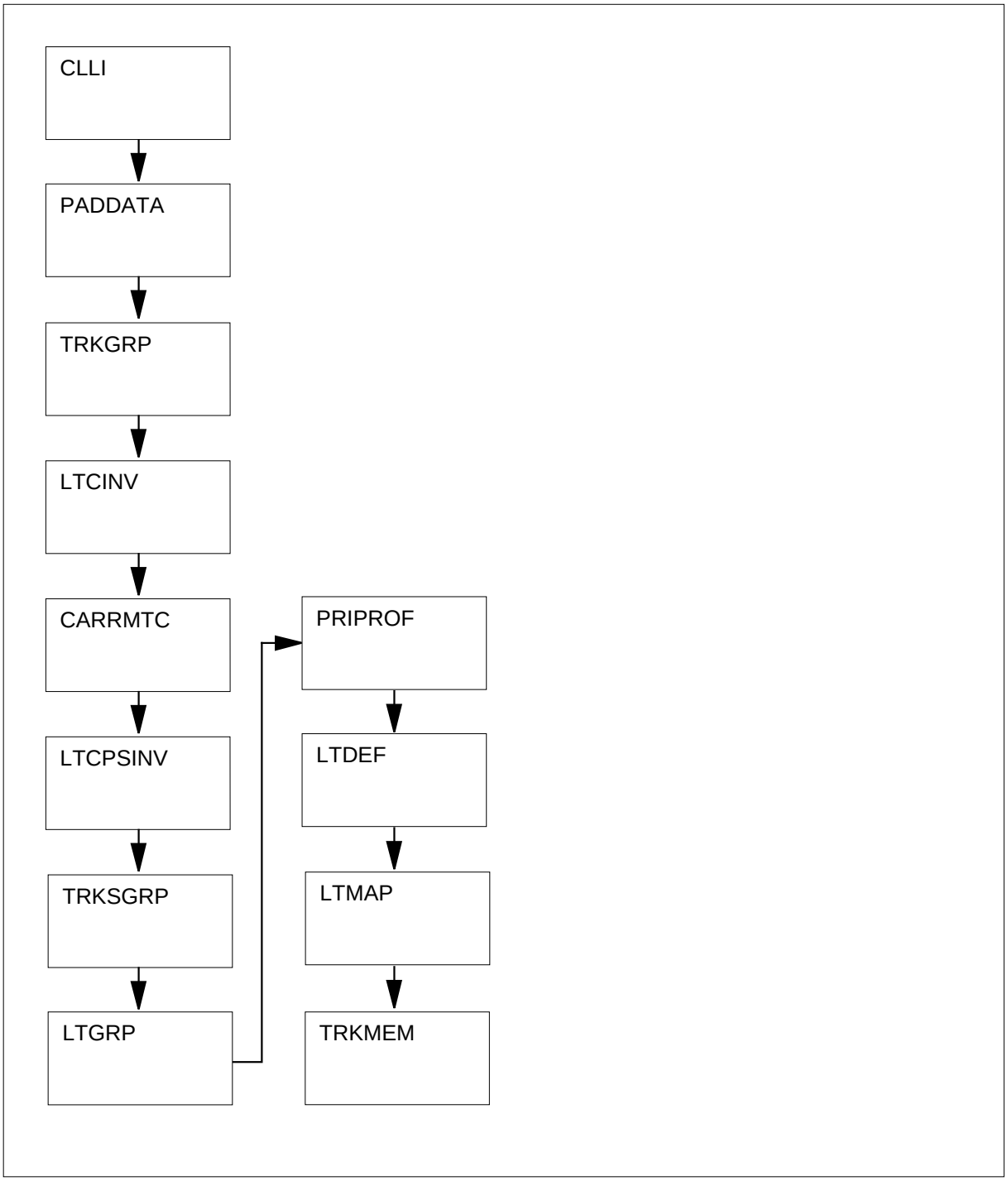
In PRI applications, the logical terminal is actually the switching node at the far end. By extension, the PRI interface or trunk group is the equivalent of a logical terminal. As each logical terminal has an identifier and belongs to a logical terminal group, the PRI trunk group is datafilled with these attributes in tables LTGRP, LTDEF, and LTMAP.

Translations table flow

The PRI Base Service translation process is shown in the flowchart that follows. Most of the Base Service tables are information tables and do not affect the PRI translation process. The trunking tables (TRKGRP, TRKSGRP, and TRKMEM) are included in the call processing data flow description in the PRI Call Routing and Bearer Capability Routing capabilities.

PRI Base Service (continued)

Table flow for PRI Base Service



Limitations and restrictions

The following limitations and restrictions apply to PRI Base Service:

- Table PRIPROF can have a maximum of 255 profiles datafilled in field PROFNAME and subfields VARIANT and ISSUE. The maximum number of variants is 15, and each variant can have a maximum of 15 issues.
- In table LTDEF, when you make changes to subfields VARIANT, ISSUE, or PROFNAME, the D-channel associated with the LTID must be installation busy (INB). The LTID must be mapped to a D-channel which is datafilled as a CLLI in table TRKSGRP. Changes take effect when the changed tuple is accepted.
- A tuple change in table PRIPROF only becomes effective by unmapping and mapping the entry for the associated LTID in table LTMAP. This includes changing the variant, issue, or function switches in the profile. The following are the steps for changing a profile:
  - — A tuple can only be deleted from table PRIPROF when all references to the profile name have been removed from table LTDEF. Add a new profile name to table PRIPROF reflecting the required modifications.
  - — Change the D-channel state to INB.
  - — Delete the associated entry in table LTMAP.
  - — Change all references to the old profile name in table LTDEF to the new profile name.
  - — Replace the associated entry in table LTMAP.
  - — Delete the old profile name from table PRIPROF.
  - — Return the D-channel to service.
- A tuple can only be deleted from table PRIPROF when all references to the profile name have been removed from table LTDEF. The following are the steps for changing a profile:
  - — Change the D-channel state to INB.
  - — Delete the associated entry in table LTMAP.
  - — Delete all references to the old profile name from table LTDEF, or change the old profile name to a valid profile name for the variant and issue.
  - — Replace the associated entry in table LTMAP.
  - — Delete the old profile name from table PRIPROF.
  - — Return the D-channel to service.

PRI Base Service (continued)

Interactions

PRI Base Service has no functionality interactions.

Activation/deactivation by the end user

PRI Base Service requires no activation or deactivation by the end user.

Billing

PRI Base Service does not affect billing.

Station Message Detail Recording (SMDR)

PRI Base Service does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Base Service does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI Base Service. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Base Service (Sheet 1 of 2)

Table	Purpose of table
CLLI	Defines the PRI trunk group name.
PADDATA	Defines the loss and level plan for PRI.
TRKGRP	Defines the data associated with each trunk group as a whole.
LTCINV	Contains the inventory of DTCI peripheral modules.
CARRMTC	Contains the attributes of the DS-1 links between the DTCI and the switching node at the far end.
LTCPSINV	Contains the P-side link assignments for the DTCI.
TRKSGRP	Defines the attributes of the PRI trunk group's D-channel.
LTGRP	Defines the logical terminal group to which the PRI trunk group belongs.
PRIPROF	Establishes a PRI profile to be used for each interface.
LTDEF	Specifies a logical terminal identifier and access privileges for the PRI trunk group.

Datafill tables required for PRI Base Service (Sheet 2 of 2)

Table	Purpose of table
LTMAP	Associates the PRI trunk's LTID with the trunk group CLLI.
TRKMEM	Defines the attributes of the B-channels in each trunk group.

Datafilling table CLLI

Table CLLI is datafilled to define the name of the trunk group.

The following table shows the datafill specific to PRI Base Service for table CLLI. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table CLLI

Field	Subfield or refinement	Entry	Explanation and action
CLLI		alphanumeric(up to 16 characters)	Trunk group name. Enter the name of the trunk group.
ADNUM		numeric(50 to 8191)	Administration number. Enter a numeric value. ***Note:*** The number must be less than the size of table CLLI defined in table DATASIZE.
TRKGRSIZ		numeric(0 to 2047)	Trunk group size. Enter the number that represents the total number of B-channels in the PRI trunk group.
ADMININF		alphanumeric(up to 32 characters)	Administration information. Enter a string of text to describe the CLLI.

Datafill example for table CLLI

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

PRI Base Service (continued)

MAP display example for table CLLI

```
   CLLI      ADNUM    TRKGRSIZ                    ADMININF
_____________________________________________________________

SL1NTPRI       171          47      PRA_TRUNK_TO_SL1_PBX
```

Error messages for table CLLI

The following error messages apply to table CLLI.

Error messages for table CLLI

Error message	Explanation and action
ADNUM greater than 50 must be used if CLLI is not a PSEUDOCLLI	A value of less than or equal to 50 has been entered in field ADNUM for a CLLI that is not a shortened CLLI. Enter a value of greater than 50 in field ADNUM.

Datafilling table PADDATA

Table PADDATA contains the loss and level plan for the DMS-100 switch, ensuring acceptable voice quality for calls over the interface. The table has an entry for each destination trunk group accessible by the interface.

The following table shows the datafill specific to PRI Base Service for table PADDATA. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table PADDATA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PADKEY		see subfields	PADDATA key. Datafill subfields PADGRP1 and PADGRP2 as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually.
	PADGRP1	alphanumeric(up to 5 characters)	PAD group 1. Enter a name that defines the originating PAD group.
	PADGRP2	alphanumeric(up to 5 characters)	PAD group 2. Enter a name that defines the destination PAD group.

Datafilling table PADDATA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PAD1TO2		alphanumeric(up to 3 characters)	PAD group 1 to PAD group 2. For the transmit PAD, enter one of the following values: • 0 (zero) • 0L to 14L for loss • 0G to 7G for gain
PAD2TO1		alphanumeric(up to 3 characters)	PAD group 2 to PAD group 1. For the transmit PAD, enter one of the following values: • 0 (zero) • 0L to 14L for loss • 0G to 7G for gain

Datafill example for table PADDATA

The following example shows sample datafill for table PADDATA.

PRI Base Service (continued)

MAP display example for table PADDATA

```
        PADKEY    PAD1TO2 PAD2TO1

PRAC     UNBAL       3L      0
PRAC     STDLN       3L      0
PRAC     LRLM        3L      0
PRAC     PPHON       0       0
PRAC     DAVLN       6L      0
PRAC     IAO         3L      0
PRAC     LCO         3L      0
PRAC     ELO         0       0
PRAC     ETLS        0       0
PRAC     ETLL        0       0
PRAC     TLA         0       0
PRAC     TLD         3G      0
PRAC     CONF        2G      0
PRAC     CPOS        0       0
PRAC     TPOS        0       0
PRAC     BRA         0       0
PRAC     PRAC        0       0
PRAC     RSC         3L      0
PRAC     ITT         0       0
PRAC     DID         0       0
PRAC     ATT         3L      0
PRAC     DTT         0       0
PRAC     SHFX        0       0
PRAC     LHFX        0       0
```

Datafilling table TRKGRP

Table TRKGRP contains information that applies to the trunk group as a whole, such as the B-channel selection sequence, the trunk group's LTID, and the billing directory number.

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

For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKGRP (Sheet 1 of 4)

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY		see subfield	Group key. This field consists of subfield CLLI.
	CLLI	alphanumeric(up to 16 characters)	Common language location identifier. From table CLLI, enter the trunk group name.
GRPINFO		see subfields	Group information. This field consists of GRPTYP, TRAFSNO, PADGRP, NCCLS, SELSEQ, BILLDN, and LTID.
	GRPTYP	PRA, IBNTO, IBNTI, or IBNT2	Group type. Define the trunk type by entering one of the following values: • PRA for primary rate interface • IBNTO for MDC outgoing • IBNTI for MDC incoming • IBNT2 for MDC two-way
	TRAFSNO	numeric(0 to 127)	Traffic signaling number. Enter a numeric value. Enter 0 (zero) when the traffic signaling number is not required.
	PADGRP	alphanumeric(up to 5 characters)	PAD group. Enter the name of the originating PAD group from table PADDATA (subfield PADGRP1).

PRI Base Service (continued)

Datafilling table TRKGRP (Sheet 2 of 4)

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO(continued)	NCCLS	NCBN, NCID, NCIM, NCIT, NCLT, NCOF,NCON, NCOT, NCRT, NCTC, or NOSC	Operational measurement no circuit class. The OM no circuit class, associated with the trunk group, indicates which OM register is incremented when generalized no circuit (GNCT) treatment occurs. Enter one of the following values: • 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 OFZMCIT) • 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) • NCRT for no circuit (OM register OFZNCRT) • NCTC for no circuit toll completing (OM register OFZNCTC) • NOSC for no service circuit (OM register OFZNOSC)

Datafilling table TRKGRP (Sheet 3 of 4)

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO (continued)	SELSEQ	ASEQ, DSEQ, MIDL, LIDL, CWCTH, or CCWCTH	Selection sequence. This field determines the sequence in which trunks are selected within the trunk group. It is used to reduce B-channel glare by coordinating the selection of channels between the DMS-100 and the switching node at the far end. Three sets of two corresponding values for SELSEQ define the three types of trunk selection: ascending/descending, most idle/least idle, and clockwise/counter-clockwise circular hunting. Each set includes two values, so that opposite ends of the PRI trunk group can be datafilled with opposite SELSEQ field values. Enter ASEQ (ascending sequence) or DSEQ (descending sequence) to specify the ascending/descending selection sequence in which the switch searches for a free B-channel. Enter MIDL (most idle) or LIDL (least idle) to choose the most idle or least idle method of trunk selection. Enter CWCTH (clockwise circular trunk hunting) or CCWCTH (counter-clockwise circular trunk hunting) to specify the circular trunk hunting selection sequence. ***Note:*** Use when subfield GRPTYP is PRA. To change the field SELSEQ value after the trunk group has been datafilled, you must delete the trunk group and then add it again.

PRI Base Service (continued)

Datafilling table TRKGRP (Sheet 4 of 4)

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO (continued)	BILLDN	numeric(up to 11 digits) or N	Billing directory number. Datafill this field as described below: • Enter the directory number (up to 11 digits) to which all calls are billed, regardless of the calling party number, when the calling number is not a billing DN. • Enter N when the calling number is a billing DN.
	LTID	$	Logical terminal identifier. Enter a $ to satisfy the table editor. This field is automatically updated by the system after you datafill the corresponding entry in table LTMAP. ***Note:*** In the datafill example, the tuple is shown after table TRKGRP has been updated automatically with the LTID from table LTMAP.

Datafill example for table TRKGRP

The following example shows sample datafill for table TRKGRP.

MAP display example for table TRKGRP

```
  GRPKEY
                                              GRPINFO
________________________________________________________
 SL1NTPRI
                    PRA 0 PRAC NCIT ASEQ N (ISDN 1008)$
```

Datafilling table LTCINV

Table LTCINV is the inventory of DTCI peripheral modules in the DMS-100 switch. It identifies the location of the hardware, the load and executive programs required, and the C-side DS30 links to the network modules. The basic PM information is datafilled by Northern Telecom when the software load is built. However, for each DTCI used by the PRI trunk group, table

LTCINV must be datafilled with the terminal type (PRAB) and with the two optional cards required for PRI operation, RAM6X69 and ISP.

The following table shows the datafill specific to PRI Base Service for table LTCINV. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTCINV

Field	Subfield or refinement	Entry	Explanation and action
LTCNAME		see subfields	Line trunk controller name. Datafill subfields XPMTYPE and XPMNO as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually.
	XPMTYPE	DTCI or LTC	Extended peripheral module type. Enter DTCI or LTC.
	XPMNO	numeric(0 to 255)	Extended peripheral module number. Enter a numeric value.
FRTYPE		DTE	Frame type. Enter DTE.
EXECTAB		see subfields	Executive table. Datafill subfields TRMTYPE and EXEC as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually. Enter a $ to end the field.
	TRMTYPE	PRAB	Terminal type. Enter PRAB to indicate that the type of terminal supported on the peripheral module supports PRI B-channels.
EXECTAB(continued)	EXEC	DTCEX	Executive program. Enter DTCEX.
OPTCARD		RAM6X69 or ISP or $	Optional card. Enter RAM6X69 for downloadable tones or enter ISP. Enter a $ to end the field.

Datafill example for table LTCINV

The following example shows sample datafill for table LTCINV.

PRI Base Service (continued)

MAP display example for table LTCINV

```
LTCNAME FRTYPE  FRNO SHPOS FLOOR ROW FRPOS EQPEC LOAD
                                                EXECTAB
                                               CSLNKTAB
                                                OPTCARD
 TONESET          PECS6X45
                     E2LOAD
                                                 OPTATTR
 PEC6X40
-------------------------------------------------------------

DTCI  1    DTE    1   18     0   G   0 6X02AA DT36
                                     (  PRAB DTCEX)$
 (0 31 3 0) (0 31 3 1) (0 31 3 2) (0 31 3 3)
 (0 31 3 4) (0 31 3 5) (0 31 3 6) (0 31 3 7)
 (0 31 3 8) (0 31 3 9) (0 31 3 10) (0 31 3 11)
  (0 31 3 12) (0 31 3 13) (0 31 3 14) (0 31 3 15) $
                             ( RAM6X69 ) ( ISP )$

  NORTHAM   6X45BA 6X45BA
                   NILLOAD
                                                   $
   6X40CA
```

Error messages for table LTCINV

The following error messages apply to table LTCINV.

Error messages for table LTCINV

Error message	Explanation and action
THE ISP OPTCARD CAN NOT BE REMOVED FROM THIS ISDN PERIPHERAL.	The ISP card is required in the DTCI. Datafill field OPTCARD with ISP.
AN E2LOAD IS NOT REQUIRED FOR 6X45BA PROCESSORS. E2LOAD HAS BEEN DEFAULTED TO NILLOAD.	The E2LOAD is not required for the DTCI. The E2LOAD field has automatically been datafilled with NILLOAD.
EQPEC 6X02P3 MUST HAVE OPTCARD RAM6X69.	The RAM6X69 card is required in the DTCI. Datafill field OPTCARD with RAM6X69.

Datafilling table CARRMTC

Table CARRMTC contains information describing the DS-1 links between the DMS-100 and the switching node at the far end. It defines the line coding and frame format used in the DS-1 link and provides maintenance control

PRI Base Service (continued)

information for the link. The DS-1 card used for PRI is NT6X50AB, which uses standard frame format and supports either B8ZS or ZCS line coding techniques. The B8ZS line coding technique allows the transfer of 64-kbit/s clear information, whereas ZCS allows a maximum transfer capability of 56-kbit/s restricted information. Most carrier systems run at 64 kbit/s, but occasionally the DMS-100 is connected to carrier equipment that operates at 56 kbit/s which requires the DMS-100 D- and B-channels to run at 56 kbit/s.

An entry for the switch is datafilled at load-build time with default values. The default values, for the fields listed below, must be changed for PRI Base Service. To change the default value, create a new tuple in CARRMTC and change the appropriate fields as required.

The following table shows the datafill specific to PRI Base Service for table CARRMTC. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table CARRMTC (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
CSPMTYPE		DTCIor LTC	Carrier peripheral module type. Enter DTCI or LTC.
TMPLTNM		alphanumeric(up to 16 characters)	Template name. Enter the template name for the DTCI or LTC. The default template name is DEFAULT. ***Note:*** This name is used in subfield CARRIDX in table LTCPSINV.
RTSML		255	Return-to-service maintenance limit. Enter 255.
RTSOL		255	Return-to-service out-of-service limit. Enter 255.
ATTR		see subfields	Attributes. This field consists of subfields SELECTOR, CARD, VOICELAW, FF, ZLG, BERB, DLK, IAT, LCGAST, LCGACL, RCGAST, RCGACL, AISST, AISCL, BEROL, BERML, ES, SES, FRAMEML, FRAMEOL, SLIPML, and SLIPOL.
	SELECTOR	DS1	Selector. Enter DS1.

PRI Base Service (continued)

Datafilling table CARRMTC (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	CARD	NT6X50AB	Card name. Enter NT6X50AB.
	VOICELAW	MU_LAWorA_LAW	Voice law. Enter MU_LAW or A_LAW.
	FF	ESForSF	Frame format. Enter one of the following values: • ESF for extended superframe • SF for superframe
ATTR(continued)	ZLG	B8ZS or ZCS	Line coding scheme. Enter one of the following values: • B8ZS to allow for the capability of 64-kbit/s clear communication • ZCS for 56-kbit/s restricted information ***Note:*** This field must be compatible with subfield DCHRATE in table TRKSGRP. There are no error messages for incorrect entries.
	BERB	BPV or CRC	Bit error rate base. Enter one of the following values: • BPV when field FF is SF • CRC when field FF is ESF ***Note:*** There are no error messages for incorrect entries.
	DLK	NILDL	Data link. Enter NILDL.
	IAT	Y or N	Inhibit alarm transmit. Enter Y or N to inhibit the alarm.
	LCGAST	numeric(1 to 9999)	Local carrier alarm stop threshold. Enter a numeric value. Normally 250.
	LCGACL	numeric(1 to 9999)	Local carrier group alarm clear threshold. Enter a numeric value. Normally 1000.

Datafilling table CARRMTC (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	RCGAST	numeric(1 to 9999)	Remote carrier alarm stop threshold. Enter a numeric value. Normally 50.
	RCGACL	numeric(1 to 9999)	Remote carrier alarm clear threshold. Enter a numeric value. Normally 50.
	AISST	numeric(1 to 9999)	Alarm indication selection stop threshold. Enter a numeric value. Normally 150.
ATTR(continued)	AISCL	numeric(1 to 9999)	Alarm indication selection clear threshold. Enter a numeric value. Normally 1000.
	BEROL	3	Bit error rate out-of-service limit. Enter 3.
	BERML	6	Bit error rate maintenance limit. Enter 6.
	ES	864	Errored second threshold. Enter 864.
	SES	numeric(1 to 9999)	Severe error record threshold. Enter a numeric value. Normally 100.
	FRAMEML	17	Frame loss maintenance limit. Enter 17.
	FRAMEOL	511	Frame loss out-of-service limit. Enter 511.
	SLIPML	4	
	SLIPOL	255	Slip count out-of-service limit. Enter 255.

Datafill example for table CARRMTC

The following example shows sample datafill for table CARRMTC.

MAP display example for table CARRMTC

```
CSPMTYPE   TMPLTNM RTSML RTSOL                    ATTR
_____________________________________________________

    DTCI    PRI64C   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
```

PRI Base Service (continued)

Datafilling table LTCPSINV

Table LTCPSINV lists the P-side link assignments for the DTCI, defining the DS-1 links to the switching node at the far end. The table contains an entry for each DTCI which defines all the PM P-side links. When a PM is datafilled in table LTCINV, the entry in table LTCPSINV is automatically created with the PSLINK number, followed by NILTYPE. NILTYPE reflects the correct values for the remaining subfields.

The following table shows the datafill specific to PRI Base Service for table LTCPSINV. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTCPSINV (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTCNAME		see subfields	Line trunk controller name. Datafill subfields XPMTYPE and XPMNO as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually.
	XPMTYPE	DTCIor LTC	Extended peripheral module type. Enter DTCI or LTC.
	XPMNO	numeric(0 to 255)	Extended peripheral module number. Enter a numeric value.
PSLNKTAB		see subfields	P-side link table. Datafill subfields PSLINK, PSDATA, CARRIDX, ACTION, IID, and LINE_EQ as one concatenated entry. Separate the values with blanks. You are not prompted for the subfields individually. Enter a $ to end the tuple.
	PSLINK	numeric	P-side link. Enter a number from 0 to 19 or the P-side port number for the DS-1.
	PSDATA	DS1PRA	P-side data. Enter DS1PRA.
	CARRIDX	alphanumeric(1 to 16 characters)	Carrier index. Enter the template name used in field TMPLTNM in table CARRMTC. The default template name is DEFAULT.

Datafilling table LTCPSINV (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PSLNKTAB(continued)	ACTION	Y or N	Action. Enter Y to indicate that the carrier is removed from service when the out-of-service limit for frame, slip, errored second, or severe errored second is exceeded. Enter N otherwise.
	IID	numeric(0 to 31)	Interface identifier. Enter a numeric value. ***Note:*** For an interface with multiple DS-1s, each DS-1 must be assigned a unique IID. Primary and backup D-channels are no different. See correlation section for link to Meridian 1 PBX.
	LINE_EQ	110, 220, 330, 440, 550, 660,or NIL	Line equipment. This is the line length from the DS-1 circuit to the first DS-1 office repeater. This field replaces the DIP switches on NT6X50AA and NT6X50AB cards. Datafill this field as follows: • Enter NIL when the DS-1 carrier is not equipped with the NT6X50EC tuple in table CARRMTC. • Enter the line length value used on the DIP switch (110, 220, 330, 440, 550, 660) if the DS-1 carrier is equipped with the NT6X50EC tuple in table CARRMTC.

Datafill example for table LTCPSINV

The following example shows sample datafill for table LTCPSINV. (The other link entries remain in the default condition.)

PRI Base Service (continued)

MAP display example for table LTCPSINV

```
  LTCNAME
                                                    PSLNKTAB
_____________________________________________________________________
DTCI  2
   (0 DS1PRA DEFAULT N 1 NIL) (1 DS1PRA DEFAULT
   N 1 NIL) (2 DS1PRA DEFAULT N 1 NIL)
   (3 DS1PRA DEFAULT N 1 NIL) (4 DS1PRA DEFAUL
   N 1 NIL) (5 DS1PRA DEFAULT N 1 NIL)
   (6 DS1PRA DEFAULT N 1 NIL) (7 DS1PRA DEFAULT
   N 1 NIL) (8 DS1PRA DEFAULT N 1 NIL)
   (9 DS1PRA DEFAULT N 1 NIL) (10 DS1PRA DEFAULT
   N 1 NIL) (11 DS1PRA DEFAULT N 1 NIL)
   (12 DS1PRA DEFAULT N 1 NIL) (13 DS1PRA
   DEFAULT N 1 NIL) (14 DS1PRA DEFAULT N 1 NIL)
   (15 DS1PRA DEFAULT N 1 NIL) (16 DS1PRA
   DEFAULT N 1 NIL) (17 DS1PRA DEFAULT N 1 NIL)
   (18 DS1PRA DEFAULT N 1 NIL)(19 DS1PRA DEFAULT
   N 1 NIL) $
```

Datafilling table TRKSGRP

In PRI applications, table TRKSGRP defines the D-channel for the trunk group.

The following table shows the datafill specific to PRI Base Service for table TRKSGRP. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKSGRP (Sheet 1 of 7)

Field	Subfield or refinement	Entry	Explanation and action
SGRPKEY		see subfields	Subgroup key. Datafill subfields CLLI and SGRP as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually.
	CLLI	alphanumeric(1 to 16 characters)	Common language location identifier. From table CLLI, enter the trunk group name to which the subgroup belongs.
	SGRP	0	Subgroup. Enter 0 (zero).

Datafilling table TRKSGRP (Sheet 2 of 7)

Field	Subfield or refinement	Entry	Explanation and action
CARDCODE		DS1SIG	Card code. Enter DS1SIG.
SGRPVAR		see subfields	Subgroup variable refinements. This field consists of subfield SIGDATA and refinements PSPDSEIZ, PARTDIAL, VERSION, CRLENGTH, BCHNEG, BCHGLARE, IFCLASS, CONFIG, LOCATION, SAT, ECSTAT, NSMATCH, TRKGRDTM, LIFLAGS, DCHNL, PMTYPE, DTCINO, LTCINO, DTCICKTNO, LTCCKTNO, DTCICKTTS, LTCCKTTS, DCHRATE, and HDLCTYPE.
	SIGDATA	ISDN	Subgroup variable. Enter ISDN.
SGRPVAR(continued)	PSPDSEIZ	numeric(2 to 30)	Permanent signal or partial dial on seizure timing. Enter a numeric value to specify the number of seconds that the trunk waits for reception of the first digit.
	PARTDIAL	numeric(2 to 30)	Partial dial timing. Enter a numeric value to specify the number of seconds that the trunk waits for reception of each digit, except the first digit.
	VERSION	87Q931	Protocol version. Enter 87Q931.
	CRLENGTH	1 or 2	Call reference length. Enter 1 or 2 for the number of octets in the call reference.
	BCHNEG	N	B-channel negotiation. Enter N.

PRI Base Service (continued)

Datafilling table TRKSGRP (Sheet 3 of 7)

Field	Subfield or refinement	Entry	Explanation and action
	BCHGLARE	STAND or YIELD	B-channel glare. When the B-channel is used in SETUP messages simultaneously in both directions. Enter one of the following values: • STAND if this switch waits for the other switch to yield • YIELD if the call should be taken down by this switch ***Note:*** When the switching node at the far end is another DMS-100 switch, one side must be STAND and the other YIELD. Generally, enter YIELD at the DMS-100 switch when the switching node at the far end is a PBX which is not manufactured by Northern Telecom. However, correlation of datafill with the PBX must be made.
SGRPVAR(continued)	IFCLASS	NETWORK	Interface class. Enter NETWORK for the network end of the PRI link.
	CONFIG	PT_PTorPT_MLT_PT	Configuration. When broadcast procedures are to be used on this PRI interface. Enter one of the following values: • PT_PT for point-to-point • PT_MLT_PT for point-to-multipoint

Datafilling table TRKSGRP (Sheet 4 of 7)

Field	Subfield or refinement	Entry	Explanation and action
	LOCATION	USER,PVTNET,or LOCALEO	Location. The location used when creating CAUSE information elements. These CAUSE IE are contained in release messages that map to a specific treatment. Enter one of the following values: • USER for public network • PVTNET for private network • LOCALEO for local end office (public network)
	SAT	Y or N	Satellite. Enter Y when the trunk group is connected to the distant office using satellite. Otherwise, enter N.
	ECSTAT	INTERNAL,INNOTONE,EXTERNAL, or UNEQ	Echo canceller status. Enter one of the following values: • 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
SGRPVAR(continued)	NSMATCH	Y or N	Noise match control. Enter Y for noise matching. The background noise levels are maintained when the internal echo canceller is actively cancelling echoes. Enter N for no noise matching. This is the default. The background noise levels are not maintained when the internal echo canceller is actively cancelling echoes. ***Note:*** Use when field ECSTAT is INTERNAL and INNOTONE.

PRI Base Service (continued)

Datafilling table TRKSGRP (Sheet 5 of 7)

Field	Subfield or refinement	Entry	Explanation and action
	AUTOON	Y or N	Automatic on. Enter Y for automatic reenabling of the internal echo canceller. This is the default. Enter N for for no automatic reenabling of the internal echo canceller. ***Note:*** Use when ECSTAT is INTERNAL.
SGRPVAR (continued)	TRKGRDTM	numeric(1 to 255)	Trunk guard timing. If the trunk group is outgoing or two-way, enter the time in 10 ms intervals that the trunk waits to receive on-hook from the far end before reporting lock-out on the trunk. The timer begins when an on-hook signal is sent to the far end. If a new outgoing call is attempted on a trunk before on-hook is received from the far end, the peripheral will delay outgoing trunk seizure until on-hook is received from the far end. If on-hook is received from the far end before this lockout timer expires, the new call is immediately attempted on the trunk. Otherwise, the trunk reports lock-out and the call is reattempted on another trunk. Enter a blank if the trunk is incoming.
	L1FLAGS	Y or N	Layer 1 flags. Enter Y to indicate that the DTCI sends layer 1 flags when the D-channel is in flagfill mode. Enter N to indicate that the DTCI does not send layer 1 flags when the D-channel is in flagfill mode. ***Note:*** When the switching node at the far end is manufactured by Northern Telecom, enter N. When the switching node at the far end is not manufactured by Northern Telecom, enter Y.

Datafilling table TRKSGRP (Sheet 6 of 7)

Field	Subfield or refinement	Entry	Explanation and action
SGRPVAR(continued)	DCHNL	see subfield	D-channel. Defines the primary D-channel to be used for this PRI interface. This field consists of subfield PMTYPE. ***Note:*** Refer to “Datafilling Backup D-Channel" when datafilling a backup D-channel. The subfields must be datafilled twice, once for the primary D-channel and once for the backup D-channel, and must be in the same tuple.
	PMTYPE	DTCI or LTC	Peripheral module type. Enter DTCI or LTC. Should only a primary D-channel be required, enter a $ to end the tuple after the primary D-channel is datafilled.
	DTCINO	numeric(0 to 511)	DTCI number. Enter the DTCI number. ***Note:*** Use when PMTYPE is DTCI.
	LTCNO	numeric(0 to 511)	LTC number. Enter the LTCI number. ***Note:*** Use when PMTYPE is LTC.
	DTCICKTNO	numeric(0 to 19)	DS-1 circuit number. Enter the DS-1 circuit number. The primary D-channel must be datafilled on a lower DS-1 circuit number than the backup D-channel. ***Note:*** Use when PMTYPE is DTCI.
SGRPVAR(continued)	LTCCKTNO	numeric(0 to 19)	DS-1 circuit number. Enter the DS-1 circuit number. The primary D-channel must be datafilled on a lower DS-1 circuit number than the backup D-channel. ***Note:*** Use when PMTYPE is LTC.

PRI Base Service (continued)

Datafilling table TRKSGRP (Sheet 7 of 7)

Field	Subfield or refinement	Entry	Explanation and action
	DTCICKTTS	numeric(1 to 24)	D-channel time slot number. Enter the time slot number of the D-channel. Normally 24. ***Note:*** Use when PMTYPE is DTCI.
	LTCCKTTS	numeric(1 to 24)	D-channel time slot number. Enter the time slot number of the D-channel. Normally 24. ***Note:*** Use when PMTYPE is LTC.
	DCHRATE	56K or 64K	D-channel rate. Enter 56K or 64K for the data rate of the D-channel. ***Note:*** This field must be compatible with subfield ZLG in table CARRMTC. If subfield ZLG is set to ZCS, DCHRATE must be 56K; if ZLG is B8ZS, DCHRATE must be 64K.
	HDLCTYPE	HDLC	High level data link type. Enter HDLC for high level data link.

Datafill example for table TRKSGRP

The following example shows sample datafill for table TRKSGRP.

MAP display example for 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 HDLC
                      $
```

Error messages for table TRKSGRP

The following error messages apply to table TRKSGRP.

Error messages for table TRKSGRP

Error message	Explanation and action
DCHRATE MISMATCH WITH ZLG FIELD IN CARRMTC	Field DCHRATE must be compatible with field ZLG in table CARRMTC. If ZLG is set to ZCS, DCHRATE must be 56K; if ZLG is B8ZS, DCHRATE must be 64K.
NO OF DCHANNELS EXCEEDS MAXIMUM LIMIT	The maximum number of D-channels that can be configured in the DTCI is 32. When a new tuple is added to table TRKSGRP, the tuple is accepted if the current number of D-channels configured on the PM is less than the maximum allowed. If it is greater, table LTMAP is checked to determine how many of the D-channels are mapped to an LTID. If the number of mapped D-channels is less than the maximum, the tuple is accepted. If not, this message is displayed.

Datafilling table LTGRP

The following table shows the datafill specific to PRI Base Service for table LTGRP. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTGRP

Field	Subfield or refinement	Entry	Explanation and action
GROUP		ISDN	Group name. Enter ISDN for the name of the logical terminal group to which the PRI trunk group belongs.
GROUPNO		numeric(0 to 31)	Group number. Enter a numeric value to specify the group number.
OPTIONS		SAPI16	Options. Enter a $ to end the tuple. ***Note:*** SAPI16 is an automatic default.

Datafill example for table LTGRP

The following example shows sample datafill for table LTGRP.

PRI Base Service (continued)

MAP display example for table LTGRP

```
   GROUP   GROUPNO      OPTIONS
_____________________________________________________

   ISDN          0            $
```

Datafilling table PRIPROF

A new profile is created by adding a tuple to table PRIPROF. Multiple interfaces can share the same profile providing the variant and issue are the same. Interfaces with the same variant and issue do not have to use the same profile.

A profile is linked to an interface using field PROFNAME in table LTDEF as the key to table PRIPROF. The profile is software associated with a specific issue of a protocol variant. A function can be shared among various issues of a variant as well as among multiple variants. A profile is used when interworking a switch or PBX that may not be fully compliant with PRI as implemented on the DMS-100 switch. This table provides additional control of PRI variants on each interface.

The following table shows the datafill specific to PRI Base Service for table PRIPROF. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table PRIPROF (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PROFNAME		alphanumeric (up to 8 characters)	Profile name. Enter a profile name (with no underscores). ***Note:*** The profile SL1PROFL has the five required function switches that must be used for linking to the Meridian 1 PBX.
VARINFO		see subfields	Variant information. This field consists of subfields VARIANT and ISSUE.

Datafilling table PRIPROF (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
VARINFO (continued)	VARIANT	NTNAPRI, U449PRI, or U459PRI	Protocol variant. Datafill this field as follows: • Enter NTNAPRI when connecting switching nodes manufactured by Northern Telecom. • Enter U449PRI when connecting to an AT&T 4ESS switch. • Enter U459PRI when connecting to an AT&T 5ESS switch.
	ISSUE	V1	Variant issue. Enter V1.
SWITCH		NOPIALRT, XPLCTIID, CIDXBIT0, CSE27T47, RMBCSE82, or NOSTATEQ,	Function switch. Enter one of the following names to specify the function switch: • CIDXBIT0 for set extension bit to zero • CSE27T47 for charge cause 27 • NOPIALRT for no progress alert message • NOSTATEQ for no status enquiry • RMBCSE82 for remote manual bust cause 82 • XPLCTIID for explicit circuit identification • NIL for no profile These given function switches allow a profile to be setup. Enter a $ to end the tuple. A profile with no function names is considered a nil profile. ***Note:*** A nil profile is not visible and cannot be changed or deleted. It can be used by all issues of variants.

Datafill example for table PRIPROF

The following example shows sample datafill for table PRIPROF.

PRI Base Service (continued)

MAP display example for table PRIPROF

```
PROFNAME           VARINFO
                                                        SWITCH
_____________________________________________________________

NAPBX            NTNAPRI V1
(NOPIALRT) (XPLCTIID) (CIDXBIT0) (CSE27T47) (RMBCSE82) $
```

Error messages for table PRIPROF

The following error messages apply to table PRIPROF.

Error messages for table PRIPROF

Error message	Explanation and action
TUPLE REFERRED TO BY ANOTHER TABLE	An attempt was made to delete a tuple when a reference to the profile remains in table LTDEF. Remove the reference to the profile in table LTDEF before deleting the table PRIPROF tuple.

Datafilling table LTDEF

Table LTDEF identifies logical terminals and defines their access privileges. Since each PRI trunk group is considered the equivalent of a logical terminal, it must be assigned a logical terminal identifier (LTID) and access privileges in table LTDEF. Protocol variant information is extracted from table PRIPROF.

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

PRI Base Service (continued)

For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDEF (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
LTKEY		see subfields	Logical terminal key. Datafill subfields LTGRP and LTNUM as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually.
	LTGRP	ISDN	Logical terminal group. Enter ISDN. ***Note:*** Same as field GROUP in table LTGRP.
	LTNUM	numeric(1 to 1022)	Logical terminal number. Enter a numeric value.
LTAP		B	Logical terminal access privilege. Enter B to specify circuit switching.
CLASSREF		see subfields	Class reference. This field consists of subfield LTCLASS and refinements. ***Note:*** Field NUMBCHNL, NUMCALLS, INCALLS, and OUTCALLS are not used at this time and are reserved for future use. In order to satisfy the editor function, it is recommended to split the total number of B-channels by 2, enter that number in the INCCALLS field, and enter the other half in the OUTCALLS field.
	LTCLASS	PRA	Logical terminal class. Enter PRA.
	NUMBCHNL	numeric(1 to 479)	***Note:*** The same value as field TRKGRSIZ in table CLLI.

PRI Base Service (continued)

Datafilling table LTDEF (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	NUMCALLS	numeric(1 to 479)	Number of calls. Enter a numeric value to specify the number of calls allowed on this logical interface at one time. ***Note:*** The subfield NUMCALLS value must be greater than or equal to the sum of the subfields INCCALLS and OUTCALLS values.
	INCCALLS	numeric(0 to 479)	Incoming calls. Enter a numeric value to specify the number of reserved incoming-only calls that are allowed on this logical terminal at one time.
	OUTCALLS	numeric(0 to 479)	Outgoing calls. Enter a numeric value to specify the number of reserved outgoing-only calls that are allowed on this logical terminal at one time. ***Note:*** Not used in PRI.
	VARISSUE	see subfields	Variant issue. This field consists of subfields VARIANT and ISSUE. ***Note:*** Not used in PRI.
CLASSREF(continued)	VARIANT	NTNAPRI, U449PRI, or U459PRI	Protocol variant. Datafill this field as follows: • Enter NTNAPRI when connecting switching nodes manufactured by Northern Telecom. • Enter U449PRI when connecting to an AT&T 4ESS switch. • Enter U459PRI when connecting to an AT&T 5ESS switch. ***Note:*** The subfields VARIANT, ISSUE, and PROFNAME must be in a defined tuple in table PRIPROF.

Datafilling table LTDEF (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	ISSUE	V1	Variant issue. Enter V1. ***Note:*** The subfields VARIANT, ISSUE, and PROFNAME must be in a defined tuple in table PRIPROF.
CLASSREF(continued)	PROFNAME	alphanumeric (1 to 8 characters)	Profile name. Enter a name from table PRIPROF. Enter NIL for the default name. ***Note:*** The subfields VARIANT, ISSUE, and PROFNAME must be in a defined tuple in table PRIPROF.
	OPTION	NOPMD, NOVOICE, NOVBD, NOCMD, or $	Option. Controls the use of bearer capabilities (BC) on the PRI interface. 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 • NOVBD to prevent voice-band data calls • NOCMD to prevent circuit-mode data calls • $ to end the tuple

Datafill example for table LTDEF

The following example shows sample datafill for table LTDEF.

MAP display example for table LTDEF

```
    LTKEY    LTAP
                                                          CLASSREF
_____________________________________________________________________

ISDN 1008       B
PRA 10 10 0 0 NTNAPRI V1 SL1PROFL (NOPMD ) $
```

PRI Base Service (continued)

Error messages for table LTDEF

The following error messages apply to table LTDEF.

Error messages for table LTDEF

Error message	Explanation and action
The sum of incoming calls and outgoing calls must be less than or equal to the number of calls allowed	The sum of values in subfields INCCALLS and OUTCALLS must be less than or equal to the value in subfield NUMCALLS. Adjust the values so the value in subfield NUMCALLS is greater than or equal to the sum of values in subfields INCCALLS and OUTCALLS.

Datafilling table LTMAP

Table LTMAP associates the LTID assigned to the trunk group in table LTDEF with the trunk group CLLI.

The maximum number of D-channels that can be configured in the DTCI is 32 and the LTC is 22. When a new tuple is added to table TRKSGRP, the tuple is accepted if the current number of D-channels configured on the PM is less than the maximum allowed. If it is greater, table LTMAP is checked to determine how many of the D-channels are mapped to an LTID. If the number of mapped D-channels is less than the maximum, the tuple is accepted.

The following table shows the datafill specific to PRI Base Service for table LTMAP. Only those fields that apply directly to PRI Base Service are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTMAP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTKEY		see subfields	Logical terminal key. Datafill subfields LTGRP and LTNUM as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually. ***Note:*** Field LTID in table TRKGRP is updated automatically with the datafilled values.
	LTGRP	ISDN	Logical terminal group. Enter ISDN.
	LTNUM	numeric(1 to 1022)	Logical terminal number. Enter a numeric value.

Datafilling table LTMAP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
MAPPING		see subfields	Mapping. This field consists of subfield MAPTYPE and refinement CLLI.
	MAPTYPE	CLLI	Map type. Enter CLLI.
	CLLI	alphanumeric(1 to 16 characters)	Common language location identifier. From table CLLI, enter the trunk group name.
OPTION		see subfields	Option. This field consists of subfield OPTION and refinement TEI.
	OPTION	TEI	Option. Enter TEI.
	TEI	0 (zero)	Terminal endpoint identifier. Enter 0 (zero). Enter a $ to end the tuple.

Datafill example for table LTMAP

The following example shows sample datafill for table LTMAP.

MAP display example for table LTMAP

```
         LTKEY          MAPPING                  OPTION
____________________________________________________________

ISDN     1008   CLLI   SL1NTPRI              (   TEI 0)$
```

Translation verification tools

PRI Base Service does not use translation verification tools.

SERVORD

PRI Base Service does not use SERVORD.

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 to which it is assigned.

The following table shows the datafill specific to PRI Base Service for table TRKMEM. Only those fields that apply directly to PRI Base Service are

PRI Base Service (continued)

shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKMEM (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CLLI		alphanumeric (1 to 16 characters)	Common language location identifier. From table CLLI, enter the trunk group name.
EXTRKNM		numeric(1 to 479)	External trunk name. Enter an external number to identify the trunk member. ***Note:*** To ensure that trunk selection is done in the correct order, this number should be the same as the DTCI circuit time slot number, subfield DTCICKTTS.
SGRP		0 (zero)	Subgroup. Enter 0 (zero), the only valid subgroup for ISDN signaling.
MEMVAR		see subfields	Member variables. This field consists of subfield PMTYPE and refinements DTCINO, LTCNO, DTCICKTNO, LTCCKTNO, DTCICKTTS, and LTCCKTTS (applicability of refinements depends upon PMTYPE value).
	PMTYPE	DTCI or LTC	Peripheral module type. Enter DTCI or LTC.
	DTCINO	numeric(0 to 511)	DTCI number. Enter a value for the DTCI number. ***Note:*** Use when subfield PMTYPE is DTCI.
MEMVAR(continued)	LTCNO	numeric(0 to 511)	LTC number. Enter a value for the LTCI number. ***Note:*** Use when subfield PMTYPE is LTC.
	DTCICKTNO	numeric(0 to 19)	DS-1 circuit number. Enter a value for the DS-1 circuit number. ***Note:*** Use when subfield PMTYPE is DTCI.

Datafilling table TRKMEM (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	LTCCKTNO	numeric(0 to 19)	DS-1 circuit number. Enter a value for the DS-1 circuit number. ***Note:*** Use when subfield PMTYPE is LTC.
	DTCICKTTS	numeric(1 to 24)	B-channel time slot number. Enter a numeric value to specify the time slot number of the B-channel. ***Note:*** Use when subfield PMTYPE is DTCI.
	LTCCKTTS	numeric(1 to 24)	B-channel time slot number. Enter a numeric value to specify the time slot number of the B-channel. ***Note:*** Use when subfield PMTYPE is LTC.
Note: All members of a trunk subgroup (all B-channels serviced by the same D-channel) must be on the same DTCI. The D-channel for the trunk group is defined in table TRKSGRP.			

Datafill example for table TRKMEM

The following example shows sample datafill for table TRKMEM.

MAP display example for table TRKMEM

```
          CLLI     EXTRKNM SGRP                          MEMVAR
_____________________________________________________________________
     SL1NTPRI           1    0                    DTCI   2 0 1
```

Error messages for table TRKMEM

The following error messages apply to table TRKMEM.

Error messages for table TRKMEM

Error message	Explanation and action
Peripheral does not exist	An attempt is made to enter a peripheral module that does not exist. Create the PM or check the table TRKMEM values for an error.

PRI Call Routing

Ordering codes

Functionality group ordering codes: NI000022, NI000011

Functionality ordering code: not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, PRI Call Routing has the following prerequisites:

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

Description

PRI Call Routing establishes the routing of calls over the PRI interface. A PRI call comes in to the DMS-100 over a PRI trunk from the switching node at the far end and is switched to a line or a PRI trunk.

Integrated service access (ISA) is the part of PRI Call Routing that allows different types of calls to be routed over the same PRI trunk group. ISA allows different call types to coexist on the same PRI trunk group. The following are the call types supported by ISA.

Public (PUB) These calls connect the end user to the public switched telephone network (PSTN). With direct inward dialing (DID), public calls connect the central office DMS-100 to a private branch exchange (PBX) such as Meridian 1. With direct outward dialing (DOD), public calls connect the PBX with the central office DMS-100. The digits dialed conform to E.164 standards.

Private (PVT) These incoming and outgoing calls connect the PBX to its virtual private network (VPN). The DMS-100 makes use of the public network to support a private numbering plan. The dialed digits may not conform to E.164 standards.

OUTWATS (WATS) Outward wide area telephone service is a service provided by the operating company which permits an end user to originate calls to a specific geographical area known as a zone or band. Typically a flat monthly charge is provided for such services.

INWATS Inward wide area telephone service is a long distance service which allows an end user to receive telephone calls without a charge to the caller. The

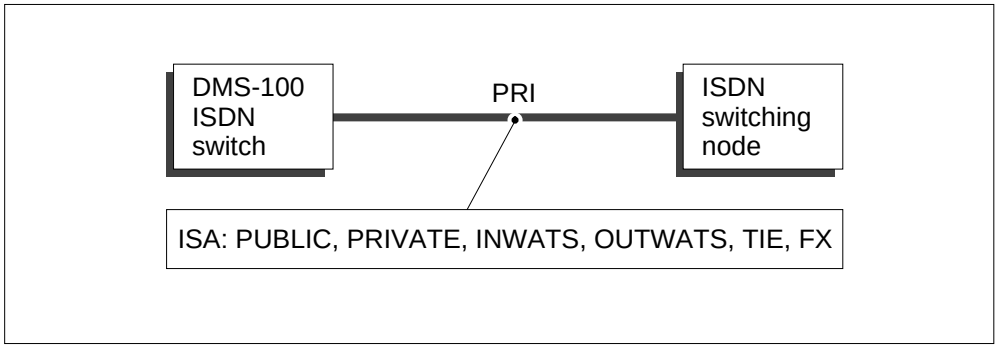
customer is billed for the call instead of the caller. A 1-800 number is assigned to the PBX to allow for this reversed billing.

Foreign exchange (FX) Foreign Exchange trunks connect an end user location to a remote exchange. Thus, PBX customers can submit calls to some distant point in the PSTN without incurring the normal public network charges. This service provides the equivalent of local service between the customer and the remote exchange.

Tie line (TIE) Tie lines are dedicated leased-type network trunks used between network equipment.

The following figure shows how ISA allows different types of calls to use the same PRI trunk group.

Integrated services access call types



The call type is conveyed between switches by the Q.931 SETUP message. The call type determines the translations that will be used to route an incoming call. The call type is significant only to the local PRI. Once inside the next exchange, it is discarded. Subsequent legs of the same call can have different call types.

The SETUP message contains information about a call. The following are the two information elements (IE) in the Q.931 SETUP message that are used for ISA incoming calls:

Numbering plan indicator (NPI) The NPI is contained in the called party number (CDN) IE in the SETUP message. The NPI indicates whether the numbering plan used for the called number is public or private.

Network specific facilities (NSF) The NSF indicates which network facilities should be used for the call. Incoming calls can specify the type of service to access by means of the NSF.

PRI Call Routing (continued)

The NSF information element contains the following:

- a service selector which specifies the type of service requested
- an optional service identifier (SID) which specifies the actual facility to use to route the call. INWATS ISA calls can be routed on the SID for all call types except public.

In the case of PRI to non-PRI, the NSF information is included in the SETUP message of the originating PRI, but is not needed by the terminator. It is used by table LTCALLS to determine the translations and is then ignored.

In the case of PRI to PRI, the NSF information is in both the originator and the terminator. This information is PRI specific and may be different on each PRI interface.

In the case of non-PRI to PRI, the NSF information is not in the originator, but is obtained from the ISA selector in the routing tables. If ISA is not used as the routing selector, then no NSF is generated for the terminator.

Operation

When the DMS-100 receives a call over the PRI interface, the trunk group LTID in table TRKGRP is used to access table LTCALLS, which provides the initial information for translating the call.

The NCOS code and the customer group name from table LTCALLS are used to access table NCOS and CUSTHEAD for a translator name. (If there is no customer group translator in table NCOS, table CUSTHEAD provides the default translator.)

The translator is used to access table IBNXLA, which provides the routing index for standard translations.

> ***Note:*** The standard IBN translations tables NCOS, CUSTHEAD, and IBNXLA are described in the data schema section of this document.

DID operates by enabling or disabling the CDN in the SETUP message in the LTDATA table. Table LTDATA delivers the CDN to the switching node at the far end.

Translations table flow

The PRI Call Routing translation process is shown in the flowchart that follows. Call processing in the DMS-100 begins with the trunking tables which define the attributes of the PRI trunk group.

PRI Call Routing (continued)

For the incoming call, table CLLI identifies the trunk group, and table TRKMEM determines the physical location of the circuit carrying the call. The trunk identifier (CLLI) is used to access table TRKSGRP, which defines the signaling protocol used by the trunk, and table TRKGRP which provides the LTID of the trunk group. The LTID field is used to access table LTCALLS.

Table LTCALLS provides the customer group subfield, CUSTGRP, and the network class of service field, NCOS. Subfields CUSTGRP and NCOS are used to access table NCOS for a preliminary translator name, PRELIMXLA, which is the key for table IBNXLA. If there is no translator in table NCOS, the customer group from table LTCALLS is used to access table CUSTHEAD, which contains a customer group translator CUSTXLA. CUSTXLA is used to key into table IBNXLA, which is the first standard translations table to be accessed.

Translations are involved in DID only to the extent that what is left of the dialed number is sent to the PBX. The number is either delivered or not.

An incoming call on a PRI trunk contains the NPI and NSF from the SETUP message. As discussed in the previous section, the NPI and the NSF jointly determine the call type and translations for a PRI call. Using this resulting call type, the datafill in table LTCALLS determines how the call will be routed.

The following steps explain how tables are accessed to translate an incoming PRI call:

1. The DMS receives the SETUP message. The NSF and NPI are mapped to a call type using the following rule:

   If no NSF exists, the call type is the value of the NPI.If an NSF exists, the call type is the value of the NSF.

2. Tables TRKMEM, TRKSGRP, and TRKGRP are accessed to determine the characteristics of the originating trunk group. Table TRKGRP contains the LTID assigned to the trunk.
3. Table LTDEF is accessed using the LTID from table TRKGRP. Table LTDEF determines the access privileges assigned to the LTID.
4. Table LTCALLS is accessed using the LTID from table TRKGRP and the call type. In table LTCALLS, field XLARTE determines the next step for translations. From this point on, digit translation takes place using the called number digits. The called number digits are stored in the number digits portion of the CDN information element. The number digits portion may include prefix digits for a preferred inter-LATA carrier.

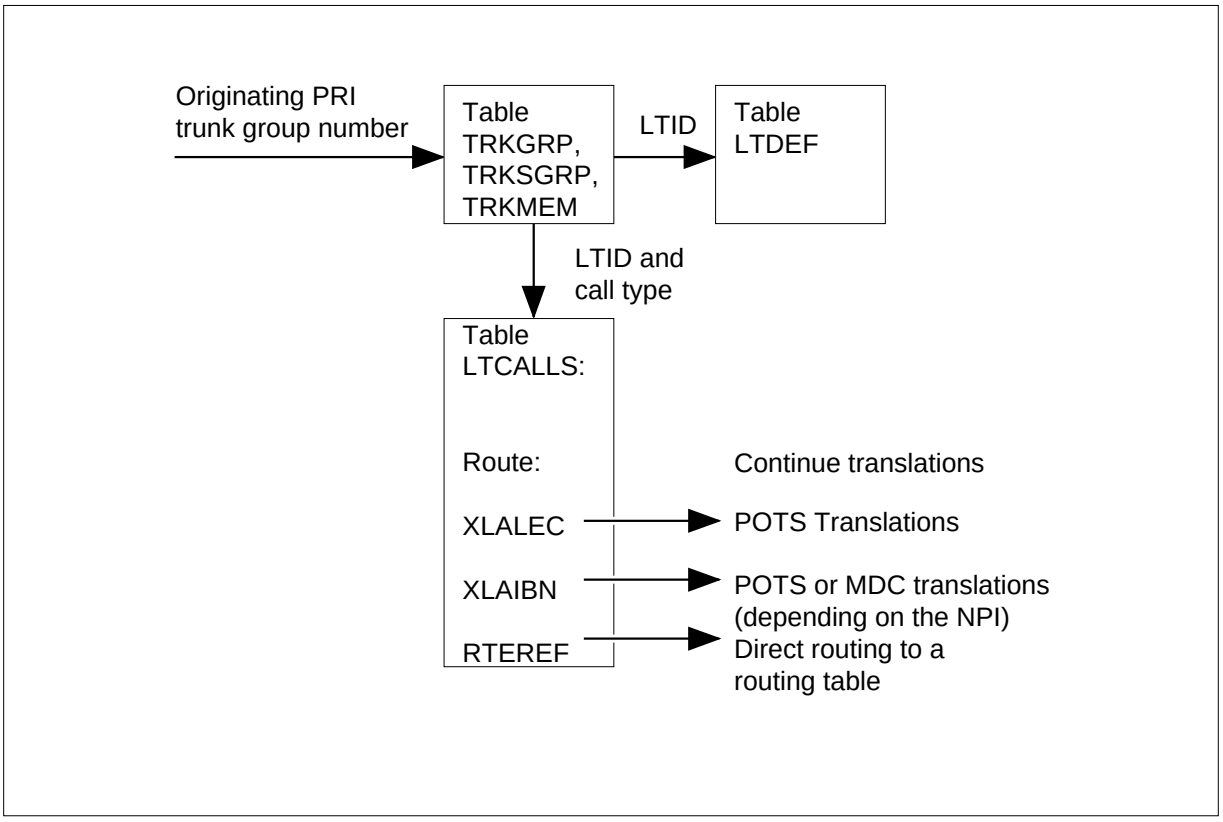
PRI Call Routing (continued)

If no tuple exists in table LTCALLS for the specific LTID and call type, the call is blocked.

The following figure shows the tables that are accessed in the DMS-100 switch for an incoming call over a PRI trunk.

The PRI Call Routing translation process is shown in the flowchart that follows.

Table flow for incoming PRI Call Routing



The following is a list of tables that are accessed to translate an outgoing PRI call:

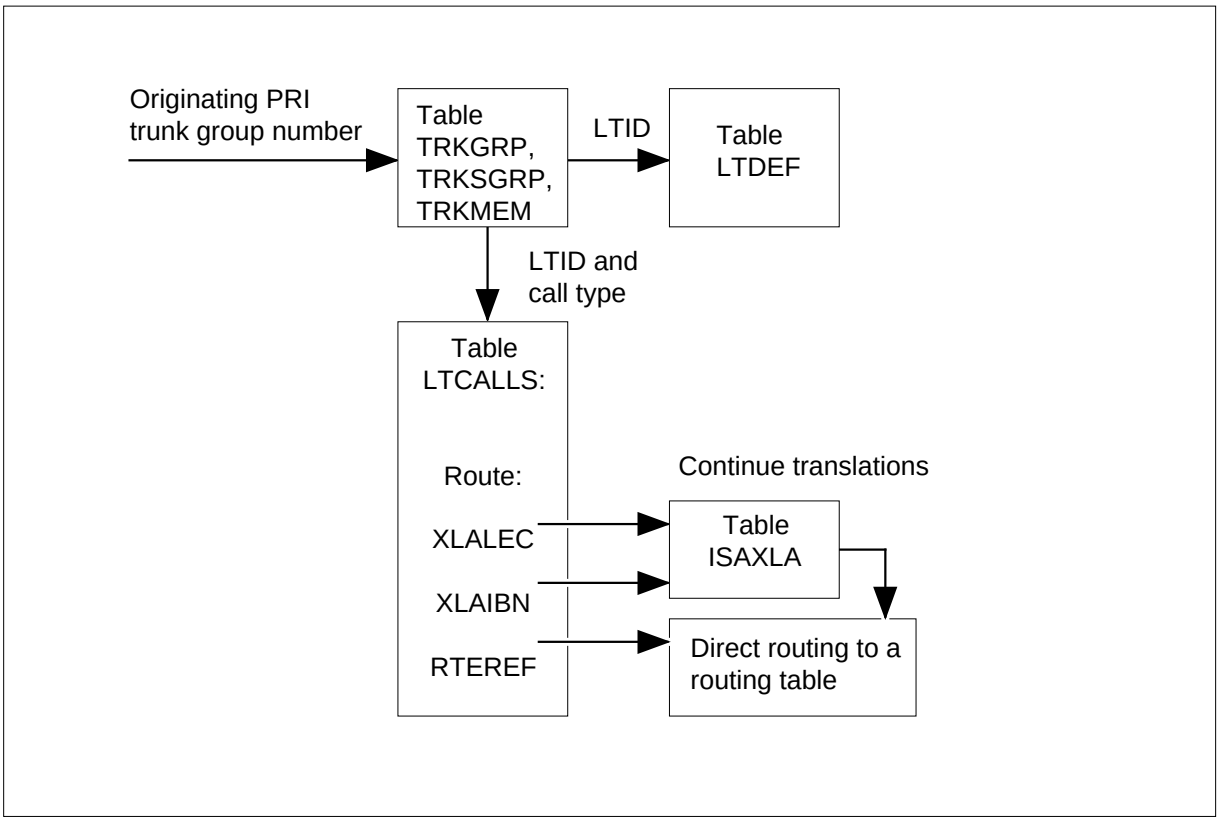
- OFRT
- IBNRTE
- HNPACONT subtable RTEREF
- FNPACONT subtable RTEFEF
- FNPACONT.FNPASTS subtable RTEREF

PRI Call Routing (continued)

A special route selector called ISA is used in these tables when using ISA. When the ISA route selector is datafilled, the trunk calling line identifier (CLLI) and call type is datafilled.

The following figure shows the tables that are accessed in the DMS-100 for an incoming call over a PRI trunk using table ISAXLA.

Table flow and translations for incoming PRI call using ISAXLA



The ISA selector causes an NPI and NSF to be generated for the outgoing call. The NPI and NSF are passed along to the terminating node in the SETUP message. It is not mandatory to use the ISA route selector to route to a PRI trunk if the call type is public or private. Route selectors such as S or N can be used to route private and public calls to a PRI trunk. The ISA route selector generates both an NPI and NSF for the call. If other route selectors are used, only an NPI is generated and passed to the terminating node.

PRI Call Routing (continued)

Starting with the routing table, the call proceeds with translations in the following way:

1. In the routing table, the ISA route selector routes calls to a specific PRI trunk group by specifying the CLLI of the trunk group. The CLLI value is used to access table TRKGRP.
2. In table TRKGRP, the LTID of the trunk is obtained. Using the LTID from table TRKGRP and the call type from the routing table, table LTCALLS is accessed next.
3. Table LTCALLS determines whether the call type is allowed on the trunk. If a tuple is found in table LTCALLS that matches the LTID and call type, the call is allowed and is routed over the trunk to the terminating node. The NPI and NSF are forwarded to the node in the SETUP message.

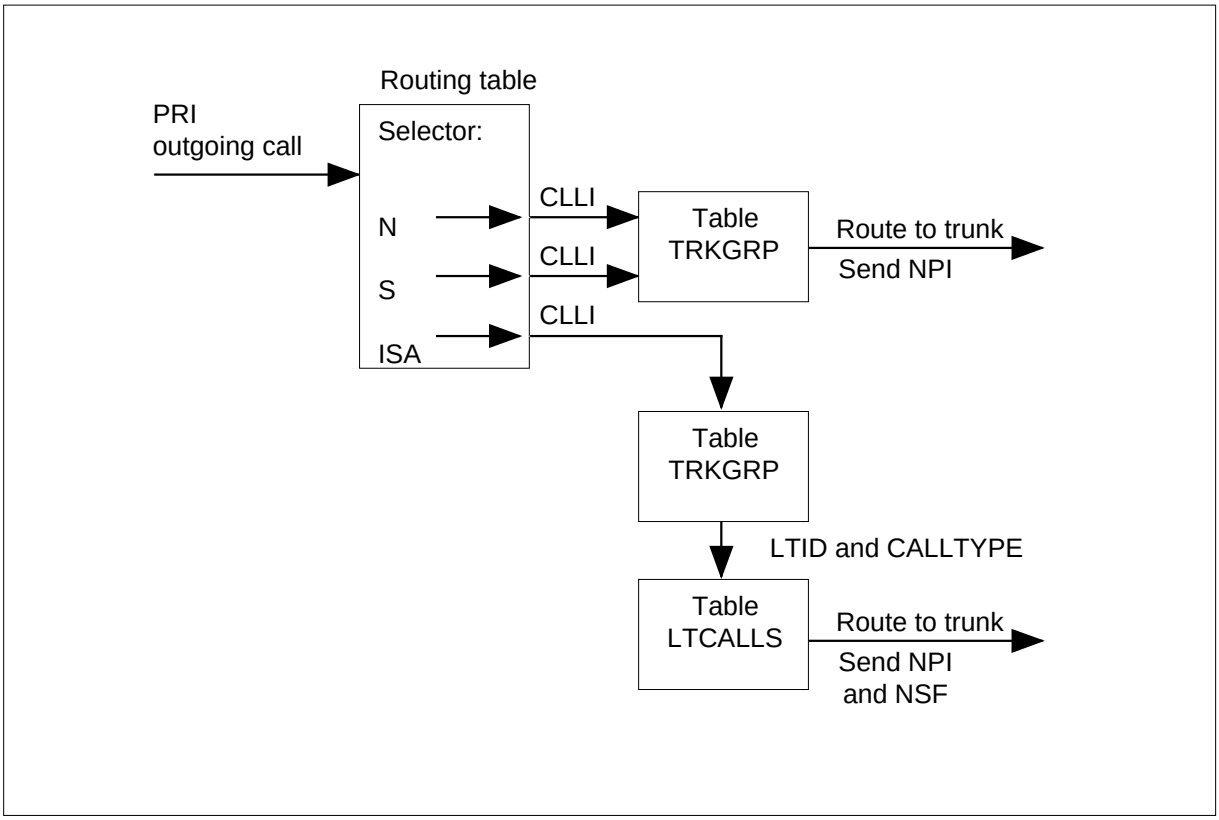
If no tuple is found in table LTCALLS that matches the LTID and call type, the call is blocked and the caller receives treatment.

When the ISA route selector is datafilled in a routing table, a digit manipulation index can also be specified, if needed. The digit manipulation index points to table DIGMAN and allows the called number digits to be modified before outpulsing.

The following figure shows the table flow for a call terminating to a PRI trunk group.

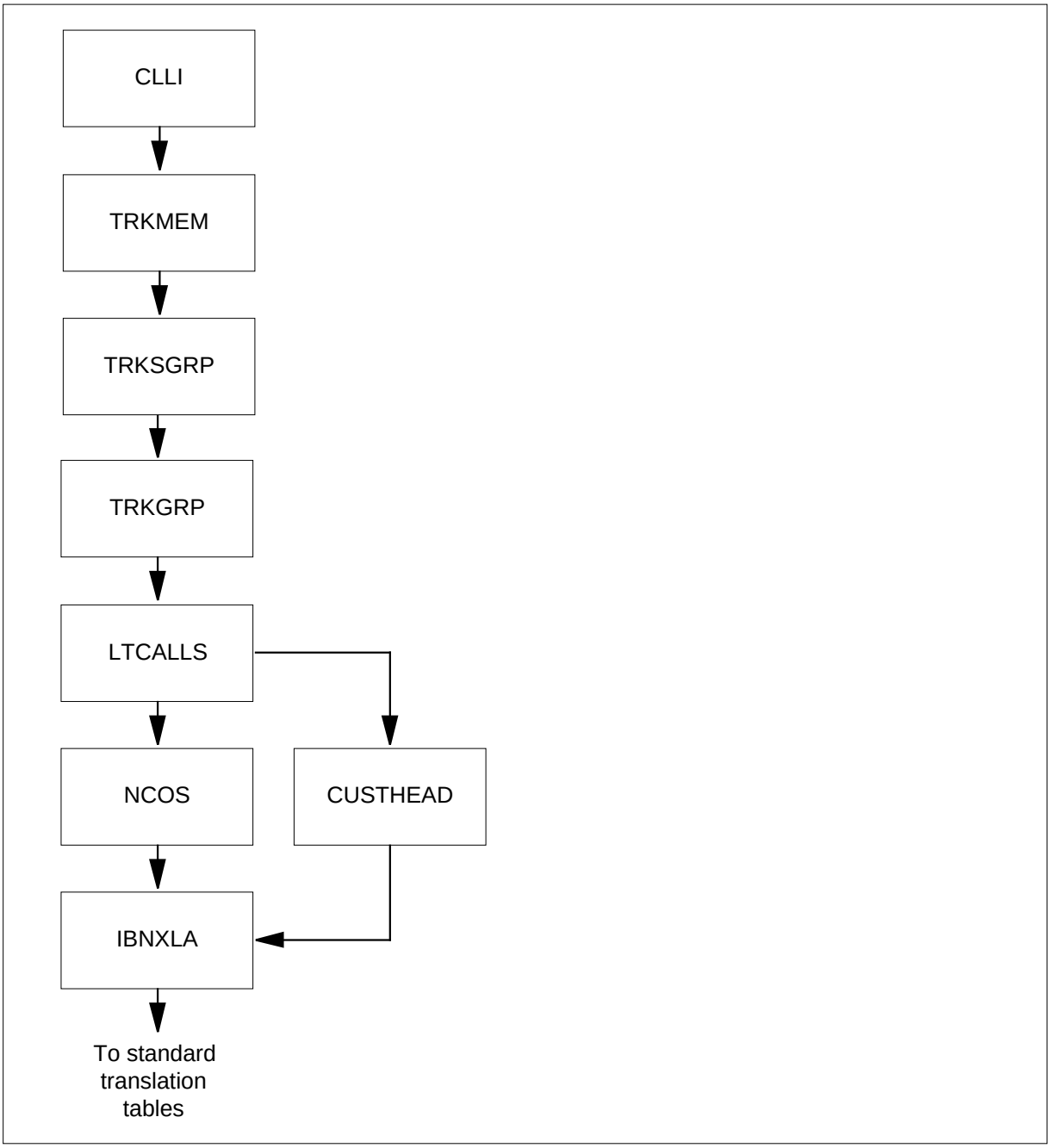
PRI Call Routing (continued)

Table flow and translations for outgoing PRI call



PRI Call Routing (continued)

Table flow for PRI Call Routing



PRI Call Routing (continued)

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

Datafill example for PRI Call Routing

Item	Example data
Called number	7655432
Datafill table	Example data
TRKGRP	PRATRK IBNT2 0 NPDGP NCRT COMTST 0 ASEQ 0 N ANSDISC 0 Y N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL LTID ISDN 953 $
LTCALLS	ISDN 953 PVT XLAIBN COMTST 0 0 $
CUSTHEAD	COMTST PKDK CXDK CUSTFEAT 0 ABC
IBNXLA	CXDK 613 ROUTE N N N 3 N 3 15 NDGT NT OFRT 300
OFRT	300 S D PRATRK2

Limitations and restrictions

PRI Call Routing has no limitations or restrictions.

Interactions

SID routing overrides Bearer Capability Routing.

Activation/deactivation by the end user

PRI Call Routing requires no activation or deactivation by the end user.

Billing

PRI Call Routing does not affect billing.

Station Message Detail Recording

PRI Call Routing does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Call Routing does not affect office parameters.

PRI Call Routing (continued)

Datafill sequence

The following table lists the tables that require datafill to implementPRI Call Routing. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Call Routing

Table	Purpose of table
LTCALLS	Provides the initial translations for calls routed over the trunk group.
LTDATA	To provide LTID data and enable the capability.
ISAXLA	Defines the services associated with ISA calls in which the SID is used to determine translations and routing for calls datafilled in table LTCALLS.

Datafilling table LTCALLS

The following table shows the datafill specific to PRI Call Routing for table LTCALLS. Only those fields that apply directly to PRI Call Routing are shown. For a description of the other fields, refer to the data schema section of this document.

Table LTCALLS provides initial translations for the calls that can be routed over the trunk group. The table is datafilled with the trunk group's LTID, the call type, and the initial translations route for calls.

Datafilling table LTCALLS (Sheet 1 of 4)

Field	Subfield or refinement	Entry	Explanation and action
LTID		see subfields	Logical terminal identifier. Datafill subfields LTGRP, LTNUM, and CALLTYP as one concatenated entry. Separate the three values with blanks. You are not prompted for the subfields individually.
	LTGNUM	see subfields	Logical terminal group number. This is made up of subfields LTGRP and LTNUM.
	LTGRP	alphanumeric (1 to 8 characters)	Logical terminal group. Enter the trunk group name from table LTDEF.
LTID (continued)	LTNUM	numeric(1 to 1022)	Logical terminal number. Enter the trunk group number from table LTDEF.

Datafilling table LTCALLS (Sheet 2 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	CALLTYP	PUB, PVT, INWATS, WATS, TIE, FX	Call type. For integrated services access (ISA). Enter PUB for public. Enter PVT for private. Enter INWATS for inward wide area telephone service. Enter WATS for outward wide area telephone service. Enter TIE for tie line. Enter FX for foreign exchange. ***Note:*** When no tuple exists for a specified LTID and CALLTYPE, the call is blocked.
XLARTSEL		see subfields	Translation route selector.
	XLARTE	XLAIBN, XLALEC	Translation route. Enter XLAIBN for integrated business network for PBX or MDC type offices. Enter XLALEC for local exchange carrier for POTS, PBX, or MDC type offices. ***Note:*** The XLALEC selector cannot be used when field CALLTYPE is PVT, INWATS, or TIE.
	LINEATTR	numeric (0 to 2047)	Line attribute. Enter a numeric value for the index into table LINEATTR. ***Note:*** Only use this subfield when field XLARTE is XLAIBN or XLALEC.
	CUSTGRP	alphanumeric (1 to 16 characters)	Customer group name. Enter the customer group name that is assigned to the line attribute index in table LINEATTR. ***Note:*** Only use this subfield when field XLARTE is XLAIBN. The value must also appear in field CUSTNAME in table CUSTENG.
XLARTSEL (continued)	SUBGRP	numeric (0 to 7)	Subgroup. Enter a numeric value to specify the subgroup within the customer group associated with the line attribute index in table LINEATTR. ***Note:*** Only use this subfield when field XLARTE is XLAIBN. The value must also appear in subfield SUBGRPNO in table SUBGRP.

PRI Call Routing (continued)

Datafilling table LTCALLS (Sheet 3 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	NCOS	numeric (0 to 511)	Network class of service. Enter a numeric value to specify the key to the NCOS table. Only use this subfield when field XLARTE is XLAIBN.
	TABNAME	OFRT, IBNRTE	Table name. Enter OFRT for the OFRT routing table. Enter IBNRTE for the IBNRTE routing table. ***Note:*** Only use this subfield when field XLARTE is RTEREF.
	INDEX	numeric (0 to 1023)	Index. Enter a numeric value to specify the extended route reference index. ***Note:*** Only use this subfield when field XLARTE is RTEREF.
OPTIONS		see subfield	Options. This field consists of subfield LTCOPT and refinements.
	LTCOPT	SIDXLA	Line trunk controller routing option. Enter SIDXLA to route integrated service access (ISA) calls on the service identifier (SID) value. Enter a $ to end the tuple. ***Note:*** Do not use SID routing when field CALLTYPE is PUB. SID routing cannot be used for INWATS call routing in the DMS-100 switch, when the terminating node is a PBX.
	RTRNAME	alphanumeric (up to 8 characters)	Router name. Enter the index into table ISAXLA.
OPTIONS (continued)	TREAT_NO_ SID	Y or N	Treatment with no SID. The treatment of calls with SID routing that do not have a SID to route with. Enter Y to send the call to treatment. Enter N to send the call to route using the NPI, NSF, and called digits. ***Note:*** Use N for auto-zoning of WATS calls. Refer to field RTEID in table ISAXLA.

Datafilling table LTCALLS (Sheet 4 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	NO_CALL_SCREEN	Y or N	No call screening. Turn off call screening on the line attributes datafilled in this table. Enter Y to not screen digits. Enter N to use the line attribute to attempt call screening.
	ROUTE_ON_XLARTE	Y or N	Routing on translation route selector. Determines the public (XLALEC) or private (XLAIBN) translations that are based on field XLARTE, rather than NPI in the SETUP message. Enter Y to set the XLARTE value to override the NPI. Enter N to set the NPI to determine the translation type. ***Note:*** Calls are affected when either a valid SID entry exists in table ISAXLA with no routing table is datafilled in field RTEID, or no SID is sent in the SETUP message and subfield TREAT_NO_SID is N.

Datafill example for table LTCALLS

The following example shows sample datafill for table LTCALLS.

MAP display example for table LTCALLS

```
          LTID                      XLARTSEL
                                              OPTIONS
_____________________________________________________________

ISDN 1008 PVT    XLAIBN  0  CUST1  0    3
                            ( SIDXLA RTE1 N N N)$
```

Error messages for table LTCALLS

Not applicable

Datafilling table LTDATA

The following table shows the datafill specific to PRI Call Routing for table LTDATA. Only those fields that apply directly to PRI Call Routing are shown. For a description of the other fields, refer to the data schema section of this document.

PRI Call Routing (continued)

The table is datafilled with the trunk group's LTID, the data type, and logical terminal values.

Datafilling table LTDATA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		see subfields	Logical terminal datakey. Datafill subfields LTGRP, LTNUM, and DATATYPE as one concatenated entry. Separate the three values with blanks. You are not prompted for the subfields individually.
	LTINDEX	see subfields	Logical terminal index. This is made up of subfields LTGRP and LTNUM.
	LTGRP	alphanumeric (1 to 8 characters)	Logical terminal group. Enter the trunk group name.
LTDKEY (continued)	LTNUM	numeric (1 to 1022)	Logical terminal number. Enter the logical terminal number within the group.
	DATATYPE	SERV, DN	Logical terminal data type. Enter SERV for service. Enter DN for directory number.
LTDRSLT		see subfields	Logical terminal result.
	DATATYPE	SERV, DN	Data type. Enter SERV for service. Enter DN for directory number. Enter same as LTDKEY datatype above. Enter a $ in subfield OPTION to end the tuple.
	DFLTCGN	see subfields	Default calling number. Datafill subfields SNPA, NXX, and STATION as one concatenated entry. Separate the three values with blanks. You are not prompted for the subfields individually. ***Note:*** Only use this subfield when subfield DATATYPE is DN.
	SNPA	3 digits	Serving numbering plan area. Enter a three-digit NPA for the DN. ***Note:*** Only use this subfield when subfield DATATYPE is DN.

Datafilling table LTDATA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	NXX	3 digits	Central office code. Enter a three-digit central office code for the DN. ***Note:*** Only use this subfield when subfield DATATYPE is DN.
	STATION	4 digits	Station. Enter a four-digit station number for the DN. ***Note:*** Only use this subfield when subfield DATATYPE is DN.
LTDRSLT (continued)	CGNREQD	N	Calling party number required. Enter N. ***Note:*** Only use this subfield when subfield DATATYPE is SERV. This field is presented and must be datafilled, but is not used in PRI.
	CDNDELV	ALWAYS	Called party number delivery. Enter ALWAYS to send the called party number to the far-end exchange. Enter NEVER to not send the called party number to the far-end exchange. ***Note:*** Only use this subfield when subfield DATATYPE is SERV.

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA.

MAP display example for table LTDATA

```
          LTDKEY
                                                LTDRSLT
 ________________________________________________________
 ISDN 505 SERV
                    SERV Y  N SCREENED ALWAYS     $
```

Error messages for table LTDATA

Not applicable

PRI Call Routing (continued)

Datafilling table ISAXLA

The following table shows the datafill specific to PRI Call Routing for table ISAXLA. Only those fields that apply directly to PRI Call Routing are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table ISAXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
IRTRNAME		alphanumeric (1 to 8 characters)	ISA router name. Enter the router name. This field, along with a SID, forms a key into the table. ***Note:*** The router name must be previously datafilled in field RTRNAME in table LTCALLS. A maximum of 128 router names can be datafilled. For each router name, a maximum of 128 different SIDFROM and SIDTO combinations can be datafilled. For the same router name the SIDFROM and SIDTO values cannot overlap each other.
SIDFROM		numeric (0 to 1023)	Service identifier lower range. Enter the lower bound of the range of SID values that use the rest of the tuple datafill to continue translations and routing. Calls not within the range are sent to treatment. ***Note:*** The field SIDFROM value must be less than or equal to the field SIDTO value.
SIDTO		numeric (0 to 1023)	Service identifier upper range. Enter the upper bound of the range of SID values that use the rest of the tuple datafill to continue translations and routing). Calls not within the range are sent to treatment. ***Note:*** The SIDTO value must be greater than or equal to the SIDFROM value.
RTEID		see subfields	Route identifier

Datafilling table ISAXLA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	TABNAME	IBNRT2, IBNRT3, IBNRT4, IBNRTE, OFR2, OFR3, OFR4, OFRT, ITOPS	Table name. Enter the name of the routing table used to continue translations. ***Note:*** This field is optional and can be a nil value by datafilling a $. The calls translate using the NPI, NSF, and the called digits. The table name must be previously datafilled in table RTEREF.
	INDEX	numeric (0 to 1023) or alphanumeric characters	Index. Enter the index number into the routing table. The index number is used when adding values into the routing table. ***Note:*** Enter 13 for auto-zoning of WATS calls. No routing table name is used with the index 13. The zone D is sent.

Datafill example for table ISAXLA

The following example shows sample datafill for table ISAXLA.

MAP display example for table ISAXLA

```
IRTRNAME   SIDFROM   SIDTO                      RTEID
_____________________________________________________

1305WATS         0    1023              ( IBNRTE  3)$
```

Error message. for table ISAXLA

The following error message applies to table ISAXLA.

Error message for table ISAXLA

Error message	Explanation and action
SIDTO VALUE MUST BE GREATER THAN OR EQUAL TO THE SIDFROM VALUE	The field SIDFROM value is greater than the field SIDTO value. Reduce the field SIDFROM value or increase the field SIDTO value.

PRI Call Routing (continued)

Translation verification tools

The TRAVER trace lists the tables accessed to route a specific type of call. The TRAVER command can be used at the MAP to simulate a call that originates on a PRI trunk by specifying the NPI and NSF in the command line.

Note: Dialable wideband service (DWS) also affects translations. Refer to *Dialable Wideband Service Services Guide*.

Enter the TRAVER command for calls that originate on a PRI trunk by typing

```
>TRAVER option clid npi digits nst bc trace
```

and pressing the Enter key.

where

option is the command option; use L for line, TR for trunk, or V for virtual facilities group

clid is the calling line identifier name of the PRI trunk (trunk name)

npi is the numbering plan indicator (optional); use PUB (the default), PVT, E164, or N which replaces the called digits for a call simulation.

digits is the called party number. Enter CDN.

nsf is network specific facility (optional); use PRVT (for private), IWT (for INWATS), OWT and zone number (0 to 9, A, B, C) (for OUTWATS), FX and facility number (0 to 1023) (for foreign exchange), or TIE and facility number (0 to 1023) (for tie line).The default is nil.

bc is the bearer capability (optional) from table BCDEF; the defaultis SPEECH. For data, use 64KDATA.

trace is the type of trace required; use T to trace the table entries referenced by the call, NT for no table entry trace with the call termination displayed, or B for both the table entry trace and the call termination display.

The following examples show the TRAVER for a variety of different incoming and outgoing PRI call routing scenarios.

PRI IBNT2 trunk to line—PUB call type

The following list shows the output from TRAVER when it is used to verify the PRI Call Routing capability. This TRAVER example routes to the universal PX translators and some PX tables.

1. In lines 1 and 2 of the example, table TRKGRP is accessed with the trunk group CLLI, SL1NTPRI, and provides the trunk group LTID, ISDN 570.
2. In lines 3 and 4, the LTID is used to access table LTCALLS, which provides the customer group name, CSTGRP, and the NCOS, 0.
3. In lines 5 to 12, tables NCOS and CUSTHEAD are accessed with the customer group name, CSTGRP, to check for a preliminary translator name. As neither table has one, the customer translator name from table CUSTHEAD, CSTXLA, is used to index table IBNXLA in line 13. (Table CUSTHEAD also provides the key (NTS) to table DIGCOL, which specifies that since the first digit received is a 9, the rest of the digits should be reported one at a time.)
4. In table IBNXLA (lines 13 and 14), keyed with translator CSTXLA and the dialled digits, the selector DOD (direct outward dialing) provides line attribute index 96, which is the index into table LINEATTR.
5. In table LINEATTR (lines 17 to 19), the translations systems indicator, PX, and the translator name, CSTRAN, are used to access the first of the universal translator tables, PXHEAD.
6. In lines 20 to 22, table PXHEAD sets up defaults and indexes table PXCODE with the translator name, CSTRAN, and the first two of the remaining digits, 73.
7. In lines 23 and 24, table PXCODE defines the route for the call with destination route list number 100, the index into table PXRTE.
8. In lines 25 to 31, table PXRTE is indexed with the translator name, CSTRAN, and the route index, 100, and points to table OFRT, index 459. The entry in table OFRT contains the CLLI of the trunk route for the call, IBNISUP.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver tr sl1ntpri n cdn pub 9735300 b

```
1     TABLE TRKGRP
2     SL1NTPRI IBNT2 O NPDGP NCRT CSTGRP 0 ASEQ 0 N ANSDISC 0 Y N N N N
      N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 570) $ $
3     TABLE LTCALLS
4     ISDN 570 PVB XLAIBN 201 CSTGRP 0 0 $
5     TABLE NCOS
6     CSTGRP 0 ABCOS 0 0 NTSCOS $
7     TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
      DIGCOL
8     CSTGRP NXLA CSTXLA CSTXLA 1 NTS
9     TABLE DIGCOL
10    NTS 9 RPT
11    NCOS PRELIM XLA name is NIL. Go to next XLA name.
12    CUST PRELIM XLA name is NIL. Go to next XLA name.
13    TABLE IBNXLA: XLANAME CSTXLA
14    CSTXLA 97 NET N N N 1 N NDGT N N DOD N 96 NONE $
15    TABLE DIGCOL
16    NDGT specified: digits collected individually
17    TABLE LINEATTR
18    96 IBN NONE NT NSCR 0 003 NPRT NLCA NONE 0 NIL NILSFC NILLATA 0 PX
      CSTRAN NIL 00 N $
19    LCABILL OFF – BILLING DONE ON BASIS OF CALLTYPE
20    TABLE PXHEAD
21    CSTRAN SDFLT DFOP ( MM 7 9) ( CLASS LCL)$ NOCON STD
22    THE DIGITS USED TO INDEX THE NEXT TABLE ARE:         735300
23    TABLE PXCODE
24    CSTRAN 73 73 RTE ( PF 2) ( MM 2 18) ( DEST 100)$
25    TABLE: PXRTE
26    KEY:    CSTRAN  100
27     . T OFRT 459
28     .  . TABLE OFRT
29     .  .  459 ST 100
30     .  . EXIT TABLE OFRT
31    EXIT TABLE PXRTE
32
33    +++ TRAVER: SUCCESSFUL CALL TRACE +++
34
35
36    DIGIT TRANSLATION ROUTES
37
38    1 IBNISUP               5300               ST
39
40    TREATMENT ROUTES.  TREATMENT IS: GNCT
41    1 T60
42
43    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI IBNT2 trunk to line—PVT call type

The following shows the output from TRAVER when it is used to verify the PRI Call Routing capability.

1. In lines 1 and 2 of the example, table TRKGRP is accessed with the trunk group CLLI, SL1NTPRI, and provides the trunk group LTID, ISDN 570.
2. In lines 3 and 4, the LTID is used to access table LTCALLS, which provides the customer group name, TSTCST, and the NCOS, 0.
3. The customer group name is used to search for a translator name for the customer group. First, in lines 5 and 6, table NCOS is accessed with the customer group name and the NCOS, but it doesn't contain a translator. Table CUSTHEAD in lines 7 and 8, however, does provide a customer group translator, CSTXLA, which is used to access table IBNXLA.
4. In lines 9 and 10, table IBNXLA provides a route for the call, specifying routing table OFRT, index 459. (There is no digit collection information in table DIGCOL for this customer group.)
5. In lines 13 and 14, table OFRT is accessed with the routing index from table IBNXLA, 459, and provides the trunk CLLI of the trunk route for the call, SL1PRI2.

TRAVER output example for PRI Call Routing

Line Output

traver tr sl1ntpri n cdn pvt 9595300 bc 64kdata b

```
1    TABLE TRKGRP
2    SL1NTPRI IBNT2 O NPDGP NCRT TSTCST 0 ASEQ 0 N ANSDISC 0 Y N 3 N N N N
     N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 570) $
3    TABLE LTCALLS
4    ISDN 570 PVT XLAIBN 201 TSTCST 0 0 $
5    TABLE NCOS
6    TSTCST 0 ABCOS 0 0 NTSCOS $
7    TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
     DIGCOL
8    TSTCST NXLA CSTXLA CSTXLA 1 NTS
9    TABLE IBNXLA: XLANAME CSTXLA
10   CSTXLA 959 ROUTE N N N 3 N 3 15 NDGT N T OFRT 459 $
11   TABLE DIGCOL
12   NDGT specified: digits collected individually
13   TABLE OFRT
14    459 S D SL1PRI2
15   EXIT TABLE OFRT
16
17   +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Call Routing (continued)

PRI trunk to line—PUB call type

The following TRAVER shows a call from a PRI trunk to a line.

This call originates on a PRI trunk and terminates to a line in the DMS-100. Since no NPI is specified in the TRAVER command, the NPI is public. There is no NSF for the call. Using the rule for determining call type, the call type is public.

The flow through the tables in the TRAVER is as follows:

1. Table TRKGRP is accessed to determine the characteristics of the originating trunk group SL1NTPRI. Table TRKGRP also identifies the LTID assigned to the trunk group. The LTID is ISDN 1008.
2. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1008) and the call type (PUB).

   The XLAIBN selector in the tuple specifies both a line attribute index (0), and some MDC customer group information (ISDNPRA 0 0). Because the call has an NPI of public, the line attribute index is used and the customer group information is ignored. The call will enter POTS translations using the line attribute index as a pointer into table LINEATTR.
3. From table LINEATTR, the call continues using standard POTS translations. The call terminates to the line with the directory number 919-473-5856.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

```
LIne   Output

       traver tr sl1ntpri 4735856  b
1      TABLE TRKGRP
2      SL1NTPRI PRA 0 NPDGP NCRT ASEQ $ (ISDN 1008)$
3      TABLE LTCALLS
4      ISDN 1008 PUB XLAIBN 0 ISDNPRI 0 0
5      TABLE LINEATTR
6      0 1FR NONE NT NSCR 0 919 TOPS NIL NILSFC NILLATA 0
        NIL NIL 00 N $
7      TABLE STDPRTCT
8      POT1 (1) (0)
9      . SUBTABLE STDPRT
10     . 47358 47358 N NP 0 NA
11     . SUBTABLE AMAPRT
12     . KEY NOT FOUND
13     . DEFAULT VALUE IS: NONE N
14     TABLE HNPACONT
15     919 300 2 (22) (1) (0)
16     . SUBTABLE HNPACODE
17     . 473 473 DN 919 473
18     TABLE TOFCNAME
19     919 473 5 Y C
20     TABLE DNINV
21     919 473 5856 L HOST 00 0 08 01
22     TABLE DNATTRS
23     919 473 5856
24       (ISDNPRI (NAME DON) $)
25       (FASIBNC7 (NAME DONC7) $)$
26     TABLE DNGRPS
27     TUPLE NOT FOUND
28     TABLE LCASCRCN
29     919 POTS (6) MAND N
30     . SUBTABLE LCASCR
31     . 473 473
32     TABLE PFXTREAT
33     MAND NP Y NP UNDT
34     +++ TRAVER: SUCCESSFUL CALL TRACE +++
35
36     DIGIT TRANSLATION ROUTES
37     1 LINE          9194735856
38
39     TREATMENT ROUTES. TREATMENT IS: GNCT
40     1 120TONE
41     +++ TRAVER: SUCCESSFUL CALL TRACE  +++
```

PRI trunk to line—PUB call type with Equal Access

The following TRAVER show an Equal Access (EA) call from a PRI trunk to a line.

PRI Call Routing (continued)

This call originates on a PRA trunk and terminates to a line in the DMS-100. Since no NPI is specified in the TRAVER command, the NPI defaults to public. There is no NSF for the call. Using the rule for determining call type, the call type is public.

The flow through the tables in the TRAVER is as follows:

1. The first TRAVER shows the leg of the call from the trunk group to the virtual facility group (VFG).
   a. Table TRKGRP is accessed to determine the characteristics of the originating trunk group PRILVHL. Table TRKGRP also identifies the LTID assigned to the trunk group. The LTID is ISDN 2.
   b. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 2) and the call type (PUB).

      The RTEREF selector in the tuple specifies that the call will be routed to table IBNRTE, route number 173.
   c. Table IBNRTE uses the VFG selector to route the call to a VFG named PRIEA.
2. The second TRAVER shows the leg of the call from the VFG to the line. In this TRAVER the trunks appearing on the route list must be ATC or IT trunks. The VFG cannot be routed directly to a PRI trunk, and then to a carrier, when using the Equal Access Selector.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver tr prilvhl 12135541212 b

```
1    TABLE TRKGRP
2    PRILVHL PRA 10 NPDGP NCRT ASEQ N (ISDN 2)$
3    TABLE LTCALLS
4    ISDN 2 PUB RTEREF IBNRTE 173 $
5    TABLE IBNRTE
6    173 VFG N N N PRIEA O
7    EXIT TABLE IBNRTE
8    +++ TRAVER: SUCCESSFUL CALL TRACE +++
9
10   DIGIT TRANSLATION ROUTES
11   1 VFG:PRIEA          12135541212
12
13   TREATMENT ROUTES. TREATMENT IS: GNCT
14   1 OVFLTONE
15   +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing (continued)

Line Output

```
      traver  v priea 12135541212 b
1      TABLE VIRTGRPS
2      PRIEA SIZE 100 POTS 70273555000 O N (EA ATTC Y)$
3      TABLE LINEATTRS
4      0 1FR SPCL NT LATA 0 702 LOC LSVG TOPS N 10 NIL NILSFC LATA1 0
       NIL NIL 00 N
5      TABLE STDPRTCT
6      LOC (1) (0)
7      . SUBTABLE STDPRT
8      . 12 1554 N DD 1 NA
9      . SUBTABLE AMAPRT
10     . KEY NOT FOUND
11     . DEFAULT VALUE IS: NONE N
12     TABLE HNPACONT
13     702 445 0 (49) (1) (0)
14     . SUBTABLE HNPACONT
15     . 213 219 FRTD 1
16     . SUBTABLE RTEREF
17     . 1 N D 2WIT200 0 N N
18     . EXIT TABLE RTEREF
19     EXIT TABLE HNPACONT
20     TABLE LCASCRCN
21     702 LSVG (37) MAND N
22     . SUBTABLE LCASCR
23     . TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
24     TABLE PFXTREAT
25     MAND DD N DD UNDT
26     TABLE CLSVSCRC
27     KEY NOT FOUND
28     DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
29     TABLE OCCINFO
30     ATTC 288 EAP Y Y Y Y N N N Y Y Y SHORT 90 FGRPD N N Y N N N N N Y
31     TABLE EASAC
32     TUPLE NOT FOUND
33     TABLE LATAXLA
34     LATA1 21 INTER INTER STD
35     TABLE STDPRTCT
36     LOC (1) (0)
37     . SUBTABLE STDPRT
38     . 10288 10288 EA DD 5 P ATTP ATTC Y OFRT 220 6 20 Y
39     . . TABLE OFRT
40     . . 220 CND EA INTNL SK 5
41     . .  N D SNBR 0 N N
42     . .  N D 2WIT200 15 D081 N
43     . .  N D SNBRINETS O N N
44     . .  CND ALWAYS SK 4
```

TRAVER output example for PRI Call Routing (continued)

```
Line     Output

45       . .  N D SNBR 15 D138 N
46       . .  N D 2WIT200 15 D138 N
47       . .  N D SNBRINETS O N N
48       . .  S D EAPEG
49       . . EXIT TABLE OFRT
50       . TABLE STDPRTCT
51       . ATTP (1) (0)
52       . . SUBTABLE STDPRT
53       . . 12 15 EA DD 1 T NA ATTC Y OFRT 220 1 1 Y
54       . . . TABLE OFRT
55       . . . 220 CND EA INTNL SK 5
56       . . . N D SNBR 0 N N
57       . . . N D 2WIT200 15 D081 N
58       . . . N D SNBRINETS O N N
59       . . . CDN ALWAYS SK 4
60       . . . N D SNBR 15 D138 N
61       . . . N D SNBRINETS 0 N N
62       . . . S D EAPEG
63       . . . EXIT TABLE OFRT
64       +++ TRAVER: SUCCESSFUL CALL TRACE +++
65
66       DIGIT TRANSLATION ROUTES
67       1 SNBR       2135541212    ST
68       2 2WIT200     D081         ST
69       3 SNBRINETS  2135541212    ST
70       TREATMENT ROUTES: TREATMENT IS: GNCT
71       I OVFLTONE
72       +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI trunk to line—PVT call type

The following TRAVER shows a private call incoming to the DMS-100 over a PRI trunk and terminating to a line in the DMS-100.

This call is incoming over the PRI trunk SL1NTPRI. In the TRAVER command, both the NPI and the NSF are specified as being private (NPI is PVT, NSF is PRVT). Using the rule for determining call type, the call type is private.

The flow through the tables in the TRAVER is as follows:

1. Table TRKGRP is accessed to determine the characteristics of the originating trunk group, SL1NTPRI. Table TRKGRP also specifies the LTID assigned to the trunk (ISDN 1008).
2. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1008) and the call type (private). This tuple is using the XLAIBN selector

PRI Call Routing (continued)

which specifies a line attribute index (0) and some MDC customer group information (ISDNPRI 0 0). Because the call type is private, the MDC customer group information is accessed while the line attribute index is ignored. The MDC information consists of a customer group name (ISDNPRI), the subgroup (0), and the NCOS (0).

3. The call continues with standard MDC translations. The call terminates to the line with the directory number 919-473-5800.

TRAVER output example for PRI Call Routing

Line Output

traver tr sl1ntpri pvt '5800' prvt b

```
1     TABLE TRKGRP
2     SL1NTPRI PRA 0 NPDGP NCRT ASEQ $ (ISDN 1008) $ $
3     TABLE LTCALLS
4     ISDN 1008 PVT XLAIBN 0 ISDNPRI 0 0 $
5     TABLE NCOS
6     ISDNPRI 0 NCPRA 0 0 ( XLAS CXPRA CXLA1 NDGT) ( CRL 15 BLOCKED)
      (DFLTNET ISDNPRI) (IDDDARS N)$
7     TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
8     AND DIGCOL
9     ISDNPRI NXLA CXPRA CXN2 0 DCPRA
10    TABLE DIGCOL
11    DCPRA 5 COL S 3
12    TABLE IBNXLA: XLANAME CXPRA
13    TUPLE NOT FOUND
14    DEFAULT FROM TABLE XLANAME:
15    CXPRA (EXTN Y Y 919 473 4 $) $
16    TABLE TOFCNAME
17    919 473 5 Y C
18    TABLE DNINV
19    919 473 5800 L ISDN 20
20    TABLE DNATTRS
21    919 473 5800
22        (ISDNPRI ( NAME ROBERT) $)
23        (FASTIBNC7 ( NAME ROBERTC7) $)$
24    TABLE DNGRPS
25    TUPLE NOT FOUND
26    +++ TRAVER: SUCCESSFUL CALL TRACE +++
27
28    DIGIT TRANSLATION ROUTES
29    1 LINE                  9194735800
30    TREATMENT ROUTES.  TREATMENT IS: GNCT
31    1 120TONE
32    +++ TRAVER: SUCCESSFUL CALL TRACE +++
33
```

PRI trunk to line—FX call type

The following TRAVER shows a call from a PRI trunk to a line.

PRI Call Routing (continued)

This call is incoming over the PRI trunk SL1NTPRI. In the TRAVER command, the NPI is public and the NSF is FX (foreign exchange). Using the rule for determining call type, the call type is FX.

The flow through the tables in the TRAVER is as follows:

1. Table TRKGRP is accessed to determine the characteristics of the originating trunk group, SL1NTPRI. Table TRKGRP also specifies the LTID assigned to the trunk (ISDN 1008).
2. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1008) and the call type (FX). This tuple is using the XLALEC selector which specifies a line attribute index (0).
3. The line attribute index is used to access table LINEATTR and the call continues with POTS translations. The call terminates to the line with the directory number 919-473-5856.

TRAVER output example for PRI Call Routing

Line Output

traver tr sl1ntpri pvt '5800' prvt b

```
1       TABLE TRKGRP
2       SL1NTPRI PRA 0 NPDGP NCRT ASEQ $ (ISDN 1008) $ $
3       TABLE LTCALLS
4       ISDN 1008 FX XLALEC 0 $
5       TABLE LINEATTR
6       0 1FR NONE NT NSCR 0 919 POT1 POTS TOPS N 0 NIL NILSFC NILLATA 0
        NIL NIL 00 N
7       TABLE STDPRTCT
8       POT1 ( 1) ( 0)
9        . SUBTABLE STDPRT
10       . 47358 47358 N NP 0 NA
11       . SUBTABLE AMAPRT
12       . KEY NOT FOUND
13       . DEFAULT VALUE IS:   NONE   N
14      TABLE HNPACONT
15      919 300 2 ( 22) ( 1) ( 0)
16       . SUBTABLE HNPACODE
17       . 473 473 DN 919 473
18      TABLE TOFCNAME
19      919 473 5 Y C
20      TABLE DNINV
21      919 473 5856 L HOST 00 0 08 01
22      TABLE DNATTRS
23      919 473 5856
24          (ISDNPRA ( NAME DON) $)
25          (FASTIBNC7 ( NAME DONC7) $)$
26      TABLE DNGRPS
27      TUPLE NOT FOUND
28      TABLE LCASCRCN
29      919 POTS ( 6) MAND N
30       . SUBTABLE LCASCR
31       . 473 473
32      TABLE PFXTREAT
33      MAND NP Y NP UNDT
34      +++ TRAVER: SUCCESSFUL CALL TRACE +++
35
36      DIGIT TRANSLATION ROUTES
37      1 LINE                  9194735856
38      TREATMENT ROUTES.  TREATMENT IS: GNCT
39      1 120TONE
40      +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI trunk to line—FX call type using ISAXLA

The following TRAVER shows a call from a PRI trunk to a line.

PRI Call Routing (continued)

This call is incoming over the PRI trunk. In the TRAVER command, the NPI is public and the NSF is FX (foreign exchange). Using the rule for determining call type, the call type is FX.

The flow through the tables in the TRAVER is as follows:

1. Table TRKGRP is accessed to determine the characteristics of the originating trunk group. Table TRKGRP also specifies the LTID assigned to the trunk (ISDN 301).
2. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 301) and the call type (FX).

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver tr k2kdti64cllp1 n cdn e164 7227020 fx 20 b

```
1      TABLE TRKGRP
2      K2KDTI64CLLP1 PRA 0 PRAC NCRT ASEQ N (ISDN 301) $
3      TABLE LTCALLS
4      ISDN 301 FX XLAIBN 0 ABCLTD 0 25 (SIDXLA FXRTE N) $
5      TABLE ISAXLA
6      FXRTE 15 25 (IBNRTE 444) $
7      ROUTE FROM ISAXLA WILL BE USED IF CALL SCREENING IS SUCCESSFUL
8      TABLE IBNRTE
9       444 ISA N N N K2KLTI64LP2
10      .  TABLE TRKGRP
11      .  K2KLTI64LP2 PRA 0 PRAC NCRT DESQ N (ISDN 321) $
12      .  TABLE LTCALLS
13      .  ISDN 321 FX XLAIBN 0 COMKODEF 0 25
14     EXIT TABLE IBNRTE
15     SCREEN CALL USING LINEATTR FROM LTCALLS
16     TABLE LINEATTR
17     0 1FR NONE NT FR01 0 613 P621 L613 N TSPS N 10 NIL NILSFC NILLATA
       0 NIL NIL 00 N
18     LCABILL OFF – BILLING DONE ON BASIS OF CALLTYPE
19     TABLE STDPRTCT
20     P621 (1) (0)
21      . SUBTABLE STDPRT
22     WARNING: CHANGES IN TABLE STDDPRT MAY ALTER OFFICE BILLING.  CALL
23     TYPE DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.
24      . 7 810 N NP 0 NA
25      . SUBTABLE AMAPRT
26      . KEY NOT FOUND
27      . DEFAULT VALUE IS: NONE OVRNONE N
28     TABLE HNPACONT
29     613 312 1 (60) (1) (84) (0)
30     . SUBTABLE HNPACODE
31     . 722 722 LRTE 75
32     . SUBTABLE RTEREF
33     .  75 ISA N N N K2KPDTIZCS1 TIE 3 PVT 2
34     . . TABLE TRKGRP
35     . . K2KPDTIZCS1 PRA 0 NPDGP NCRT ASEQ N (ISDN 265) $
36     . . TABLE LTCALLS
37     . . ISDN 265 TIE XLAIBN 80 ABCLTD 0 25 $
38     . . TABLE DIGMAN
39     . .  2 (PAU 20) (INC 831) (PAU 40) (INC 811) (PAU 60)
40     . . EXIT TABLE DIGMAN
41     . . EXIT TABLE RTEREF
42     EXIT TABLE HNPACONT
43     TABLE LCASCRCN
44     613 L613 (11) MNDT N
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing (continued)

```
45    . SUBTABLE LCASCR
46    . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
47    TABLE PFXTREAT
48    TUPLE NOT FOUND.  DEFAULT IS TO LEAVE XLA 49    RESULT UNCHANGED
50    TABLE CLSVSCRC
51    KEY NOT FOUND
52    DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
53    +++ TRAVER: SUCCESSFUL CALL TRACE +++
54
55    DIGIT TRANSLATION ROUTES
56    1 K2KLTI64LP2                  N CDN E164 L 7227020 FX 20 BC SPEECH
57    TREATMENT ROUTES.  TREATMENT IS: GNCT
58    1 T120
59    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI trunk to line—WATS call type

The following TRAVERs show an OUTWATS call coming in from a PRI trunk.

This TRAVER shows an OUTWATS call. As specified in the TRAVER command, the NPI is public (by default) and the NSF is OUTWATS (OWT). Using the rule for determining call type, the call type is WATS. The OUTWATS zone is `8'.

The flow through the TRAVER is as follows:

1. Table TRKGRP is accessed to get the characteristics of the originating trunk group, SL1NTPRI. This tuple specifies that the LTID of the trunk is ISDN 1008.
2. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1008) and the call type (WATS). This tuple is using the XLAIBN selector. The XLAIBN selector specifies a line attribute index (0), and some MDC customer group information (ISDNPRA 0 0). Since the NPI of the call is public, the line attribute index is accessed and the MDC customer group information is ignored.
3. Table LINEATTR is accessed using the line attribute index (0) from table LTCALLS. The call continues through the STDPRTCT and HNPACONT tables and subtables and is routed to table IBNRTE. Table IBNRTE routes the call to an OUTWATS virtual facilities group (VFG) and the call continues with OUTWATS translations through the VFG.

The second example begins TRAVER of translations out of the VFG.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver tr sl1ntpri 7205856 owt '8' b

```
1     TABLE TRKGRP
2     SL1NTPRI PRA 0 NPDGP NCRT ASEQ $ (ISDN 1008) $ $
3     TABLE LTCALLS
4     ISDN 1008 WATS XLAIBN 0 ISDNPRA 0 0 $
5     TABLE LINEATTR
6     0 1FR NONE NT NSCR 0 919 POT1 POTS CTOP N 0 NIL NILSFC NILLATA 0
      NIL NIL 00 N
7     TABLE STDPRTCT
8     POT1 (1) (0)
9      . SUBTABLE STDPRT
10     . 720 720 LRTE 40
11     . SUBTABLE AMAPRT
12     . KEY NOT FOUND
13     . DEFAULT VALUE IS: NONE  N
14    TABLE HNPACONT
15    919 100 2 ( 32) (1) (0)
16     . SUBTABLE HNPACODE
17     . 720 720 LRTE
18     . SUBTABLE RTEREF
19     .   40 T IBNRTE 42
20     .  . TABLE IBNRTE
21     .  .   42 OW Y N N 8 V OWZNE8 6
22     .  .  .  TABLE DIGMAN
23     .  .  .      6  (REM 3) (INC 473)
24     .  .  .  EXIT TABLE DIGMAN
25     .  . EXIT TABLE IBNRTE
26     . EXIT TABLE RTEREF
27     EXIT TABLE HNPACONT
28    TABLE LCASCRCN
29    919 POTS ( 7) MAND N
30     . SUBTABLE LCASCR
31     . TUPLE NOT FOUND. DEFAULT IN NON-LOCAL
32    TABLE PFXTREAT
33    TUPLE NOT FOUND.  DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
34    TABLE OWATZONE
35    7 DIGITS:  PREFIXING DIALLED NUMBER WITH SNPA
36    919 9197205856 8
37    TABLE ZONEORDR
38    919 ( 01234567) ( 8) ( 9) ( A) ( B) ( C)$
39    VALID ZONE 8 OUTWATS CALL
40    +++ TRAVER: SUCCESSFUL CALL TRACE +++
41
42    DIGIT TRANSLATION ROUTES
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing (continued)

```
43    1 VFG: OWZNE8      4735856
44
45    TREATMENT ROUTES.  TREATMENT IS: GNCT
46    1 120TONE
47    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver v owzne8 4735856 b

```
1     TABLE VIRTGRPS
2     OWZNE8 SIZE 10 POTS 9197201000 Y $
3     TABLE LINEATTR
4     4 OWT WAT0 LO POTS 0 919 POT1 POTS CTOP N 0 NIL NILSFC NILLATA 0 NIL
      NIL 00 N
5     TABLE STDPRTCT
6     POT1 ( 1) ( 0)
7      . SUBTABLE STDPRT
8      . 47358 47358 N NP 0 NA
9      . SUBTABLE AMAPRT
10     . KEY NOT FOUND
11     . DEFAULT VALUE IS:  NONE  N
12    TABLE HNPACONT
13    919 100 2 ( 32) ( 1) ( 0)
14     . SUBTABLE HNPACODE
15     . 473 473 DN 919 473
16    TABLE TOFCNAME
17    919 473 5 Y C
18    TABLE DNINV
19    919 473 5856 L HOST 00 0 08 01
20    TABLE DNATTRS
21    TUPLE NOT FOUND
22    TABLE DNGRPS
23    TUPLE NOT FOUND
24    THIS IS A ZONE N OUTWATS LINE
25    TABLE OWATZONE
26    7 DIGITS & SNPA NOT DATA–FILLED: USING NUMBER AS DIALLED
27    919 4735856 8
28    TABLE ZONEORDR
29    919 ( 01234567) ( 8) ( 9) ( A) ( B) ( C)$
30    VALID OUTWATS CALL
31    TABLE LCASCRCN
32    919 POTS ( 7) MAND N
33     . SUBTABLE LCASCR
34     . 473 473
35    TABLE PFXTREAT
36    MAND NP Y NP UNDT
37    TABLE CLSVSCRC
38    KEY NOT FOUND
39    DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
40    LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL
41    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing (continued)

```
42    DIGIT TRANSLATION ROUTES
43    1 LINE                9194735856
44    TREATMENT ROUTES. TREATMENT IS: GNCT
45    1 120TONE
46    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

INWATS call type

The following show the TRAVER for a typical ISA INWATS call between a DMS-100 switch and a Meridian 1 PBX at the terminating office.

The first TRAVER is the IBN translations for a private line calling the INWATS number 8002664115. The #430 access code is random and is used to index table IIBNXLA. It shows an INWATS call to a virtual facilities group (VFG).

The flow through the TRAVER is as follows:

1. At line 40 the call routes with call type PUB and follows standard translations. The tables INWORICN, INWORIBN, and INWTERCN manipulated the digits so that 722-4115 is effectively dialed by a POTS line.
2. TRAVER does not show this routing but the rest of this TRAVER, from line 40 on, is what the translation would look like.

The second TRAVER is a retranslation of the previous call as if it is being originating on a POTS line. It shows the retranslation for a ISA INWATS call.

The third TRAVER has a call going through the VFG INW1 for throttling and billing then is routed over a PRI trunk. It shows the DMS-100 termination with call type IWT.

The fourth TRAVER is the standard translations for a Meridian 1 Options 111-211 (SL-100 system) origination with a call type IWT.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver l 7227000 'c430800266415' b

```
1     TABLE KSETLINE
2     HOST 00 0 03 24 1 DN Y 7227000 ABCLTD 0 0 613 (CWT)(3WC)(MCH)
     (RAG)(CWI)(DCBX)(PRK)(EBO)(EBX)(LNR)(MSB)(CPU)(CFX)(MWT)$
3     TABLE DNATTRS
4     613 722 700 (PUBLIC (NAME JOHN_DOE) $) $ $
5     TABLE DNGRPS
6     TUPLE NOT FOUND
7     TABLE NCOS
8     ABCLTD 0 0 0 ABC0 (OHQ 0 TONE_OHQ) (CBQ 0 3 N 2) $
9     TABLE CUSTHEAD: CUSTGRP PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
      AND DIGCOL
10    ABCLTD PXDK CXDK FTCOMM 0 ABC
11    TABLE DIGCOL
12    ABC OCT RPT
13    NCOS OCT XLA NAME IS NIL.  GO TO NEXT XLA NAME.
14    TABLE IBNXLA: XLANAME KPRA25
15    KPRA25 430 NET N Y N 3 Y NDGT Y N GEN (LATTR 0) $
16    TABLE DIGCOL
17    NDGT SPECIFIED: DIGITS COLLECTED INDIVIDUALLY
18    TABLE LINEATTR
19    0 1FR NONE NT FR01 0 613 P621 L613 N TSPS N 10 NIL NILSFC
20    LCABILL OFF – BILLING DONE ON BASIS OF CALLTYPE
21    TABLE STDPRTCT
22    P621 (1) (0)
23    . SUBTABLE STDPRT
24    . 80 810 N NP 0 NA
25    . SUBTABLE AMAPRT
26    . KEY NOT FOUND
27    . DEFAULT VALUE IS: NONE OVRNONE N
28    TABLE HNPACONT
29    613 666 1 (57) (1) (84) (0)
30    . SUBTABLE HNPACODE
31    . 800 800 INWO 0
32    TABLE INWORICN
33    266 18 08 0
34    TABLE INWORIBN
35    266 613 1 N
36    TABLE INWTERCN
37    17 411 722 5 6
38    TABLE INWTERTE
39    5 RT 613 NP NLCL 0 N 613 $
40    TABLE LCASCRCN
41    613 L613 (12) MNDT N
42    . SUBTABLE LCASCR
43    . TUPLE NOT FOUND.  DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing (continued)

```
44    TABLE CLSVSCRC
45    KEY NOT FOUND
46    DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
47    LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL
48    +++ TRAVER: SUCCESSFUL CALL TRACE +++
49
50    DIGIT TRANSLATION ROUTES
51    1 VFG: INW1            72114115         ST
52    TREATMENT ROUTES.  TREATMENT IS: GNCT
53    1 *OFLO
54    2 LKOUT
55    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

TRAVER output example for PRI Call Routing

Line Output

traver l 6211172 '7224115' b

```
1     TABLE LINEATTR
2     0 1FR NONE NT FR01 0 613 P621 L613 N TSPS N 10 NIL NILSEC
3     LCABILL OFF – BILLING DONE ON BASIS OF CALLTYPE
4     TABLE DNATTRS
5     TUPLE NOT FOUND
6     TABLE DNGRPS
7     TUPLE NOT FOUND
8     TABLE STDPRTCT
9     P621 (1) (0)
10    . SUBTABLE STDPRT
11    . 7 810 N NP 0 NA
12    . SUBTABLE AMAPRT
13    . KEY NOT FOUND
14    . DEFAULT VALUE IS: NONE OVRNONE N
15    TABLE HNPACONT
16    613 666 1 (57) (1) (84) (0)
17    . SUBTABLE HNPACODE
18    . 722 722 DN 613 722
19    TABLE TOFCNAME
20    613 722 4 Y C
21    TABLE DNINV
22    613 722 4115 T IBNRTE 444
23    TABLE DNATTRS
24    TUPLE NOT FOUND
25    TABLE DNGRPS
26    TUPLE NOT FOUND
27    TABLE IBNRTE
28    444 IW 14 722 INW1 444
29    . TABLE DIGMAN
30    . 444 (REM 3) (INC 721)
31    . EXIT TABLE DIGMAN
32    EXIT TABLE IBNRTE
33    TABLE LCASCRCN
34    613 L613 (12) MNDT N
35    . SUBTABLE LCASCR
36    . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
37    TABLE PFXTREAT
38    TUPLE NOT FOUND. DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
39    TABLE CLSVSCRC
40    KEY NOT FOUND
41    DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
42    +++ TRAVER: SUCCESSFUL CALL TRACE +++
43
44    DIGIT TRANSLATION ROUTES
45    1 VFG: INW1            7214115            ST
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing (continued)

```
46
47    TREATMENT ROUTES.  TREATMENT IS: GNCT
48    1 *OFLO
49    2 LKOUT
50    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver v inw1 '7214115' b

```
1     TABLE VIRTGRPS
2     INW1 SIZE 1 POTS 7227010 0 N $
3     TABLE LINEATTR
4     0 1FR NONE NT FR01 0 613 P621 L613 NTSPS N 10 NIL NILSFC
5     LCABILL OF – BILLING DONE ON BASIS OF CALLTYPE
6     TABLE STDPRTCT
7     P621 (1) (0)
8     . SUBTABLE STDPRT
9     . 7 810 N NP 0 NA
10    . KEY NOT FOUND
11    . DEFAULT VALUE IS: NONE OVRNONE N
12    TABLE HNPACONT
13    613 322 1 (57) (1) (84) (0)
14    . SUBTABLE HNPACODE
15    . 721 721 LRTE 333
16    . SUBTABLE RTEREF
17    . . 333 ISA N N N K2KDTI64CLLP1 INWATS 2 E164 333 $
18    . .  TABLE TRKGRP
19    . .  KEKDTI64CLLP1 PRA 0 PRAC NCRT ASEQ N (ISDN 301) $
20    . .  TABLE LTCALLS
21    . .  ISDN 301 INWATS XLAIBN 0 ABCLTD 0 25 $
22    . .  TABLE DIGMAN
23    . .   333 (CF 2) (REM 5) (INC 27010)
24    . .  EXIT TABLE DIGMAN
25    .  EXIT TABLE RTEREF
26    EXIT TABLE HNPACONT
27    TABLE LCASCRCN
28    613 L613 (12) MNDT N
29    SUBTABLE LCASCR
30    TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
31    TABLE PFXTREAT
32    TUPLE NOT FOUND.  DEFAULT IS TO LEAVE XLA RESULT UNCHANGED $
33    TABLE CLSVSCRC
34    KEY NOT FOUND
35    DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
36    LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL
37    +++ TRAVER: SUCCESSFUL CALL TRACE +++
38
39    DIGIT TRANSLATION ROUTES
40    1 K2KDTI64CLLP1  N CDN E164 7227010 IWT 2 BC SPEECH
41
42    TREATMENT ROUTES.  TREATMENT IS: GNCT
43    1 *OFLO
44    2 LKOUT
45    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver tr k2kdti64cllp2 n cdn e164 7227010 iwt b

```
1     TABLE TRKGRP
2     K2KDTI64CLLP2 PRA 0 PRAC NCRT DESQ N (ISDN 302) $
3     TABLE LTCALLS
4     ISDN 302 INWATS XLAIBN 0 ABCLTD 0 25 $
5     TABLE LINEATTR
6     0 1FR NONE NT FR01 0 613 P621 L613 N TSPS N 10 NIL NILSEC
7     LCABILL OFF – BILLING DONE ON BASIS OF CALLTYPE
8     TABLE STDPRTCT
9     P621 (1) (0)
10    . SUBTABLE STDPRT
11    . 7 810 N NP 0 NA
12    . SUBTABLE AMAPRT
13    . KEY NOT FOUND
14    . DEFAULT VALUE IS: NONE OVRNONE N
15    TABLE HNPACONT
16    613 666 1 (57) (1) (84) (0)
17    . SUBTABLE HNPACODE
18    . 722 722 DN 613 722
19    TABLE TOFCNAME
20    613 722 7 Y C
21    TABLE DNINV
22    613 722 7010 IMC SCA 5
23    TABLE DNATTRS
24    TUPLE NOT FOUND
25    TABLE DNGRPS
26    TUPLE NOT FOUND
27    TABLE LCASCRCN
28    613 L613 (12) MNDT N
29    . SUBTABLE LCASCR
30    . TUPLE NOT FOUND.  DEFAULT IS ON-LOCAL
31    TABLE PFXTREAT
32    TUPLE NOT FOUND. DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
33    TABLE CLSVSCRC
34    KEY NOT FOUND
35    DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
36    +++ TRAVER: SUCCESSFUL CALL TRACE +++
37
38    DIGIT TRANSLATION ROUTES
39    1 LINE            6137227010         ST
40    TREATMENT ROUTES.  TREATMENT IS: GNCT
41    1 T120
42    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI IBNT2 trunk to line—PUB call type

The following TRAVER shows a call originating from an IBNT2 trunk set up for PRI and terminating to a line.

PRI Call Routing (continued)

As shown in the TRAVER command, the NPI for the call is public and the NSF is absent (unknown). Thus the call type defaults to public.

The flow through the tables is as follows:

1. Table TRKGRP determines the characteristics of the originating trunk group and also specifies the LTID assigned to the trunk group (ISDN 1016).
2. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1016) and the call type (PUB). The XLALEC translation selector is used to specify a line attribute index (0).

Table LINEATTR is accessed using the line attribute index from table LTCALLS. The call continues with standard POTS translations.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line Output

traver tr CRMINIPRA64K pub 4735856 b

```
1     TABLE TRKGRP
2     CRMINIPRA64K IBNT2 0 NPDGP NCRT ISDN2 0 MIDL 0 N ANSDISC 0 Y N N N
      N N N N 0 0 N 0 0 0 0 N N N N N N N N N (LTID ISDN 1016) $
3     TABLE LTCALLS
4     ISDN 1016 PUB XLALEC 0 $
5     TABLE LINEATTR
6     0 1FR NONE NT NSCR 0 919 POT1 POTS TOPS N 0 NIL NILSFC NILLATA 0
      NIL NIL 00 N
7     TABLE STDPRTCT
8     POT1 ( 1) ( 0)
9      . SUBTABLE STDPRT
10     . 47358 47358 N NP 0 NA
11     . SUBTABLE AMAPRT
12     . KEY NOT FOUND
13     . DEFAULT VALUE IS:   NONE   N
14    TABLE HNPACONT
15    919 300 2 ( 22) ( 1) ( 0)
16     . SUBTABLE HNPACODE
17     . 473 473 DN 919 473
18    TABLE TOFCNAME
19    919 473 5 Y C
20    TABLE DNINV
21    919 473 5856 L HOST 00 0 08 01
22    TABLE DNATTRS
23    919 473 5856
24        (ISDNPRA ( NAME DON) $)
25        (FASTIBNC7 ( NAME DONC7) $)$
26    TABLE DNGRPS
27    TUPLE NOT FOUND
28    TABLE LCASCRCN
29    919 POTS ( 6) MAND N
30     . SUBTABLE LCASCR
31     . 473 473
32    TABLE PFXTREAT
33    MAND NP Y NP UNDT
34    +++ TRAVER: SUCCESSFUL CALL TRACE +++
35
36    DIGIT TRANSLATION ROUTES
37    1 LINE                  9194735856
38    TREATMENT ROUTES.  TREATMENT IS: GNCT
39    1 120TONE
40    +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI IBNT2 trunk to line—PVT call type

The following TRAVER shows a call originating from an IBNT2 trunk group set up for PRI and terminating to a line.

This call is incoming over the PRI trunk group CRMINIPRI64K. In the TRAVER command, both the NPI and the NSF are specified as being private (NPI is PVT, NSF is PRVT). Using the rule for determining call type, the call type is private.

The flow through the tables in the TRAVER is as follows:

1. Table TRKGRP is accessed to determine the characteristics of the originating trunk group. Table TRKGRP also specifies the LTID assigned to the trunk group (ISDN 1016).
2. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1016) and the call type (private). This tuple is using the XLAIBN selector which specifies a line attribute index (10) and some MDC customer group information (ISDN2 0 0). Because the call type is private, the MDC customer group information is accessed while the line attribute index is ignored. The MDC information consists of a customer group name (ISDN2), the subgroup (0), and the NCOS (0).
3. The call continues with standard MDC translations. The call terminates to the line with the directory number 919-473-5856.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line	Output
	>traver tr crminipri64k pvt 4735856 prvt b
1	TABLE TRKGRP
2	CRMINIPRI64K IBNT2 0 NPDGP NCRT ISDN2 0 MIDL 0 N ANSDISC 0 Y N N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N (LTID ISDN 1016) $
3	TABLE LTCALLS
4	ISDN 1016 PVT XLAIBN 10 ISDN2 0 0 $
5	TABLE NCOS
6	ISDN2 0 0 0 ISDN2 $
7	TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,AND DIGCOL
8	ISDN2 NXLA CXLA1 NXLA 0 ISDGT1
9	TABLE DIGCOL
10	ISDGT1 4 POTS N
11	NCOS PRELIM XLA NAME IS NIL. GO TO NEXT XLA NAME.
12	CUST PRELIM XLA NAME IS NIL. GO TO NEXT XLA NAME.
13	TABLE IBNXLA: XLANAME CXLA1
14	TUPLE NOT FOUND
15	DRFAULT FROM TABLE XLANAME:
16	CXLA1 (NET Y Y 0 N ISDGT1 N N DOD N 10 NONE) $
17	TABLE DIGCOL
18	ISDGT1 4 POTS N
19	TABLE LINEATTR
20	10 IBN NONE NT NSCR 0 919 POT1 NLCA CTOP N 0 NIL NILSFC
21	NILLATA 0 NIL NIL 00 N
22	TABLE STDPRTCT
23	POT1 (1) (0)
24	. SUBTABLE STDPRT
25	. 47358 47358 N NP 0 NA
26	. SUBTABLE AMAPRT
27	. KEY NOT FOUND
28	. DEFAULT VALUE IS: NONE N
29	TABLE HNPACONT
30	919 300 2 (22) (1) (0)
31	. SUBTABLE HNPACODE
32	. 473 473 DN 919 473
33	TABLE TOFCNAME
34	919 473 5 Y C
35	TABLE DNINV
36	919 473 5856 L HOST 00 0 08 01
37	TABLE DNATTRS
38	919 473 5856
39	(ISDNPRA (NAME DON) $) $
40	TABLE DNGRPS
41	TUPLE NOT FOUND
42	+++ TRAVER: SUCCESSFUL CALL TRACE +++
43	DIGIT TRANSLATION ROUTES
44	1 LINE 9194735856
45	TREATMENT ROUTES. TREATMENT IS: GNCT
46	1 120TONE
47	+++ TRAVER: SUCCESSFUL CALL TRACE +++

PRI Call Routing (continued)

Line to PRI trunk

The following TRAVER shows a call that originates from a line on the DMS-100 switch and terminates to a PRI trunk.

There is nothing unique to PRI in this TRAVER except for the fact that table STDPRTCT is routing the call to a PRI trunk group, SL1NTPRI. Note that in table STDPRTCT, the S route selector is being used to route the call to the PRI trunk. Because the ISA route selector in one of the routing tables is not being used to route the call, no NSF is generated for the outgoing call.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line	Output
	>traver l 4735870 4735107 b
1	TABLE KSETLINE
2	HOST 00 0 19 02 42 DN Y 4735870 ISDN2 0 0 919 (3WC) (RAG) (PRK) (EBO) (MSB) (CPU) $
3	TABLE DNATTRS
4	TUPLE NOT FOUND
5	TABLE DNGRPS
6	TUPLE NOT FOUND
7	TABLE NCOS
8	ISDN2 0 0 0 ISDN2 $
9	TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
10	ISDN2 NXLA CXLA1 NXLA 0 ISDGT1
11	TABLE DIGCOL
12	ISDGT1 4 POTS N
13	NCOS PRELIM XLA NAME IS NIL. GO TO NEXT XLA NAME.
14	CUST PRELIM XLA NAME IS NIL. GO TO NEXT XLA NAME.
15	TABLE IBNXLA: XLANAME CXLA1
16	TUPLE NOT FOUND
17	DEFAULT FROM TABLE XLANAME:
18	CXLA1 (NET Y Y 0 N ISDGT1 N N DOD N 10 NONE) $
19	TABLE DIGCOL
20	ISDGT1 4 POTS N
21	TABLE LINEATTR
22	10 IBN NONE NT NSCR 0 919 POT1 NLCA CTOP N 0 NIL NILSFC NILLATA 0
23	NIL NIL 00 N
24	TABLE STDPRTCT POT1 (1) (0)
25	. SUBTABLE STDPRT
26	. 47351 47351 S NP 3 SL1NTPRA1 4 7 NONE
27	. SUBTABLE AMAPRT
28	. KEY NOT FOUND
29	. DEFAULT VALUE IS: NONE N
30	
31	+++ TRAVER: SUCCESSFUL CALL TRACE +++
32	
33	DIGIT TRANSLATION ROUTES
34	1 SL1NTPRI1 5107 ST
35	TREATMENT ROUTES. TREATMENT IS: GNCT
36	1 120TONE
37	+++ TRAVER: SUCCESSFUL CALL TRACE +++

Line to PRI trunk—TIE call type

The following TRAVER shows a call originating from an ISDN line and terminating to a PRI trunk.

The flow through the tables is as follows:

1. Table IBNRTE is used to route the call. The ISA route selector in table IBNRTE routes the call to the CLLI called SL1NTPRI. The call type is TIE and the numbering plan indicator is private. Because the ISA route selector is used, both an NPI and an NSF will be included in the outgoing SETUP message. The NPI is private and the NSF is TIE.
2. Table TRKGRP is accessed using the CLLI from table IBNRTE. Table TRKGRP specifies the characteristics of the terminating trunk group and also contains the LTID assigned to the trunk (ISDN 1008).
3. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1008) and the call type (TIE). Because table LTCALLS contains a tuple for ISDN 1008 TIE, the call is allowed to complete.

TRAVER output example for PRI Call Routing

```
Line    Output

        >traver l 4735800 '5107' b
1       TABLE KSETLINE
2       ISDN 20 1 DN Y 4735800 ISDNPRI 0 0 919 (CWT) (3WC) (MCH) (RAG) (CWI) (DCBI)
        (MSB) (MWT) $
3       TABLE DNATTRS
4       919 473 580 (ISDNPRI (NAME ROBERT)$)(FASTIBNC7 (NAME 5 ROBERTC7)$)$
5       TABLE DNGRPS
6       TUPLE NOT FOUND
7       TABLE NCOS
8       ISDNPRI 0 0 0 NCPRA ( XLAS CXPRA CXLA1 NDGT) ( CRL 15 BLOCKED)
9       (DFLTNET ISDNPRI) (IDDDARS N)$
10      TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
        AND DIGCOL
11      ISDNPRI NXLA CXPRA CXN2 0 DCPRA
        TABLE DIGCOL
12      DCPRA 5 COL S 3
13      TABLE IBNXLA: XLANAME CXPRA
14      CXPRA 51 ROUTE N Y 0 N 4 4 DCPRA Y T IBNRTE 50
15      TABLE DIGCOL
16      DCPRA 5 COL S 3
17      TABLE IBNRTE
18           50 ISA N N N SL1NTPRI TIE 1 PVT 0
19           . TABLE TRKGRP
20           . SL1NTPRI PRA 0 NPDGP NCRT ASEQ $ (ISDN 1008) $
21           . TABLE LTCALLS
22           . ISDN 1008 TIE XLAIBN 0 ISDNPRI 0 0 $
23      EXIT TABLE IBNRTE
24      +++ TRAVER: SUCCESSFUL CALL TRACE +++
25
26      DIGIT TRANSLATION ROUTES
27      1 SL1NTPRI                    PVT  5107 TIE 1 BC SPEECH
28      TREATMENT ROUTES.  TREATMENT IS: GNCT
29      1 120TONE
30      +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

PRI Call Routing (continued)

Line to PRI trunk—PVT call type

The following TRAVER shows a call from a line on the DMS-100 to a PRI trunk. This call uses the ISA selector in table OFRT to route the call. The flow through the TRAVER is as follows:

1. The call begins as a regular MDC call in table KSETLINE and proceeds through the MDC translations tables. Table IBNXLA routes the call to Table OFRT, route number 407.
2. Table OFRT, route number 407, uses the ISA route selector to route the call. This tuple specifies the PRI trunk CLLI to which the call will route (K2KPRA64CLLP4). It also specifies the call type (PVT), the NPI (PVT), and a digit manipulation index (702).
3. Table TRKGRP is accessed using the CLLI name (K2KPRA64CLLP4) from Table OFRT. Table TRKGRP specifies the characteristics of the terminating trunk group and also specifies the LTID assigned to the trunk (ISDN 601).
4. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 1008) and the call type from table OFRT (PVT). Because a tuple is found in table LTCALLS for ISDN 601 PVT, the call is allowed.
5. Table DIGMAN is accessed using the digit manipulation index from table OFRT (702). Table DIGMAN modifies the called digits.
6. As shown in the Digit Translation Routes part of the TRAVER, the call is routed to the PRA trunk K2KPRA64CLLP4. The SETUP message contains an NPI of PVT, called digits 4020, and an NSF of PVT. The default bearer capability (BC) is speech.

TRAVER output example for PRI Call Routing

```
Line    Output

        > traver l 7224009 'c453344020' b
1       TABLE KSETLINE
2       HOST 04 1 13 13 1 DN Y 7224009 ABCLTD 0 0 613 $
3       1TABLE DNATTRS
4       TUPLE NOT FOUND
5       TABLE DNGRPS
6       TUPLE NOT FOUND
7       TABLE NCOS
8       ABCLTD 0 0 0 ABC0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) $
9       TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
        AND DIGCOL
10      ABCLTD PXDK CXDK CUSTFEAT 0 KDK
11      TABLE DIGCOL
12      ABC OCT RPT
13      NCOS OCT XLA name is NIL. Go to next XLA name.
14      TABLE IBNXLA: XLANAME KPRA25
15      KPRA25 45 ROUTE N N 2 Y 3 15 NDGT N T OFRT 407
16      TABLE DIGCOL
17      NDGT specified: digits collected individually.
18      TABLE OFRT
19       407 ISA N N N K2KPRA64CLLP4 PVT PVT 702
20       . TABLE TRKGRP
21       . K2KPRA64CLLP4 PRA 0 PRAC NCRT ASEQ N (ISDN 601) $
22       . TABLE LTCALLS
23       . ISDN 601 PVT XLAIBN 0 ABCLTD 0 25 $
24       . TABLE DIGMAN
25       . 702 (REM 3)
26       . EXIT TABLE DIGMAN
27      EXIT TABLE OFRT
28  +++ TRAVER: SUCCESSFUL CALL TRACE +++
29
30      DIGIT TRANSLATION ROUTES
31      1 SL1NTPRI             E164  4020  PVT   BC SPEECH
32      +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Line to PRI trunk—TIE call type

The following TRAVER shows a call originating from a line on the DMS-100 and terminating to a PRI trunk. The call is routed using the ISA selector in table IBNRTE.

The flow through the TRAVER is as follows:

1. The call begins from an MDC line in table KSETLINE. The call proceeds with regular MDC translations. Table IBNXLA routes the call to table IBNRTE, route number 402.
2. Table IBNRTE, route number 402, uses the ISA route selector to route the call to the PRI trunk CLLI `K2KPRA64CLLP2'. The call type is TIE and

PRI Call Routing (continued)

the facility number is 1. The NPI is PVT. The digit manipulation index is 0 (no digit manipulation required).

3. Table TRKGRP is accessed using the CLLI from table IBNRTE (K2KPRA64CLLP2). Table TRKGRP specifies the characteristics of the terminating trunk group and also specifies the trunk LTID (ISDN 241).
4. Table LTCALLS is accessed using the LTID from table TRKGRP (ISDN 241) the call type from table IBNRTE (Tie). Since a tuple is found in table LTCALLS, the call is allowed to terminate.
5. As shown in the Digit Translation Routes part of the TRAVER, the call is routed to the PRI trunk `K2KPRA64CLLP2.' Because the ISA route selector was used, both an NPI and an NSF are generated for the call. The NPI is PVT and the NSF is TIE. The outpulsed digits are 4008. The bearer capability (BC) defaults to speech.

TRAVER output example for PRI Call Routing

```
Line    Output

        >traver l 7224020 'c464009' b
1       TABLE KSETLINE
2       HOST 00 0 00 16 1 DN Y 7224020 ABCLTD 0 0 613 (RAG) (CPU) (CFX) $
3       TABLE NCOS
4       ABCLTD 0 0 ABC0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) $
5       TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
        AND DIGCOL
6       ABCLTD PXDK CXDK CUSTFEAT 0 KDK
7       TABLE DIGCOL
8       ABC OCT RPT
9       NCOS OCT XLA name is NIL. Go to next XLA name.
10      TABLE IBNXLA: XLANAME KPRA25
11      KPRA25 46 ROUTE N N 2 Y 3 15 NDGT N T IBNRTE 402
12      TABLE DIGCOL
13      NDGT specified: digits collected individually.
14      TABLE IBNRTE
15       402 ISA N N N K2KPRA64CLLP2 TIE 1 PVT 0
16       . TABLE TRKGRP
17       . K2KPRA64CLLP2 PRA 0 PRAC NCRT DSEQ N (ISDN 241) $
18       . TABLE LTCALLS
19       . ISDN 241 TIE XLAIBN 0 ABCLTD 0 25 $
20       EXIT TABLE OFRT
21      +++ TRAVER: SUCCESSFUL CALL TRACE +++
22
23      DIGIT TRANSLATION ROUTES
24      1 K2KPRA64CLLP2         PVT 4008 TIE     BC SPEECH
25      TREATMENT ROUTES. TREATMENT IS: GNCT
26      1 *OFLO
27      2 LKOUT
28      +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Line to PRI trunk—PUB call type

The following TRAVER shows a call originating from a POTS line and terminating to a PRI trunk. This call uses the ISA route selector in table HNPACONT.RTEREF to route the call. The NPI and call type are public.

The flow through the TRAVER is as follows:

1. The TRAVER does not show the reference into table LENLINES and table LENFEAT that begins a POTS call. The TRAVER begins in table LINEATTR and proceeds through regular POTS translations. The RTEREF subtable in table HNPACONT uses the ISA route selector to route the call to the trunk CLLI K2KPRA64CLLP2. The call type is specified as public (PUB). The operator access type is NONE and the transit network selector is 0. The digit manipulation index is 0 (no digit manipulation needed).
2. Table TRKGRP is accessed using the trunk CLLI from table HNPACONT.RTEREF. Table TRKGRP specifies the LTID of the PRI trunk group (ISDN 445).
3. Table LTCALLS is accessed using the LTID from table TRKGRP and the call type from the ISA selector in HNPACONT.RTEREF. Because a tuple is found in table LTCALLS for ISDN 445 PUB, the call is allowed to route to the trunk group.
4. As shown in the Digit Translations Routes part of the TRAVER, the call routes to trunk K2KPRA64CLLP2. The NPI for the call is E164 (public) and the called digits are 6136221234. Because the call type was public in the ISA route selector, the NSF defaults to NIL. The bearer capability (BC) defaults to speech.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line	Output
	>traver l 7221234 6221234 b
1	TABLE LINEATTR
2	0 1FR NONE NT NSCR 0 613 PKDK L613 TSPS N 0 NIL NILLATA 0 NIL NIL 00 N
3	TABLE STDPRTCT
4	PKDK (1)
5	. SUBTABLE STDPRT
6	. 622 632 N NP 0 NA
7	TABLE HNPACONT
8	613 128 1 (43) (1)
9	. SUBTABLE HNPACODE
10	. 622 622 LRTE 2 N
11	. SUBTABLE RTEREF
12	. 2 ISA N N N K2KPRA64CLLP2 PUB NONE N 245
13	. TABLE TRKGRP
14	. K2KPRA64CLLP2 PRA 0 NPGDP NCRT ASEQ 7221234 ISDN 445
15	. TABLE LTCALLS
16	. ISDN 445 PUB XLALEC 125 $
17	. EXIT TABLE RTEREF
18	EXIT TABLE HNPACONT
19	+++ TRAVER: SUCCESSFUL CALL TRACE +++
20	
21	DIGIT TRANSLATION ROUTES
22	1 K2KPRA64CLLP4 E164 6136221234 NIL_NSF BC SPEECH
23	TREATMENT ROUTES. TREATMENT IS: GNCT
24	1 *OFLO
25	2 LKOUT
26	+++ TRAVER: SUCCESSFUL CALL TRACE

POTS line to PRI trunk—INWATS call type

The following TRAVER show an INWATS call. Note that if the ISA route selector is used, and a billing record is required for the call, the call must be routed through a virtual facility group (VFG) to produce a billing record.

The flow through the TRAVERs is as follows:

1. In the first TRAVER, the call routes to table IBNRTE. Table IBNRTE specifies a route selector type of IW (INWATS) and routes the call to the VFG named INWPRI.
2. The second TRAVER shows the translations from the VFG to the terminating PRI trunk.
   a. Table VIRTGRPS is accessed using the VFG name from table IBNRTE in the previous leg of the call. Table VIRTGRPS defines the

VFG size, the customer group name and NCOS, and the billing number for the call.

b. Table IBNRTE uses a route selector of ISA to route the call to the trunk group DTCIPRALP1. The call type is INWATS.

c. Table TRKGRP is accessed using the trunk CLLI from table IBNRTE. Table TRKGRP specifies the characteristics of the terminating trunk group and also contains the trunk LTID (ISDN 1020).

d. Table LTCALLS is accessed using the LTID from table TRKGRP and the INWATS call type from the ISA selector in table IBNRTE. Because a tuple is found in table LTCALLS for ISDN 1020 INWATS, the call is allowed to route to the trunk group.

The second TRAVER translates from the VFG to the trunk group.

PRI Call Routing (continued)

TRAVER output example for PRI Call Routing

Line	Output
	>traver l 2231001 2231004 b
1	TABLE IBNLINES
2	HOST 14 1 03 03 DT STN IBN 2231001 NETWORK 0 0 903 $
3	TABLE DNATTRS
4	TUPLE NOT FOUND
5	TABLE DNGRPS
6	TUPLE NOT FOUND
7	TABLE NCOS
8	NETWORK 0 0 0 NCNET $
9	TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
10	NETORK NXLA CXNET FXNET 0 DCNET
11	TABLE DIGCOL
12	DCNET 2 RPT
13	NCOS PRELIM XLA name is NIL. Go to next XLA name.
14	CUST PRELIM XLA name is NIL. Go to next XLA name.
15	TABLE IBNXLA: XLANAME CXNET
16	CXNET 223 EXTN Y Y 903 223 7 $
17	TABLE TOFCNAME
18	903 223 1 Y O
19	TABLE DN
20	903 223 1004 T IBNRTE 907
21	TABLE DNATTRS
22	TUPLE NOT FOUND
23	TABLE DNGRPS
24	TUPLE NOT FOUND
25	TABLE IBNRTE
26	907 IW 14 223 INWPRI 35
27	. TABLE DIGMAN
28	. 35 (CL BEG) (REM 7) (INC 7306999) (CL BEG)
29	. EXIT TABLE DIGMAN
30	EXIT TABLE IBNRTE
31	+++ TRAVER: SUCCESSFUL CALL TRACE +++
32	
33	DIGIT TRANSLATION ROUTES
34	1 VFG: INWPRI 7306999 ST
35	
36	TREATMENT ROUTES. TREATMENT IS: GNCT
37	1 T120
38	+++ TRAVER: SUCCESSFUL CALL TRACE +++

TRAVER output example for PRI Call Routing

Line	Output
	>traver v inwpri 7306999 b
1	TABLE VIRTGRPS
2	INWPRI SIZE 2 IBN 9032231000 NETWORK 0 0 0 N N N $
3	TABLE NCOS
4	NETWORK 0 0 0 NCNET $
5	TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
6	NETORK NXLA CXNET FXNET 0 DCNET
7	TABLE DIGCOL
8	DCNET 7 RPT
9	NCOS PRELIM XLA name is NIL. Go to next XLA name.
10	CUST PRELIM XLA name is NIL. Go to next XLA name.
11	TABLE IBNXLA: XLANAME CXNET
12	CXNET 7 ROUTE N N 0 N 7 7 POTS N T IBNRTE 908
13	TABLE DIGCOL
14	POTS specified: POTS digit collection
15	TABLE IBNRTE
16	908 ISA N N N DTCIPRALP1 INWATS E164 0
17	. TABLE TRKGRP
18	. DTCIPRALP1 PRA 0 NPDGP NCRT ASEQ N (ISDN 1020) $
19	. TABLE LTCALLS
20	. ISDN 1020 INWATS XLAIBN 263 COREREGA 1 0 $
21	EXIT TABLE IBNRTE
22	+++ TRAVER: SUCCESSFUL CALL TRACE +++
23	
24	DIGIT TRANSLATION ROUTES
25	1 DTCIPRALP1 E164 7306999 IWT BC SPEECH
26	TREATMENT ROUTES. TREATMENT IS: GNCT
27	1 T120
28	+++ TRAVER: SUCCESSFUL CALL TRACE +++

SERVORD

PRI Call Routing does not use SERVORD.

6 Datafilling NI0 NI-1 PRI Networking

The following chapter describes the NI0 NI-1 PRI Networking, NI000013, functionality.

PRI Message Waiting Indicator

Ordering codes

Functionality group ordering code: NI000013

Functionality ordering code: not applicable

Release applicability

BCS36 and up

PRI Message Waiting Indicator does not apply to ETSI PRI, VN4 PRI, QSIG, or TS14.

Requirements

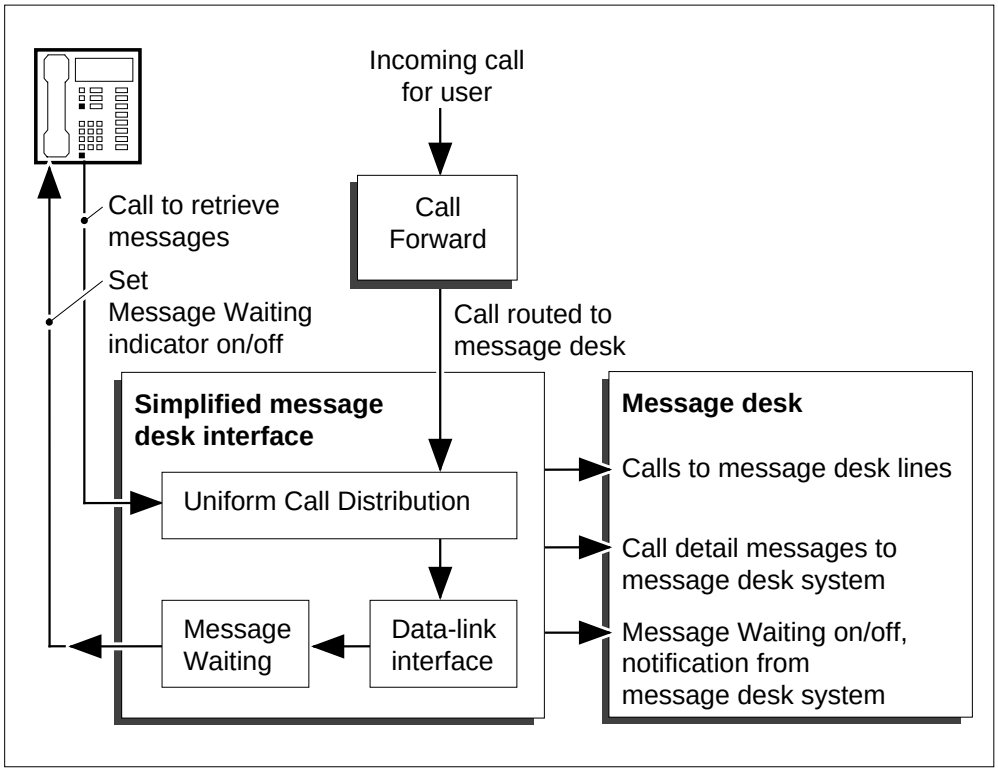
To operate, PRI Message Waiting Indicator requires the NI000011 functional group.

Description

The Message Waiting Indicator capability provides a visual sign or a stuttered dial tone indicating that a message has been left at a simplified message desk interface (SMDI) for busy or unavailable called parties. SMDI provides a central answering service by integrating Call Forward (CFW), Uniform Call Distribution (UCD), Message Waiting (MW) and Executive Message Waiting (EMW) telephone features. The following figure illustrates how SMDI integrates these services.

PRI Message Waiting Indicator (continued)

SMDI overview



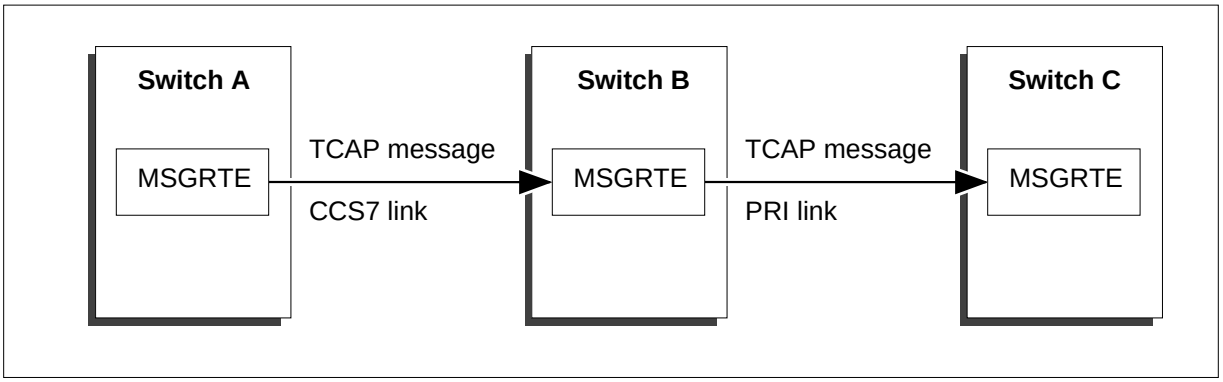
When a message is left at the SMDI, MWI is activated at the called party's telephone set. After the called party retrieves the message, the MWI is deactivated.

MWI allows SMDI to leave a message when the calling and called parties are on switches connected by PRI trunks or connected by a combination of PRI trunks and CCS7 links.

SMDI leaves a message by sending transaction capability application part (TCAP) messages. MWI routes TCAP messages through table MSGRTE to support PRI, CCS7, or PRI/CCS7 networks. The following figure illustrates how TCAP messages are routed over a PRI/CCS7 network using MWI.

PRI Message Waiting Indicator (continued)

Routing TCAP messages through table MSGRTE



The MWI capability interworks between the DMS-100 switch and the Meridian 1 Options 11-81 (SL-1 system) PBX. This will allow a Meridian 1 message center to activate or deactivate message waiting indicators for DMS-100 subscribers, or allow a DMS-100 message center to activate or deactivate message waiting indicators for Meridian 1 users. The DMS-100 switch provides network message system (NMS) to private directory numbers (DN).

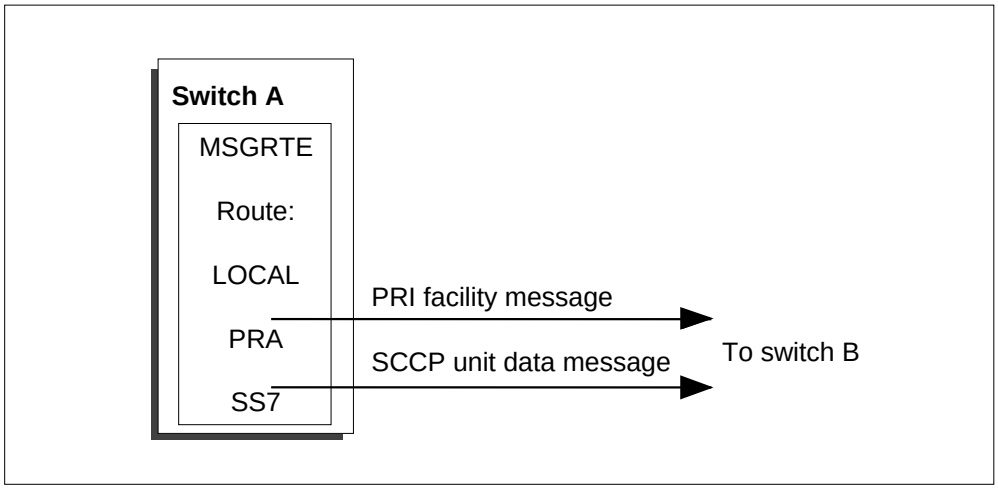
Operation

Table NETNAMES, along with tables NCOS and IBNXLA, allows the operating company to datafill station information against a DN on a logical network basis. The NMSTBRTE option is in table NETNAMES. It routes TCAP messages by table MSGRTE. If NMSTBRTE is not defined, the TCAP messages are routed through the signaling connection control part (SCCP) network message system (NMS).

Table MSGRTE must be datafilled for NMSTBRTE to function. The table is indexed by a three-subfield key consisting of a network identifier (NETID) and two digit string. 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 uses a route selector: LOCAL, PRA, or SS7. 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 interwork SCCP subsystem in the switch. These messages contain the TCAP information needed by MWI. The Network Ring Again capability also uses table MSGRTE. The following figure illustrates the MWI routing process using table MSGRTE.

PRI Message Waiting Indicator (continued)

MWI routing using table MSGRTE



Translations table flow

PRI Message Waiting Indicator does not affect translations.

Limitations and restrictions

The following limitations and restrictions apply to PRI Message Waiting Indicator:

- MWI only functions for a DMS-100 switch linked to a DMS-100 switch, Meridian 1 Options 11-81 (SL-1 system), or Meridian 1 Options 111-211 (SL-100 system).
- MWI does not direct message waiting tone (MWT) notification to a remote telephone.
- It may not be possible to send a response message back when a switch with option NMSTBRTE routes a message to a switch without it. The first switch assumes, after the response timeout, that the feature activation has been unsuccessful.
- When MWI does not know the network name of the destination directory number (DN), the destination DN is sent as PUBLIC.
- PRI MWI does not apply to ETSI PRI, VN4 PRI, QSIG, or TS14.

Interactions

PRI Message Waiting Indicator has no functionality interactions.

Activation/deactivation by the end user

PRI Message Waiting Indicator requires no activation or deactivation by the end user.

PRI Message Waiting Indicator (continued)

Billing

PRI Message Waiting Indicator does not affect billing.

Station Message Detail Recording

PRI Message Waiting Indicator does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Message Waiting Indicator does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI Message Waiting Indicator. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Message Waiting Indicator

Table	Purpose of table
NETNAMES	Defines internal network names and their corresponding external network identifiers.
MSGRTE	Defines the routing of messages between switches. Assigns the capability to the logical network to which the end user belongs.

Datafilling table NETNAMES

The following table shows the datafill specific to PRI Message Waiting Indicator for table NETNAMES. Only those fields that apply directly to PRI Message Waiting Indicator are shown. For a description of the other fields, refer to the *Data Schema Reference Manual*.

Datafilling table NETNAMES (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
NETNAME		alphanumeric (up to 32 characters)	Network name. Enter the name of the network to which the customer group belongs.
EXTNETID		numeric (0 to 32 600)	External network identifier. Enter the unique number used to identify the network externally.
NETDIGS		0 to 10	Network digits. Enter the number of digits used to identify field EXTNETID.

Datafilling table NETNAMES (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
NETOPTS		see subfield	Network options
	OPTION	NMSTBRTE	Option. Enter NMSTBRTE to route the TCAP messages for Message Waiting by way of table MSGRTE. Enter a $ to end the tuple. ***Note:*** If NMSTBRTE is not defined, the regular method of routing through the signaling connection control part (SCCP) network message system (NMS) is used.

Datafill example for table NETNAMES

The following example shows sample datafill for table NETNAMES.

MAP display example for table NETNAMES

```
    NETNAME EXTNETID  NETDIGS
                                                        NETOPTS
-------------------------------------------------------------------

   CUSTNET1        2        7
                                                  ( NMSTBRTE)$
```

Datafilling table MSGRTE

The following table shows the datafill specific to PRI Message Waiting Indicator for table MSGRTE. Only those fields that apply directly to PRI

PRI Message Waiting Indicator (continued)

Message Waiting Indicator are shown. For a description of the other fields, refer to the *Data Schema Reference Manual*.

Datafilling table MSGRTE (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
MSGRTKEY		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	digits (up to 11)	From digits. Enter a digit string for the lower bound of the digit range to which the route list applies.
	TODIGS	digits (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 for 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:*** When the LOCAL selector is used, it 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	Trunk CLLI. Enter the trunk calling line identifier. ***Note:*** Use when subfield MSGRTSEL is PRA.

PRI Message Waiting Indicator (continued)

Datafilling table MSGRTE (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	DPC	alphanumeric	Destination point code. Enter the valid point code of the switch that the message is to be sent to. ***Note:*** Use when subfield MSGRTSEL is SS7.
	DELDIGS	numeric (0 to 15)	Delete digits. Enter a number from 0 to 15 for the digits to delete from the destination address in the message routing information.
	PREDIGS	digits (up to 11)	Prefix digits. Enter up to 11 digits for the digit string to prefix the destination address in the message routing information.
	OPTION	NEWNET, NEWTOR	Option. Enter NEWNET for new network name. Enter NEWTOR for new type of route. Enter a $ to end this subfield. ***Note:*** Use when subfield MSGRTSEL is PRA or SS7. For SS7, use NEWNET only. 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:*** Use when the subfield OPTION is NEWNET. The network name must already exist in table NETNAMES.
	TYPEOFRT	PUB, PVT	Type of route. New route used in the DEST IE of a PRI facilities message, as opposed to matching whether the network identifier is public or private. Enter PUB for public. Enter PVT for private. ***Note:*** Use when the subfield OPTION is NEWTOR.

Datafill example for table MSGRTE

The following example shows sample datafill for table MSGRTE.

PRI Message Waiting Indicator (end)

MAP display example for table MSGRTE

```
                    MSGRTKEY
                                                    MSGRTRES
_____________________________________________________________

CUSTNET1  0000001   9999999
            ( PRA   CTOD   0   0 (NEWNET CUST1PVT)$)$
```

Error messages for table MSGRTE

The following error messages apply to table MSGRTE.

Error messages for table MSGRTE

Error message	Explanation and action
MSGRTE: LOCAL MUST BE FIRST AND ONLY ROUTE IN LIST	An attempt was made to enter a tuple containing a LOCAL message route selector combined with PRA or SS7 message route selectors. LOCAL must be the only message route selector in a tuple.
MSGRTE: ONLY ONE SS7 SELECTOR, AND IT MUST BE THE LAST TUPLE TO BE ADDED	More than one SS7 message route selector is trying to be added. A SS7 selector is not the last tuple. Enter only one tuple with the SS7 selector and make it the last tuple added.
MSGRTE: NEWNET CANNOT BE SAME AS KEY NETID	The network name in the field MSGRTKEY entry is the same as the one entered in subfield NETNAME. Reenter a different name in subfield NETNAME.

Translation verification tools

PRI Message Waiting Indicator does not use translation verification tools.

SERVORD

PRI Message Waiting Indicator does not use SERVORD.

PRI Network Name Delivery

Ordering codes

Functionality group ordering code: NI000013

Functionality ordering code: not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, PRI Network Name Delivery requires the NI000011 functional group.

Description

The Network Name Delivery capability delivers name information across a PRI network composed of DMS Family switches including Meridian 1 PBXs. Network Name Display is the telephone feature. The capability also supports interworking with the CCS7 ISDN user part (ISUP) network. With interworking, the intermediate node does the protocol conversion.

The DISPLAY information element (IE) uses SETUP or NOTIFY Q.931 messages to carry the called party name, calling party name, and response information across the PRI interface.

The following are the operational parts of the capability:

- The retrieval of the calling party name (and that of the originally called party name, if redirection occurs) from the originating node. This information is transported across a network and delivered to the terminating node to be displayed on the terminating telephone.
- The retrieval of connected party name from the terminating switch. This information is transported across a network and delivered to the originating node to be displayed on the originating telephone.
- Call redirection can occur at the terminating node while the originally called party's name is not present in the call establishment message received from the originating node. In this case the originally called party's name is retrieved from the terminating node's database, and transported in the outgoing call establishment message.

Operation

In table NETNAMES, the subfield OPTION allows PRI Network Name Delivery. Subfield NMXCHG defines which method (SETUP or QUERY) to use to deliver the name across the PRI network.

PRI Network Name Delivery (continued)

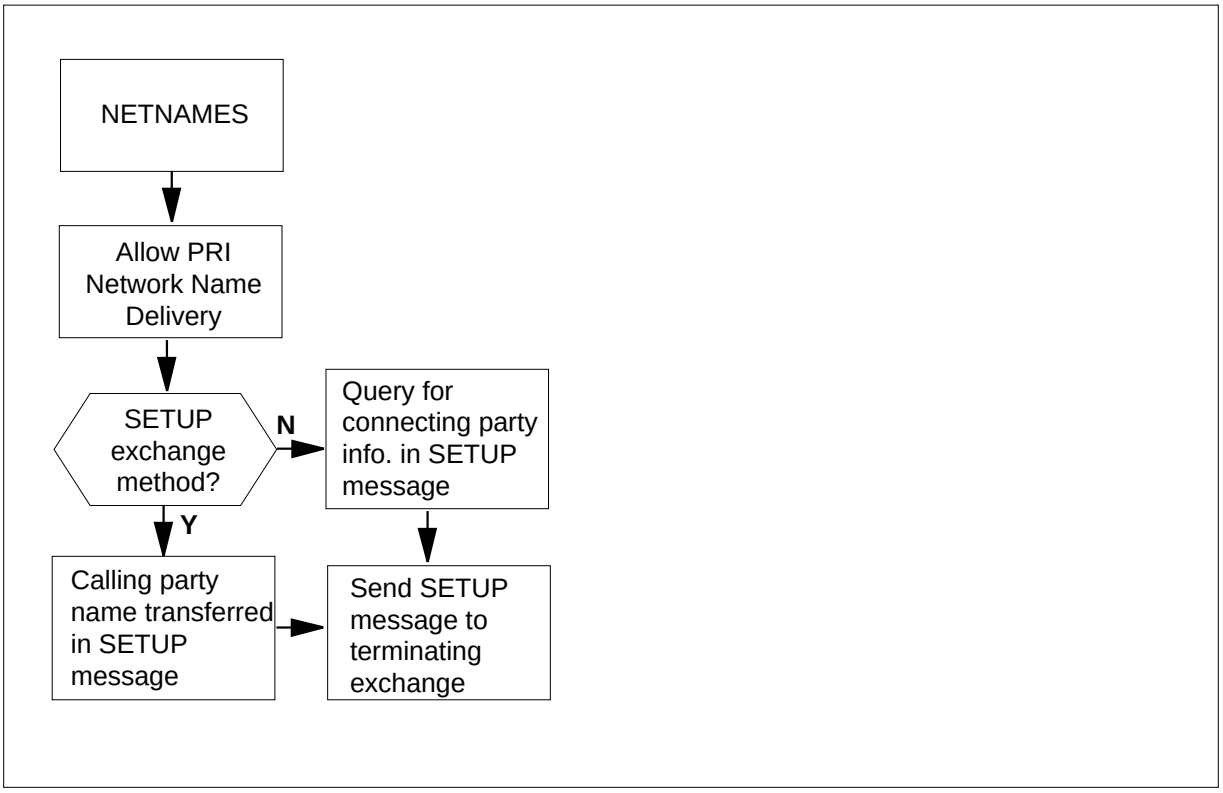
In table CUSTNTWK, the CLID entry in subfield OPTION determines if a line is allowed to display the connected party name for ONNET and OFFNET calls, as defined in subfield CLIDOPT.

The actions at the originating exchange depend on the method of transfer. With the SETUP method the called party name is included in the SETUP message. With the QUERY method, the availability of the calling party name is implied, and a request for connected party information is in the SETUP message. Refer to “Operation flow for PRI Network Name Delivery at the originating exchange".

The actions at the terminating exchange depend on the method of transfer. With the SETUP method, when the terminating exchange receives the SETUP message (which contains the name information in the DISPLAY IE), the information is transferred to the connected party (if applicable) and continues to complete the call setup. With the QUERY method, the terminating exchange determines if the connected party needs the name information and sends the request to the originating exchange using the NOTIFY message. The call continues without waiting for the name information from the originating exchange. Refer to “Operation flow for PRI Network Name Delivery at the terminating exchange".

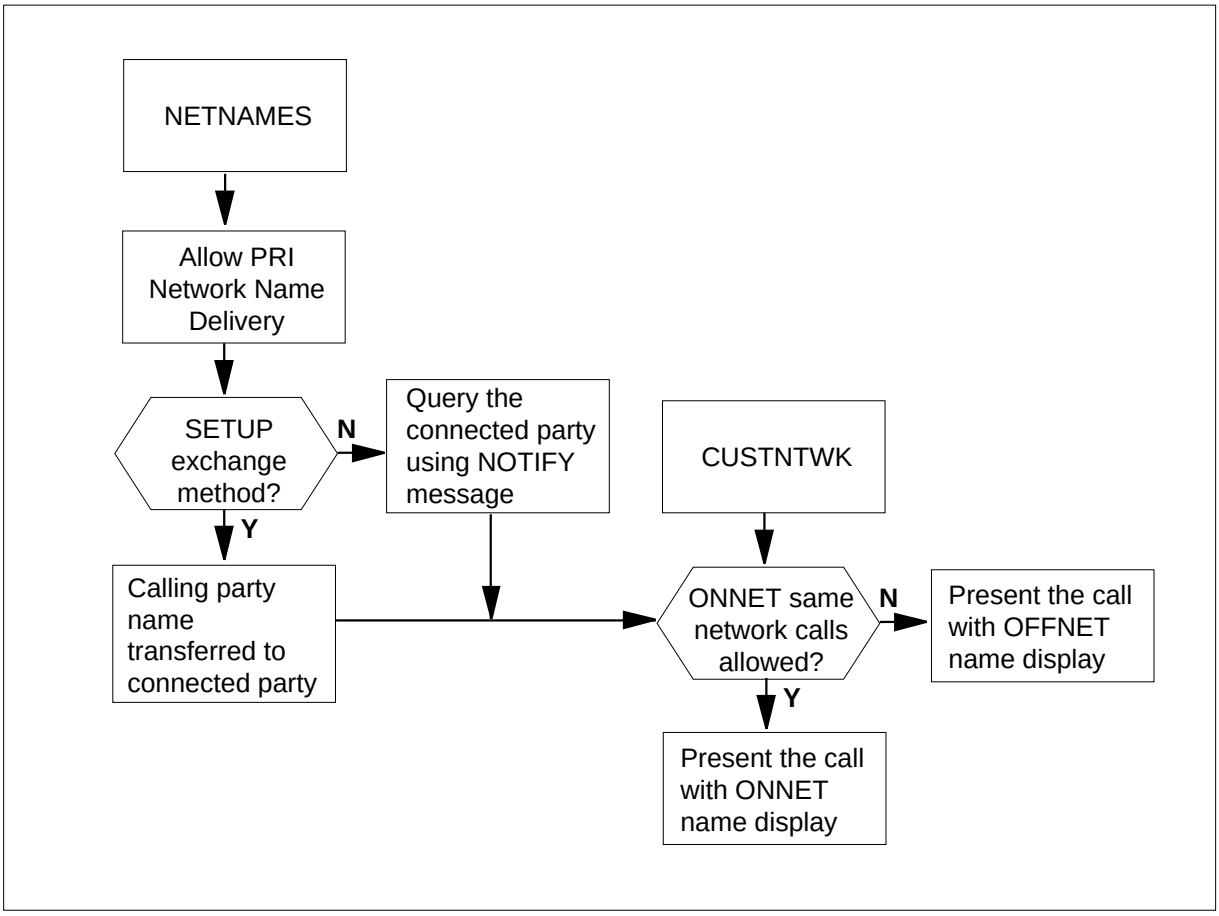
PRI Network Name Delivery (continued)

Operation flow for PRI Network Name Delivery at the originating exchange



PRI Network Name Delivery (continued)

Operation flow for PRI Network Name Delivery at the terminating exchange



Translations table flow

PRI Network Name Delivery does not affect translations.

Limitations and restrictions

The following limitations and restrictions apply to PRI Network Name Delivery.

- In multiple call forwarding situations, only the first redirected party name (or originally called party name) is displayed.
- For call forwarding using the QUERY transfer method, the name of the redirected party is not displayed when the first base stations are neither in the originating or terminating exchange.
- In some cases when the call configuration is modified after the call setup, the protocol control parameters are not exchanged (due to protocol

limitations) and the name information may not be transferred across the network.

Interactions

PRI Network Name Delivery has no functionality interactions.

Activation/deactivation by the end user

PRI Network Name Delivery requires no activation or deactivation by the end user.

Billing

PRI Network Name Delivery does not affect billing.

Station Message Detail Recording

PRI Network Name Delivery does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Network Name Delivery does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI Network Name Delivery. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Network Name Delivery

Table	Purpose of table
NETNAMES	Defines 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.

Datafilling table NETNAMES

The following table shows the datafill specific to PRI Network Name Delivery for table NETNAMES. Only those fields that apply directly to PRI Network

PRI Network Name Delivery (continued)

Name Delivery are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table NETNAMES

Field	Subfield or refinement	Entry	Explanation and action
NETNAME		alphanumeric (up to 32 characters)	Network name. Enter the name of the network to which the customer group belongs.
EXTNETID		numeric (0 to 32 600)	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.
NETOPTS		see subfields	Network options
	OPTION	NMDSP	Option. Enter NMDSP for Network Name Display. Enter a $ to end the tuple.
	NMXCHG	SETUP, QUERY	Name exchange method. Enter SETUP to transfer the name information in the SETUP message. Enter QUERY to check if the name is to be presented at the destination.

Datafill example for table NETNAMES

The following example shows sample datafill for table NETNAMES.

MAP display example for table NETNAMES

```
    NETNAME EXTNETID  NETDIGS
                                                    NETOPTS
_____________________________________________________________

   CUSTNET1        2        7
                                          ( NMDSP QUERY)$
```

Datafilling table CUSTNTWK

The following table shows the datafill specific to PRI Network Name Delivery for table CUSTNTWK. Only those fields that apply directly to PRI Network

PRI Network Name Delivery (continued)

Name Delivery are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table CUSTNTWK

Field	Subfield or refinement	Entry	Explanation and 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 names. Enter the internal name of the network assigned in field NETNAME in table NETNAMES.
NETCGID		numeric (0 to 4096)	Network customer group identifier. Enter the number used to identify the customer group throughout the network.
OPTIONS		see subfields	Options
	OPTION	CLID	Option. Enter CLID to indicate calling line identification. Enter a $ to end the tuple. ***Note:*** To display the network name, this value must be assigned to the customer group of the party equipped with a display agent. To display the network name at the telephone, table CUSTSTN must be datafilled to indicate that a customer supports the capability, and table DNATTRS or table DNGRPS must be datafilled to add the name associated with a directory number.
	CLIDOPT	ONNET, OFFNET	Calling line identification option. Enter ONNET to enable Network Name Display for calls that originate and terminate in the same network. Enter OFFNET to enable Network Name Display for calls across different networks.

Datafill example for table CUSTNTWK

The following example shows sample datafill for table CUSTNTWK.

PRI Network Name Delivery (end)

MAP display example for table CUSTNTWK

```
CUSTNAME     NETNAME   NETCGID
                                                    DNREVXLA
                                                     OPTIONS
_____________________________________________________________

    GRP1    CUSTNET1       311
                                                           $
                                                (CLID ONNET)$
```

Error messages for table CUSTNTWK

Not applicable

Translation verification tools

PRI Network Name Delivery does not use translation verification tools.

SERVORD

PRI Network Name Delivery does not use SERVORD.

PRI Network Ring Again

Ordering codes

Functionality group ordering code: NI000013

Functionality ordering code: not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, PRI Network Ring Again requires the NI000011 functional group.

Description

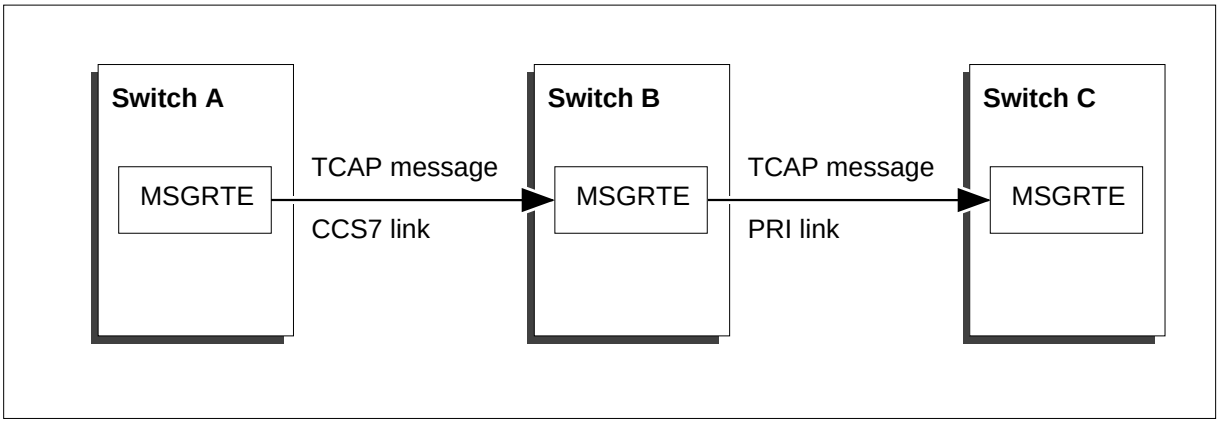
The PRI Network Ring Again (NRAG) capability allows the Ring Again feature to work when the calling and called parties are on different switches connected by Primary Rate Interface (PRI) trunks or by a combination of PRI and Common Channel Signaling 7 (CCS7) links. An end user located in any of the switching 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 the 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.

PRI Network Ring Again (continued)

Routing TCAP messages through 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 through 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.

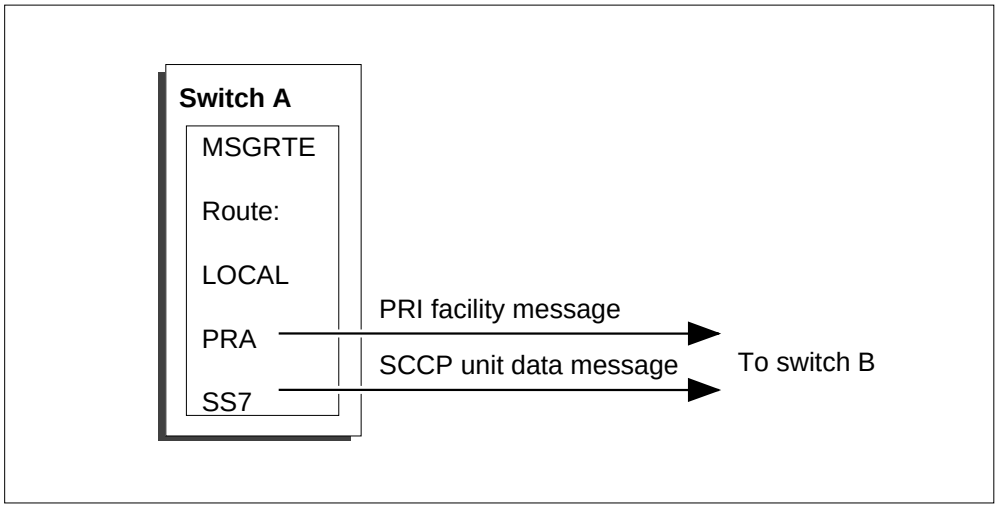
Table CUSTNTWK is used to associate the customer group with its logical networks and to specify NRAG.

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 string subfields (FROMDIGS 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 following figure illustrates the NRAG routing process using table MSGRTE.

PRI Network Ring Again (continued)

NRAG routing using table MSGRTE



Translations table flow

PRI Network Ring Again does not affect translations.

Limitations and restrictions

The following limitations and restrictions apply to PRI Network Ring Again:

- NRAG does not work between two switches that have different options datafilled in table NETNAMES.
- In order for NRAG to interwork between PRI and CCS7, the CCS7 SCCP tables must be datafilled in addition to the tables covered in this chapter. Also, table TCAPTRID must have NRAG datafilled in the TCAP application field (TCAPAPPL).
- 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). TIE can only be entered when integrated services access (ISA) is used.
- Tables DNATTRS and DNGRPS may alter the digits in the orientation IE. When either table has an entry for the calling 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 in field NETCGID in

PRI Network Ring Again (continued)

table CUSTNTWK. The actual names of the customer groups need not be the same at each switch.

- 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 which 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.

Interactions

PRI Network Ring Again has no functionality interactions.

Activation/deactivation by the end user

PRI Network Ring Again requires no activation or deactivation by the end user.

Billing

PRI Network Ring Again does not affect billing. The NRAG callback is billed as a normal call.

Station Message Detail Recording

PRI Network Ring Again does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Network Ring Again does not affect office parameters.

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.

Datafill tables required for PRI Network Ring Again (Sheet 1 of 2)

Table	Purpose of table
NETNAMES	Defines internal network names and their corresponding external network identifiers. Assigns the capability to the logical network to which the end user belongs.

Datafill tables required for PRI Network Ring Again (Sheet 2 of 2)

Table	Purpose of table
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. Only those fields that apply directly to PRI Network Ring Again are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table NETNAMES (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
NETNAME		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.

PRI Network Ring Again (continued)

Datafilling table NETNAMES (Sheet 2 of 2)

Field	Subfield or refinement	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 Network Ring Again. 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 Network Ring Again. The network routes its NRAG connectionless SS7 messages by the digits and point code returned in the 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 TCAP 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.

PRI Network Ring Again (continued)

MAP display example for table NETNAMES

```
  NETNAME EXTNETID  NETDIGS
                                                        NETOPTS
_____________________________________________________________

CUSTNET1     1024        7
                                  ( NINTNRAG NMRTNRAG)$
```

Datafilling table CUSTNTWK

The following table shows the datafill specific to PRI Network Ring Again for table CUSTNTWK. Only those fields that apply directly to PRI Network Ring Again are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table CUSTNTWK (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and 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 to 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 Network Ring Again. Enter a $ to end the tuple.
	TIMEOUT	numeric (10 to 60)	Time out. Enter the number of seconds of ringing desired to alert the calling party that the called party is now idle.

PRI Network Ring Again (continued)

Datafilling table CUSTNTWK (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	ORIGDUR	numeric (5 to 30)	Originator duration timeout. Enter the number of minutes that the Network Ring Again request at the originating switch is to remain active.
	ORIGRTY	numeric (2 to10)	Originator retry timeout. 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 to 31)	Terminator duration timeout. Enter the number of minutes that the Network Ring Again request at the terminating switch must remain active. ***Note:*** This timeout value must be greater than the entry in subfield ORIGDUR.
	TERMGRD	numeric (1 to 6)	Terminator guard timeout. Enter the number of seconds that the terminator must wait after the receiver goes onhook before sending a message to the originator to indicate idleness.
	TERMQAD	numeric (5 to 40)	Terminator queue advance timeout. Enter the number of seconds that the terminator's switch must wait before sending out called party free messages to different originators.
	NETOPT	ONNET or OFFNET	Network option. Enter ONNET to enable Network Ring Again for calls that originate and terminate in the same network. Enter OFFNET to enable Network Ring Again for calls across different networks.

Datafill example for table CUSTNTWK

The following example shows sample datafill for table CUSTNTWK.

PRI Network Ring Again (continued)

MAP display example for table CUSTNTWK

```
CUSTNAME     NETNAME    NETCGID
                                                    DNREVXLA
                                                     OPTIONS
_____________________________________________________________

    GRP1    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. Only those fields that apply directly to PRI Network Ring Again are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table MSGRTE (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
MSGRTKEY		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 digits	From digits. Enter a digit string for the lower bound of the digit range to which the route list applies.
	TODIGS	up to 11 digits	To digits. Enter a digit string for the upper bound of the digit range to which the route list applies.
MSGRTRES		see subfield	Message route result. This field consists of subfield MSGRTSEL and refinements.

PRI Network Ring Again (continued)

Datafilling table MSGRTE (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	MSGRTSEL	LOCAL, PRA, SS7	Message route selector. Enter LOCAL for 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 the tuple.
	TRKCLLI	alphanumeric (1 to 16 characters)	Trunk CLLI. Enter the trunk calling line identifier. ***Note:*** Use when field MSGRTSEL is PRA.
	DPC	numeric	Destination point code. Enter the valid point code of the switch that the message is to be sent to. ***Note:*** Use when field MSGRTSEL is SS7.
	DELDIGS	numeric (0 to 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 digits	Prefix digits. Enter the digit string to prefix the destination address in the message routing information.
	OPTION	NEWNET	Option. Enter NEWNET for new network name. Enter a $ to end this subfield. Use when field MSGRTSEL is PRA or SS7. 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.

MAP display example for table MSGRTE

```
MSGRTKEY
                                                        MSGRTRES
_____________________________________________________________

CUSTNET1  0000001     9999999
                ( PRA   CTOD   0   0 (NEWNET CUST1PVT)$)$
```

Error messages for table MSGRTE

The following error messages are generated if table MSGRTE is datafilled incorrectly.

Error message	Explanation and action
`MSGRTE: LOCAL MUST BE FIRST AND ONLY ROUTE IN LIST`	LOCAL is not the only message route datafilled in a tuple. LOCAL must be the only message route selector in a tuple.
`MSGRTE: ONLY ONE SS7 SELECTOR, AND IT MUST BE THE LAST TUPLE TO BE ADDED`	More than one SS7 message route selector is datafilled. A SS7 selector is not the last tuple. Enter only one tuple with the SS7 selector and make it the last tuple added.
`MSGRTE: NEWNET CANNOT BE SAME AS KEY NETID`	The network name in the field MSGRTKEY entry is the same as the one entered in subfield NETNAME. Reenter a different name in field NETNAME.

Translation verification tools

PRI Network Ring Again does not use translation verification tools.

SERVORD

PRI Network Ring Again does not use SERVORD.

7 Datafilling NI0 NI-2 PRI

The following chapter describes the NI0 NI-2 PRI, NI000015, functionality.

PRI Call Screening

Ordering codes

Functional group ordering code: NI000015

Functionality ordering code: not applicable

Release applicability

NA008 and up

Prerequisites

To operate, PRI Call Screening requires ISDN PRI NA008 Call Processing.

Description

PRI Call Screening supports Calling Number Screening (CGN) for National ISDN 2 (NI-2) primary rate interfaces (PRI) and Nortel North American (NTNA) PRI. PRI Call Screening also provides functionality for Redirecting Number (RN) privacy, screening, billing, and delivery for NI-2 PRI. 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). All functionality is targeted for the National ISDN (NI) PRI variant except CGN service for NTNA PRI trunks.

This feature adds the following functionality:

- CGN per-interface screening for the NTNA variant
- CGN per-interface screening for the NI variant
- RN screening for the NI variant
- RN privacy for the NI variant
- RN billing for the NI variant
- RN delivery for the NI variant

Operation

PRI Call Screening provides CGN for NIPRI and NTNAPRI trunk groups on an individual trunk basis. Table DNSCRN provides information that is used by call processing to perform call screening and call validation on specified directory numbers (DN) for the DMS-100 switch. In table DNSCRN, the screening attribute options (ATTROPTS) define up to six logical terminal identifiers (LTID) for each DN. When calling line identification (CLI) is enabled, attributes CLILTID1 and CLILTID2 identify LTID tuples in table

PRI Call Screening (continued)

LTDEF to be used by call processing for screening, editing, and redirection purposes.

Note: For CGN screening and editing, the tuples in LTDEF must be previously datafilled in table LTDEF with subfield VARIANT = NIPRI or NTNAPRI.

PRI Call Screening also 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 NI-2 PRI interfaces.

Table LTDATA stores data associated with the LTID. The LTID key (LTDKEY) consists of three parts: logical terminal group (LTGRP), logical terminal number (LTNUM), and data type (DATATYPE). The range of values for field DATATYPE is expanded to include an RN subscription parameter. The RN selector is used to enter:

- 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 NI-2 PRI, controls presentation of DNs of the first or second instance of redirection to the called party.

RND determines what redirection information to deliver across the PRI interface. One or two sets of RND information can be independently screened based on their respective outgoing trunk and / or the incoming privacy indicator. The first set of RND information is associated with the first instance of redirection, and the second set of RN information (if present) is associated with the latest instance of redirection.

PRI Call Screening with RND also 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 DN is not available. This would occur, for example, when interworking with Per-Trunk Signaling (PTS) trunks.
- The redirecting party has restricted presentation of the DN with the PI.

PRI Call Screening (continued)

- A subscription on the originating side to suppress the presentation of the DN. Suppression subscriptions are controlled on an individual PRI interface 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 NI PRI 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.

Translations table flow

The PRI Call Screening translations tables are described in the following list:

- In table LTDEF (logical terminal definitions) the tuples defining LTs for screening must be datafilled with subfield VARIANT = NIPRI or NTNAPRI and respective ISSUEs before datafilling the referencing OPTION CLILTID 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 network).
  - — If subfield DATATYPE = SERV, add entry RNID (RN identification) and refinement SUPPRESS to subfield OPTION.

PRI Call Screening (continued)

— If subfield DATATYPE = SERV, add entry RNDELV (RN delivery) screening and refinements ALWAYS, SCREENED, or NEVER to subfield DELIVER.

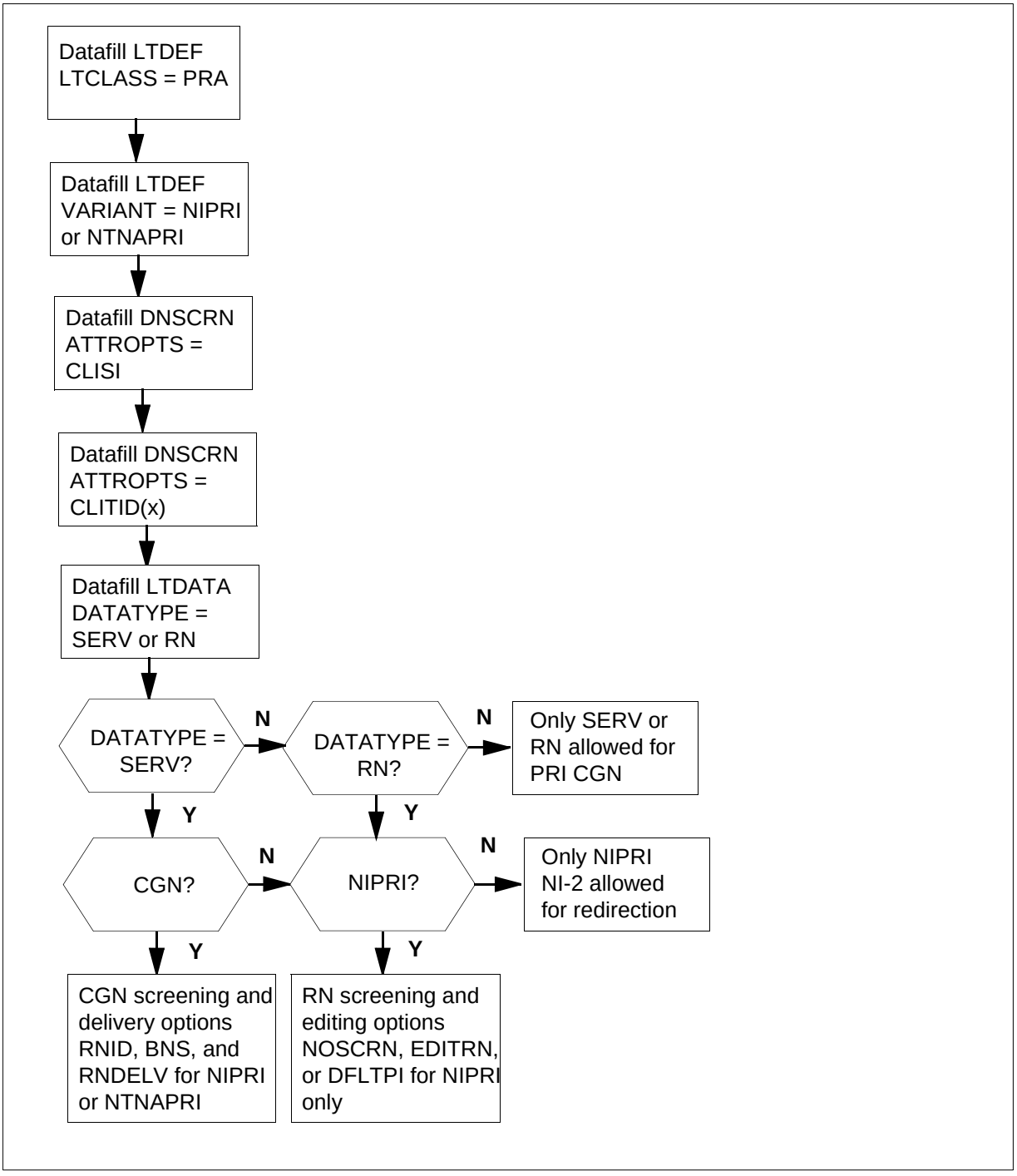
— If subfield DATATYPE = SERV, add entry BNS (billing number selection) to subfield OPTION.

- In table DNSCRN, field ATTROPTS is checked for (CLISI), calling line identifier screening information, indicating if the DN can be used for screening purposes. IF in field ATTROPTS CLILTID is also datafilled for that 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.

PRI Call Screening (continued)

Table flow for PRI Call Screening



PRI Call Screening (continued)

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

Datafill example for PRI Call Screening

Datafill table	Example data
LTDEF	ISDN 20 B PRA 20 20 20 20 NTNAPRI VI NIL (NOPMD)
	ISDN 20 2BD PRA 20 20 20 20 NIPRI NI2VI NIL (NOVOICE)
LTDATA	ISDN 20 SERV SERV N Y ALWAYS ALWAYS RNID
	ISDN 20 RN RN EDITRN 613 E164 NATL 0
DNSCRN	7751639 CLSI CLILTID CKT PRAOG 18

Limitations and restrictions

The following limitations and restrictions apply to PRI Call Screening:

- RN services are provided for NI-2 PRI variants only
- NI PRI Per-interface Screening functionality is provided for 12 LTIDs only.
- All sub-features of PRI Call Screening is for NI-2 variance only, except CGN, which is also valid for the NTNAPRI variant.
- No subscription to 3-digit NPA code. The NPA code will be made available through existing data structure.
- “Provision necessary" and “Discard control" are not supported in NA008.
- Screening treatments of sending a Status message with cause value #100 is not supported in NA008.
- Subscription of RN/CPN preferred as Billing Number (BN) parameter will not be assigned per Call Type.
- Subscription of Special BN parameter will not be assigned per Call Type.
- Subscription of UPNS RN/CPN preferred as BN will not be assigned per Call Type.
- Detailed AMA for Network Provided (NP) Per-interface is not supported in NA008.
- Traffic measurements will be used for NTNA implementation.
- For an originating NIPRI (NI-2), Telcordia requires vendors to “honor” or preserve the incoming presentation indicator (PI) value. If 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

PRI Call Screening (continued)

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.

Interactions

PRI Call Screening has no functionality interactions.

Activation/deactivation by the end user

PRI Call Screening requires no activation or deactivation by the end user.

Billing

PRI Call Screening enhances the NI PRI 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 interface. BNS allows a special billing number, a user provided but not screened redirecting number, or a user provided redirecting number that passed screening to be recorded in the AMA billing record.

Station Message Detail Recording

PRI Call Screening does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Call Screening does not affect office parameters.

Datafilling table LTDEF

The following table shows the datafill specific to PRI Call Screening for table LTDEF. Only those fields that apply directly to PRI Call Screening are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDEF

Field	Subfield or refinement	Entry	Explanation and action
	LTCLASS	PRA	Logical terminal class. Enter PRA to define services on a PRI LTID.

Datafilling table LTDEF

Field	Subfield or refinement	Entry	Explanation and action
	VARIANT	NTNAPRI or NIPRI	Variant. Enter NTNAPRI ot NIPRI to provision either PRI variant for calling number screening (CGN) service in table LTDATA. Enter NIPRI only to provision NI-2 PRI variant for redirection number (RN) service in table LTDATA.
	ISSUE	V1 or NI2V1	Issue. Enter VI as issue for NTNAPRI variant or NI2VI as issue for NIPRI variant.

Datafill example for table LTDEF

The following example shows sample datafill for table LTDEF.

MAP display example for table LTDEF

```
>LTDEF
LTKEY      LTAP
                                                  CLASSREF
------------------------------------------------------------
ISDN 20       B
PRA 20 20 20 20 NTNAPRI VI NIL (NOPMD)

ISDN 20     2BD
PRA 20 20 20 20 NIPRI NI2VI NIL (NOVOIVE)
```

Error messages for table LTDEF

The following error messages apply to table LTDEF.

Error messages for table LTDEF

Error message	Explanation and action
ERROR: DELETE PRIVATE SERVICE TYPE ENTRY FROM TABLE LTCALLS BEFORE CHANGING THE LTDEF VARIANT TO NIPRI	If the corresponding tuple in table LTCALLS has field CALLTYPE = PVT, an attempt to change the PRA VARIANT to NIPRI will fail. Delete PVT CALLTYPE from tuple in table LTCALLS.

Datafilling table LTDATA

The following table shows the datafill specific to PRI Call Screening for table LTDATA. Only those fields that apply directly to PRI Call Screening are

PRI Call Screening (continued)

shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		see subfields	*Logical terminal datakey* 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 to 1022	*Logical terminal number* Enter the logical terminal number within the group. The quantity of group numbers is restricted. A maximum of 31 entries is allowed.
	DATATYPE	CLI, DN, SERV, or RN	*Logical terminal data type* Enter the logical terminal data type as follows: • Enter CLI to identify a calling line identifier (CLI) subscription parameter. • Enter DN for directory number. • Enter SERV for service-related data associated with a logical terminal identifier (LTID) or PRA interface. • Enter RN for redirected number. ***Note:*** Data type CLI may not be available with all PCLs. CLI is a UK (United Kingdom) parameter. Any entries outside the range indicated for this field are invalid.

PRI Call Screening (continued)

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDRSLT		see subfield	*Logical terminal result* This field consists of subfield DATATYPE.
	DATATYPE	CLI, DN, SERV, or RN	*Logical terminal data type* Enter the logical terminal data type. Any entries outside the range indicated for this field are invalid. *Logical terminal data type*Enter the logical terminal data type as follows: • Enter CLI to identify a calling line identifier (CLI) subscription parameter. • Enter DN for directory number. • Enter SERV for service-related data associated with a logical terminal identifier (LTID) or PRA interface. Datafill subfields AUDTRMT, CGNREQD, CGNDELV, CDNDDELV, and OPTION. • Enter RN for redirected number. ***Note:*** Data type CLI may not be available with all PCLs. CLI is a UK (United Kingdom) parameter.

PRI Call Screening (continued)

Table LTDATA, DATATYPE = SERV

If the entry in field DATATYPE is SERV, datafill subfields AUDTRMT, CGNREQD, CGNDELV, CDNDELV, and OPTION.

Field descriptions for conditional datafil

Field	Subfield or refinement	Entry	Explanation and action
	AUDTRMT	Y or N	*Audible treatments* This field determines whether in-band tones and announcements are provided instead of disconnect with cause when treatments are applied to calls from this LTID. The option applies to these treatments: VACT, UNDN, BLDN, PODN, CONF, MHLD, ATBS, TESS, TRBL and DNTR. Enter Y (yes) to enable in-band treatment procedures for originating PRI calls with bearer capability (BC) of speech or 3.1-kHz audio. ***Note:*** To make two bearer capabilities compatible with TBCT, datafill bearer capabilities in table BCCOMPAT before you datafill table LTDATA. Enter N (no) to disable in-band treatment procedures and handle call clearing as it was originally handled.
	CGNREQD	Y or N	*Calling party number required* Enter Y to indicate that the CGN must be provided by the calling user equipment. Otherwise, enter N.

PRI Call Screening (continued)

Field descriptions for conditional datafil

Field	Subfield or refinement	Entry	Explanation and action
	CGNDELV	ALWAYS, NEVER, or SCREENED	*Calling party number delivery* This field indicates when the CGN is delivered to the called interface. ALWAYS indicates that the actual CGN with the PI is sent. NEVER indicates that the CGN with the PI is not sent. SCREENED indicates that if the PI is private, the CGN is not sent (it is replaced by asterisks). The default value for this field is SCREENED.
	CDNDELV	NEVER or ALWAYS	*Called party number delivery* This field determines whether the called party number is delivered to the called interface.
	OPTION	AOC, CHG, DAS, PCOS, TBO, UUS1, NO_BCH_SERV, CUG, MCID, CCBS, DDI, AIN_IPI_ST, TBCT, RNID, BNS, RNDELV	*Option* This field is a vector of up to 14 multiples of OPTIONS for PRI services. Enter AOC for the advice of charge during a call or at the end of a call, and datafill subfields AOCD, AOCE, DSCNT, AOCREL, and AOCCHGOV. ***Note:*** OPTION AOC is responsible for AOC of PRI trunks only.

OPTION = RNID

If the entry in field OPTION is RNID, datafill refinement SUPPRESS.

xField descriptions for conditional datafill

Field	Subfield or refinement	Entry	Explanation and action
	SUPPRESS	Y or N	Enter Y to suppress Redirecting Number Identification. Default is N.

PRI Call Screening (continued)

OPTION = BNS

If the entry in field OPTION is BNS, datafill field billing number screening refinements.

xField descriptions for conditional datafill

Field	Subfield or refinement	Entry	Explanation and action
		UPNS RN/CPN, RN/CPN, SBN	Enter UPNS for User Provided, Number Screening. Enter UPNS RN/CPN for User Provided, Redirecting Number Screening. Enter SBN for Special Billing Number from table TRKGRP. Default entry is UPNS RN/CPN.
Note: LTMAP table control verifies datafill of SBN in table LTGRP.			

OPTION = RNDELV

If the entry in field OPTION is RNDELV, datafill subfield DELIVER with redirecting number screening refinements.

xField descriptions for conditional datafill

Field	Subfield or refinement	Entry	Explanation and action
	DELVIER	ALWAYS, SCREENED, or NEVER	Enter ALWAYS if the RN information is included in the outgoing SETUP message regardless of the Privicy Indicator (PI) value in the RN. Enter SCREENED if the RN information is included in the outgoing message based on the PI. If the PI is set to presentation restricted the RN digits will not be included. Enter NEVER if the RN information is not included in the outgoing message. The RNDELV OPTION default setting is SCREENED.

PRI Call Screening (continued)

Table LTDATA, DATATYPE = RN

If the entry in field DATATYPE is RN, datafill field OPTION.

Field descriptions for conditional datafill

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	NOSCRN, EDITRN, or DFLTPI	Enter NOSCRN to indicate that the CLI must not be screened. If field OPTION contains NOSCRN, no other datafill is required. Enter EDITRN to provide a means for completing a partial RN and datafill refinements OVLYRN, NPI, TON, and OVLYCNT. Enter DFLTPI to specify a default presentation indicator and datafill subfields PI and MODE.

OPTION = EDITRN

If the entry in subfield OPTION is EDITRN, datafill subfields OVLYRN, NPI, TON, and OVLYCNT.

Field descriptions for conditional datafill

Field	Subfield or refinement	Entry	Explanation and action
	OVLYRN	0 to 9 (vector of maximum 18 digits)	*Overlying Redirected Number* This field converts a partial Redirected Number (RNI) to a complete number by associating a partial RN with an overlying RN. ***Note:*** Automatic Message Accounting (AMA) only supports calling party numbers of up to 12 digits.
	NPI	E164	*Numbering plan identifier* Enter the numbering plan identifier associated with field OVLYRN.

PRI Call Screening (continued)

Field descriptions for conditional datafill

Field	Subfield or refinement	Entry	Explanation and action
	TON	NATL LOCAL	*Type of number* Enter the type of number associated with field OVLYCLI.
	OVLYCNT	0 to 18	*Overlying count* Enter the number of least significant digits from a partial CLI that are overlaid on top of the least significant digits of field OVLYRN. A value of 0 (zero) indicates that all the digits from the partial RN are overlaid. ***Note:*** Automatic Message Accounting (AMA) only supports calling party numbers of up to 12 digits.

Error messages for table LTDATA

The following error messages apply to table LTDATA.

Error messages for table LTDATA

Error message	Explanation and action
`ERROR: DELETE TUPLES WITH RN SELECTOR AND EDITRN OPTION IN TABLE LTDATA`	If protocol variant control (PVC) is NIPRI and table LTDATA has tuples with RN selector assigned, the PVC cannot be changed from NI to NTNA until all datafill pertaining to the NI variant has been undone.

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA.

MAP display example for table LTDATA

```
>LTDATA
       LTDKEY
                                                                LTDRSLT
_____________________________________________________________________

ISDN  20   SERV
                                        SERV N Y ALWAY 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. For a description of the other fields, refer to the data schema section of this document.

Datafilling table DNSCRN

Field	Subfield or refinement	Entry	Explanation and action
DN		see subfield	*Directory number* This field consists of subfield DNDIGS.
	DNDIGS	vector (up to 24 digits)	*Directory number digits* Enter the directory number (DN) that represents the calling line number or the called line number.
ATTROPTS		NIL CLILTID1, CLILTID2, or CLISI	*Screening attribute options* Enter the screening attributes. CLSI indicates that the DN can be used to identify the origin of the call. CLILTID1 and CLILTID2 attributes are used by call processing for screening purposes. Each of these attributes can accommodate up to six logical terminal identifiers (LTID) 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 PRI Call Screening.

PRI Call Screening (end)

ATTROPTS = CLILTID1 or CLIDTID2

If the entry in field ATTROPTS is CLILTID1 or CLILTID2, datafill attributes LTGRP and LTNUM as explained in the following table.

Field descriptions for conditional datafill

Field	Subfield or refinement	Entry	Explanation and action
	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 to 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.

MAP display example for table ATTROPTS

```
>DNSCRN
    DN
                                                          ATTROPTS
_____________________________________________________________________

7751639
                                    (CLSI CLILTID1) CKT PRAOG 18$
```

Translation verification tools

PRI Call Screening does not use translation verification tools.

SERVORD

PRI Call Screening does not use SERVORD.

History

SN06 (DMS)

Applicability of AUDTRMT option specified for CR Q00757372. Description history section added.

PRI Two B¬channel Transfer

Ordering codes

Functional group ordering code: NI000015

Functionality ordering code: NI000018

Release applicability

NA009 and up for Notification to controller and TBCT across D-channels.

NA008 and up for base TBCT feature.

Prerequisites

PRI Two B-channel Transfer has no prerequisites.

Description

PRI Two B-channel Transfer (TBCT) capability on National ISDN 2 (NI-2) primary rate interface (PRI) trunks gives customer premises equipment (CPE) more efficient use of trunk connections for calling traffic. With a private branch exchange (PBX), or a 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 private branch exchange (PBX), or other customer premise equipment (CPE).

The CPE requests TBCT by sending a Facility message with a TBCT invoke component in it to the Service Switching Point (SSP). If the SSP determines that all validation criteria pass (for example, bearer capabilities and feature interactions), then the SSP performs TBCT. The SSP responds with a facility message that acknowledges the TBCT request.

All billing, including AMA billing, proceeds as if the TBCT transfer 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

PRI TBCT provides the capability to connect two indenpendent calls (the calls may be on the same or different NI-2 interfaces between the controller and the DMS) at the request of a controller. The system sends this request to the SSP

PRI Two B¬channel Transfer (continued)

in the form of a Q.931 FACILITY message containing an invoke component coded with a TBCT operation identifer.

Note: If requesting TBCT across D-channels, the dchannelidentifier must be present in the FACILITY message for the request.

The SSP processes the request as follows:

1. validate the request for both calls
2. bridge the calls (providing speech path) if validation passed, otherwise return error and leave existing calls up
3. disconnect the calls to the controller if not already initiated by the controller

The D-channel Identifier Request (dCIRequest) is the mechanism used by the controller to determine the unique identifer of a particular D-channel on the DMS switch.

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 dCIRequest can be independent of both TBCT and the calls to be bridged. The D-channel identifier may 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 linkid and D-channel Identifier as provided earlier by the DMS.

Transfer request is not limited to two independent calls associated with the same D-Channel.

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, (that is, across PRI interfaces), the two PRIs must be in the same Service PRI Group for the request to be accepted. Through table SVPRIGRP, 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

PRI Two B¬channel Transfer (continued)

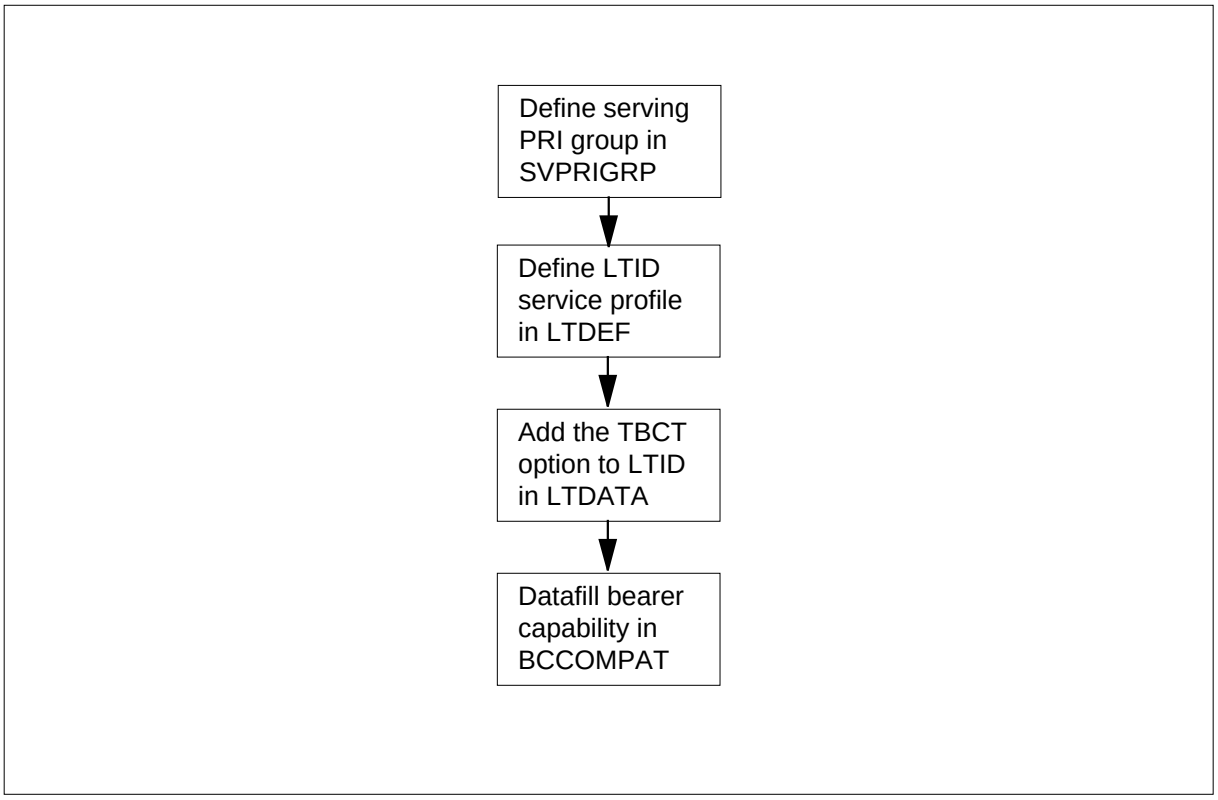
referenced in table LTDEF to identify logical terminal identifiers (LTID) that belong to a serving PRI group.

- Table LTDEF defines the service profile of an ISDN logical terminal (LTID). The key to this table is an LTID. An LTID consists of a logical terminal group (LTGRP) from table LTGRP and a logical terminal number (LTNUM) in a range of 1 to 1022. This table must be datafilled to provision primary rate interface (PRI) and basic rate interface (BRI) services. The type of service requested is distinguished by the LTCLASS field, for example, BRAFS, PRA, and BRAMFT. Based on the type of service, logical terminal specific options can be datafilled against a particular LTID. The PGRPID field in table LTDEF associates the LTID with a Serving PRI Group.
- Table LTDATA (Logical Terminal Data) stores service-related data associated with the logical terminal identifier (LTID [field LTDKEY]), which is the key to this table. Field LTDKEY consists of three parts: the logical terminal group (subfield LTGRP), logical terminal number (subfield LTNUM), and logical terminal data type (subfield DATATYPE). The TBCT option must be datafilled in table LTDATA for the TBCT request to be accepted. In the case of TBCT across D-channels, TBCT must be datafilled on both PRIs involved in the transfer.
- Table BCCOMPAT (Bearer Capability Compatibility) defines the bearer capability (BC) pairs that are compatible with one another. 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 flowchart that follows.

PRI Two B¬channel Transfer (continued)

Table flow for PRI Two B-channel Transfer



The following table provides a datafill example used in the flowchart.

Datafill example for PRI Two B-channel Transfer

Datafill table	Example data
SVPRIGRP	PRI_TO_MTRL 2 (ISDN 381) (ISDN 383) $
LTDEF	ISDN 381 B PRA 10 10 5 5 NIPRI NI2V1 NIL (PGRPID PRI_TO_MTRL) $
	ISDN 383 B PRA 10 10 5 5 NIPRI NI2V1 NIL $
LTDATA	ISDN 381 SERV SERV Y Y ALWAYS ALWAYS (TBCT (NTC ON) $) $
	ISDN 383 SERV SERV Y Y ALWAYS ALWAYS (TBCT (NTC OFF) $) $
BCCOMPAT	SPEECH 3_1KHZ
	3_1KHZ SPEECH

Limitations and restrictions

The following limitations and restrictions apply to PRI Two B-channel Transfer:

- The calls to be transferred together through TBCT must be set up using the public E.164 Dial Plan as the Numbering Plan Identification (NPI) and using Local or National as the Type Of Number (TON) in the Called Party Number information element.
- The SSP rejects TBCT requests for agents with the following terminating characteristics:
  - — terminating MADN calls that are not answered due to possible race conditions during answer by a MADN member.
  - — terminating multiparty line calls that are not answered due to possible race conditions during answer by a multiparty member
  - — Attendant Console due to limited support on PRI and AIN

  Note: If the system denies TBCT, there is no impact to the end user. The calls remain in the same state as before the TBCT request, and the B-Channels are not released.
- TBCT does not provide any interface to the telephone operating company OAM systems outside of standard Table Editor.
- Transfer request is limited to the local SSP— that 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 and the controller on another DMS, then 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 and is supported on standard DMS-100 NI-2 ISDN peripherals DTCI and 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 so that the SSP can process it. This characteristic implies 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.

PRI Two B¬channel Transfer (continued)

- Feature interactions are limited to those documented in the section. All other feature interactions are not validated and therefore not supported.
- Clipping of speech may occur during TBCT, but the clipping is minimal.
- TBCT does not support the transfer of AIN Primer calls due to the fact that AIN Primer is being discontinued in the future.
- There are some conditions where the DMS cannot distinguish between a linkid that corresponds to a valid call that the system is currently taking down and an invalid linkid. In this situation, the system returns Error Value #07 “Invalid call state".

Note 1: If the system denies TBCT, there is no impact to the end-user. The calls remain in the same state as before the TBCT request, and the system does not release the B-channels.

Note 2: If a TBCT request has the returned error code “Invalid call state", this error code implies that the controller may reattempt TBCT at a later time.

The following limitations and restrictions apply to 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 for the DMS switch.

Two B-channel Transfer Phase 2 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 TBCT. The controller's equipment may be provisioned to automatically invoke TBCT, or manual intervention may be required. The precise nature of manual intervention depends on the equipment in use.

The PRI interface needs to subscribe the TBCT option.

Billing

PRI Two B-channel Transfer does not affect billing. Billing continues as if calls never transferred.

Station Message Detail Recording

PRI Two B-channel Transfer does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Two B-channel Transfer does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI Two B-channel Transfer. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Two B-channel Transfer

Table	Purpose of table
SVPRIGRP	Table SVPRIGRP defines the serving PRI groups for ISDN logical terminals (LTID) in table LTDEF.
LTDEF	Table LTDEF defines the service profile of an LTID.
LTDATA	Table LTDATA stores service-related data associated with the logical terminal identifier (LTID [field LTDKEY]), which is the key to this table.
BCCOMPAT	Table BCCOMPAT defines the bearer capability (BC) pairs that are compatible with one another.

Datafilling table SVPRIGRP

The following table shows the datafill for table SVPRIGRP.

Datafilling table SVPRIGRP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PGRPID		alphanumeric (up to 16 characters)	This field is the key that identifies the serving PRI group.
NUMMEM		0 to 400 (automatic update)	This field records the number of LTIDs that are associated with the serving PRI group. The system automatically updates NUMMEM whenever the operating company adds, modifies, or deletes an LTID associated with the group. LTIDs are recorded in table LTDEF.

PRI Two B¬channel Transfer (continued)

Datafilling table SVPRIGRP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
MEMBERS		a vector of LTIDs (automatic update)	This field records the PRI identifiers that are associated with the serving PRI group. The system automatically updates MEMBERS whenever the operating company adds, modifies, or deletes an LTID associated with the group. LTIDs are recorded in table LTDEF.
OPTIONS	SHPRN	NNNN, YYYY, YNNY, NNNY, YNYY, NNYY	A list of options.Special Handling of Presentation Restricted Numbers. Enables the DMS switch to override the delivery of presentation restricted numbers for a servicing PRI group interface. Enter a value for SHPRN. The default value is NNNN. For a description of each entry for option SHPRN, see "Available Options for table SVPRIGRP" in the data schema.

Datafill example for table SVPRIGRP

The following example shows sample datafill for table SVPRIGRP.

MAP display example for table SVPRIGRP

```
PGRPID                    NUMMEM    MEMBERS    OPTIONS
-------------------------------------------------------
PRI_TO_MTRL         2   (ISDN 381) (ISDN 383) (SHPRN YYYY) $
```

Error messages for table SVPRIGRP

The following error messages apply to table SVPRIGRP for PRI Two B-channel Transfer.

Error messages for table LTDEF

Error message	Explanation and action
`Member list data discarded.`	Any non-zero data entered for NUMMEM and MEMBERS is discarded on tuple addition, defaulting to values of 0 and $ respectively. This message appears when NUMMEM is not zero.
`NIL is an invalid key.`	NIL PGRPID is not allowed as a key to Table SVPRIGRP
`TABLE IS FULL`	Table SVPRIGRP has a limit of 1022 tuples. This error message appears when you attempt to add more than 1022 tuples.
`Tuple is being referenced by Table LTDEF.`	A tuple in table SVPRIGRP cannot be deleted unless the number of MEMBERS in the Serving PRI Group (NUMMEM) is zero. That is, you can delete the tuple only if that are no PRI interfaces assigned to it.
`Use Table LTDEF to add or remove members.`	Both fields NUMMEM and MEMBERS are read-only fields and automatically reflect the current mapping as assigned in table LTDEF. This error message appears whenever you add a tuple to table SVPRIGRP. Modification to tuples in SVPRIGRP is disallowed

Datafilling table LTDEF

The following table shows the datafill specific to PRI Two B-channel Transfer for table LTDEF. Only those fields that apply directly to PRI Two B-channel Transfer are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDEF (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
CLASSREF			Class reference. This field consists of subfield LTCLASS.
	LTCLASS	PRA	Logical terminal class. This field identifies the set of services that are allowed for this logical terminal. PRA allows primary rate access services. Datafill subfield VARIANT if LTCLASS equals PRA.

PRI Two B¬channel Transfer (continued)

Datafilling table LTDEF (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	VARIANT	NIPRI	Variant type. Defines the PRI protocol for the LTID. NIPRI defines the protocol as NI-2 PRI.
OPTION			The following subfield applies when LTCLASS=PRA.
	PGRPID	alphanumeric (up to 16 characters), NIL	PRI Group Identifier. Enter PGRPID followed by the name of the Serving PRI group, which is the key to table SVPRIGRP. This name must first be datafilled in table SVPRIGRP. The default for this field is NIL. If the value is NIL, then PGRPID does not appear in the options list for the tuple. ***Note:*** This field is required only if VARIANT = NIPRI.

Datafill example for table LTDEF

The following example shows sample datafill for table LTDEF.

MAP display example for table LTDEF

```
LTKEY       LTAP PGRPID        CLASSREF
------------------------------------------------------------
ISDN 381    B    PRA 10 10 5 5 NIPRI NI2V1 NIL (PGRPID PRI_TO_MTL) $
ISDN 383    B    PRA 10 10 5 5 NIPRI NI2V1 NIL $
```

Error messages for table LTDEF

The following error messages apply to table LTDEF for PRI Two B-channel Transfer.

Error messages for table LTDEF

Error message	Explanation and action
`Cannot change VARIANT: TBCT provisioned on LTID in Table LTDATA. Delete TBCT from the tuple in LTDATA first.`	You cannot change the protocol variant while the LTID is provisioned for TBCT in table LTDATA. Remove the option from the LTID through table LTDATA.
`Data store corruption encountered.`	A data store corruption has occurred.
`PGRPID option set to nil.`	This error message displays if you set the PGRPID option to NIL. ***Note:*** If you omit the PGRPID option, this message does not display.
`PGRPID supported for NIPRI variant only.`	Tis error message displays if you try to add PGRPID to an LTID with a VARIANT that is not NIPRI.
`Serving PRI group is full.`	The number of members in the group has exceeded 400.
`Too many PGRPID options.`	This error message displays if you enter the PGRPID option more than once.

Datafilling table LTDATA

The following table shows the datafill specific to PRI Two B-channel Transfer for table LTDATA. Only those fields that apply directly to PRI Two B-channel Transfer are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDATA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTDRSLT			Logical terminal result. This field consists of subfield DATATYPE.
	DATATYPE	SERV	Logical terminal data type. This field consists of the subfield OPTION.

PRI Two B¬channel Transfer (continued)

Datafilling table LTDATA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	TBCT	The presence of TBCT in the OPTIONS vector indicates that TBCT is provisioned and available. The following logical terminal datafill must be in table LTDEF for successful TBCT datafill: • the logical terminal class (LTCLASS) must be PRA • the protocol variant (VARIANT) corresponding to the logical terminal must be NIPRI
	PARM	NTC	Enter NTC to identify subscription to the Notification to Controller feature. The STATUS subfield indicates if the subscription is ON or OFF. NTC is the only value for this subfield.
	STATUS	ON or OFF	Enter ON to turn the TBCT notification to controller functionality (AF7322) on. Enter OFF to turn this functionality off. Default is ON.

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA.

MAP display example for table LTDATA

```
>LTDATA
LTDKEY LTDRSLT
------------------------------------------------------------
ISDN 381 SERV SERV Y Y ALWAYS ALWAYS (TBCT (NTC OFF)) $
ISDN 383 SERV SERV Y Y ALWAYS ALWAYS (TBCT (NTC ON)) $
```

Error messages for table LTDATA

The following error messages apply to table LTDATA for PRI Two B-channel Transfer.

Error messages for table LTDATA

Error message	Explanation and action
TBCT OPTION IS ONLY SUPPORTED FOR VARIANT NIPRI.	You cannot datafill the TBCT option if the VARIANT for the LTID in table LTDEF has a value other than NIPRI. In table LTDEF, datafill LTCLASS = PRA and VARIANT = NIPRI before datafilling the TBCT option in table LTDATA.

Datafilling table BCCOMPAT

There is no datafill that is specific to PRI Two B-channel Transfer.

Datafill example for table BCCOMPAT

The following example shows sample datafill for table BCCOMPAT.

MAP display example for table BCCOMPAT

```
KEY
------------------------------------------------------------
SPEECH 3_1KHZ
3_1KHZ SPEECH
```

Translation verification tools

PRI Two B-channel Transfer does not use translation verification tools.

SERVORD

PRI Two B-channel Transfer does not use SERVORD.

8 Datafilling NI0 ISDN PRI Base

The following chapter describes the NI0 ISDN PRI Base, NI000022, functionality.

Direct Dialing In

Ordering codes

Functional group order code: NI000022

Functionality order code: does not apply

Release applicability

BCS36 and later versions

Requirements

Direct Dialing In (DDI) does not have requirements.

Description

The DDI feature allows direct calling to a Meridian 1 Options 11-81 or other integrated services digital network (ISDN) private branch exchange (PBX) called party. The DDI allows this direct calling without attendant interruption. The DDI delivers the called party number (CDN) in a SETUP message to the far end exchange.

Operation

The DDI enables or disables the CDN in the SETUP message in the logical terminal data (LTDATA) table. Table LTDATA establishes the delivery of the CDN to the far end exchange. Subfield DATATYPE has value SERV. When subfield CDNDELV has the value ALWAYS, the subfield enables the capability. When subfield CDNDELV has the value NEVER, the subfield disables the capability.

The feature Overlap Outpulsing Support on European Telephony Standards Institute (ETSI) PRI starts the primary rate interface (PRI) agent support for overlap receiving mode.

Subscribing to DDI

To subscribe to the DDI service, two changes are required. The first change occurs to the appropriate translation table. Normally, this table is table OFCCODE. Table OFCCODE contains a routing destination for the appropriate directory number. The TRAVER utility can locate the appropriate tuple. The minimum/maximum field (MM <min> <max>) of that tuple must be set to allow delivery of extension digits to the access. The following rules apply to <min> and <max> to subscribe to DDI:

- <min> must be the length of the DDI root or longer. The recommended value is the length of the of DDI root plus one additional digit. This value

causes the switch to wait for one extension digit before the switch sends a SETUP message. The switch sends this message to the terminator.

- <max> must be greater than <min>. The recommended value is the length of DDI root plus the maximum length of extension.

An example of a translation entry for an access with DDI root 96 and a maximum of four extension digits appears below:

```
XLANAME> RTE 96 96 (MM 3 6) (DEST 7)
```

The switch sends the terminating SETUP message after the arrival of <min> digits. The CDN information element (IE) contains the received digits. The received digits are 96 plus first extension digit. When the called party responds with a SETUP_ACK message, the switch enters overlap mode. When the switch enters overlap mode, the switch propagates all following dialed extension digits in INFO messages to the called party. The switch continues this action until <max> digits are reached or the called party responds with a message. This message indicates that enough digits are received. An example of this message is a CALL_PROC message.

The second change allows the CDN IE in the outgoing SETUP message. Subfield CDNDELV is set to ALWAYS to allow CDNE IE in the outgoing SETUP message.

An example for a tuple appears in the LTDATA with DDI subscribed table:

LTDATA with DDI subscribed

LTID	Datatype	Datatype		CGNDELV	CDNDELV
ISDN 10	SERV	SERV	Y/N Y/N	SCREENED	ALWAYS

Unsubscribing DDI

To unsubscribe from DDI service, reverse the steps to subscribe.

Change must occur to table OFCCODE. Table OFCCODE contains a routing destination for the appropriate directory number. The appropriate tuple can be located with the TRAVER utility. Set the minimum/maximum field (MM <min> <max>). This action allows the system to block the delivery of extension digits. Set <min> and <max> to the same value to cause the block. Set the <min> and <max> to the length of the directory number required to

Direct Dialing In (continued)

route to the access. For example, for an access with the directory number 12345678, a tuple can be like the following:

```
OFCCODE RTE 12345678 12345678 (MM 8 8) (DEST 7)
```

When <max> is equal to <min>, the switch sends a SETUP message with a Sending Complete IE. The switch sends the message after the complete directory number is dialed. The Sending Complete IE indicates to the called party that addressing is complete and the system does not send further digits.

The second change occurs in the appropriate tuple of table LTDATA. Set the field CDNDELV to NEVER. This condition makes sure the terminating SETUP message does not contain the CDN-IE.

An example of a tuple appears in Table 2:

LTDATA with DDI subscribed

LTID	Datatype	Datatype			CGNDELV	CDNDELV
ISDN 10	SERV	SERV	Y/N	Y/N	SCREENED	NEVER

Translations table flow

Direct Dialing In does not affect translations. The system sends untranslated remnants of the number dialed to the PBX. The delivery of the number occurs or does not occur.

Limits

Direct Dialing In does not have limits. This ability does not affect the current Direct Dial-In functionality at the far end exchange.

Interactions

Direct Dialing In does not have functionality interactions.

Activation/deactivation by the end user

Direct Dialing In does not require activation or deactivation by the end user.

Billing

Direct Dialing In does not affect billing.

Station Message Detail Recording

Direct Dialing In does not affect Station Message Detail Recording.

Datafilling office parameters

Direct Dialing In does not affect office parameters.

Datafill sequence

A list of the tables that require datafill to start Direct Dialing In appear in the following table. The tables appear in the correct entry order.

Datafill tables required for Direct Dialing In

Table	Purpose of table
OFCCODE	Contains a routing destination for the appropriate directory number. Set the min-max field of that tuple with the following rules. This action allows the delivery of the extension digits to the access: • <min> must be the length of the DDI-root or more. The recommended value is the length of the DDI-root plus one additional digit. This value causes the switch to wait for one extension digit. The switch sends a SETUP message to the terminator. • <max> must be greater than <min>. The recommended value is the length of DDI-root plus the maximum length of extension.
LTDATA	Logical Terminal Data table provides logical terminal data and allows the capability.

Direct Dialing In (continued)

Datafilling table LTDATA

Datafill specific to Direct Dialing In for table LTDATA appears in the following table. The fields that apply to Direct Dialing In appear. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		refer to subfields	Logical terminal datakey. Enter subfields LTGRP, LTNUM and DATATYPE as one concatenated entry. Separate the three values with blanks. The system does not prompt for the separate subfields.
	LTINDEX	refer to subfields	Logical terminal index. This subfield has subfields LTGRP and LTNUM.
	LTGRP	trunk group name	Logical terminal group. Enter the trunk group name.
LTDKEY (continued)	LTNUM	1 to 1022	Logical terminal number. Enter a number from 1 to 1022 for the logical terminal number in the group.
	DATATYPE	SERV	Logical terminal data type. Enter SERV for service.
LTDRSLT		refer to subfields	Logical terminal result. Enter the logical terminal result in the subfields below.
	DATATYPE	SERV	Data type. Enter SERV for service. ***Note:*** Enter a $ in subfield OPTION to end the tuple.
	CDNDELV	ALWAYS, NEVER	Called party number delivery. Enter ALWAYS to allow DDI and send the called party number to the far-end exchange. Enter NEVER to not allow the system to send the called party number to the far end exchange. ***Note:*** Use this subfield when subfield DATATYPE is SERV.

Datafilling table LTDATA - NOSCRN option (point-to-point accesses)

Field	Subfield or refinement	Entry	Explanation and action
OPTION			
	DATATYPE	CLI	
		NOSCRN	*Option NOSCRN* Enter NOSCRN to indicate that the calling line identity (CLI) must not be screened. When field OPTION contains NOSCRN, other datafill is not required.

Datafill example for table LTDATA

Sample datafill for table LTDATA appears in the following example.

MAP example for table LTDATA

```
         LTDKEY
                                                    LTDRSLT
-------------------------------------------------------------
ISDN 666 SERV SERV N  N SCREENED ALWAYS $
```

Tools for verifying translations

Direct Dialing In does not use translation verification tools.

SERVORD

Direct Dialing In does not use SERVORD.

Flexible Digit Analysis

Ordering codes

Functional group order code: NI000022

Functionality order code: does not apply

Release applicability

BCS36 and later versions

Requirements

Flexible Digit Analysis does not have requirements.

Description

This capability provides the PCM30 digital trunk controller (PDTC) with an improved flexibility in the analysis of digits. These digits are for overlap sending in the user-to-network direction. Overlap sending allows the dialed digits to be in one or more INFORMATION messages that follow a Q.931 SETUP message.

Operation

The capability operates when you datafill a trunk group LTID and associated values in table LTDATA. Enter DAS in subfield OPTION to enable Flexible Digit Analysis. Enter a digit name in subfield DGNAME to provide greater call processing capacity and a shorter delay after dialing.

An originating SETUP message can contain enough information to route the call. When this condition is present, the system processes the message through en-bloc sending.

When an originating SETUP message does not contain enough information to route the call, the DMS-100 switch goes into the overlap sending state. The interdigit timer T302 starts. In standard overlap sending, digits are collected from the SETUP message and the following INFORMATION messages. This collection of digits continues until enough digits can route the call. This capability supports the overlap sending of digits from a Meridian 1 Options 11-81 PBX.

Translations table flow

Flexible Digit Analysis does not affect translations.

Flexible Digit Analysis (continued)

Limits

The following limits apply to Flexible Digit Analysis:

- Datafill the base tables DGHEAD and DGCODE first. This action specifies the name and type of analysis for a digit range. PRI does not use the STOPDGT and DIALTONE functions in table DGHEAD. PRI does not use COLL selector STPDGT, CONT selectors REPORT and DIALTONE and RAN selector STOPDGT in table DGCODE.
- Overlap receiving in the network-to-user direction is not available.
- A dial tone to the trunk is not present.

Interactions

Flexible Digit Analysis does not have functionality interactions.

Activation/deactivation by the end user

Flexible Digit Analysis does not require activation or deactivation by the end user.

Station Message Detail Recording

Flexible Digit Analysis does not affect Station Message Detail Recording.

Datafilling office parameters

Flexible Digit Analysis does not affect office parameters.

Datafill sequence

A list of the tables that require datafill to start Flexible Digit Analysis appear in the following table. The tables appear in the correct entry order.

Datafill tables required for Flexible Digit Analysis

Table	Purpose of table
LTDATA	Logical Terminal Data Table provides LTID data and allows the capability.

Datafilling table LTDATA

Datafill specific to Flexible Digit Analysis for table LTDATA appears in the following table. The fields that apply to Flexible Digit Analysis appear. For a description of the other fields, refer to the data schema section of this document.

Flexible Digit Analysis (continued)

The datafill of this table contains the LTID of the trunk group, the data type and logical terminal values.

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		see subfields	Logical terminal datakey. Enter subfields LTGRP, LTNUM and DATATYPE as one concatenated entry. Separate the three values with blanks. The system does not prompt for the separate subfields.
	LTINDEX	see subfields	Logical terminal index. This field has subfields LTGRP and LTNUM.
	LTGRP	trunk group name	Logical terminal group. Enter the trunk group name.
	LTNUM	1 to 1022	Logical terminal number. Enter a number from 1 to 1022 for the logical terminal number in the group.
	DATATYPE	SERV	Logical terminal data type. Enter SERV for service-related data that associates with a logical terminal identifier (LTID).
LTDRSLT		see subfield	Logical terminal result. This field contains subfield DATATYPE.
	DATATYPE	see subfield	Data type. Enter SERV for service-related data associated with an LTID.
	SERV	see subfields	Service. This subfield has refinements AUDTRMT, CGNREQD, CGNDELV, CDNDELV and OPTION.
LTDRSLT (continued)	AUDTRMT	Y or N	Audible treatments. This subfield determines if inband tones and announcements are provided instead of disconnect with cause. This condition occurs when treatments are applied to calls from this LTID. The option applies to these treatments: VACT, UNDN, BLDN, PODN, CONF, MHLD, ATBS, TESS, TRBL and DNTR.
	CGNREQD	Y or N	Calling party number required. Enter Y (yes) to indicate that the calling user equipment must provide CGN. When this condition does not apply, enter N (no).

Flexible Digit Analysis (end)

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
	CGNDELV	NEVER, SCREENED, ALWAYS	Calling party number delivery. This field indicates when the delivery of CGN to the called interface occurs. Enter NEVER to indicate that the delivery of CGN with the PI does not occur. Enter SCREENED to indicate that the delivery of CGN does not occur when the PI is private. Enter ALWAYS to indicate that the delivery of CGN with the PI occurred.
	CDNDELV	NEVER, ALWAYS	Called party number delivery. This subfield determines if delivery of the called party number to the called interface occurs.
	OPTION	DAS	Option. Enter DAS for Flexible Digit Analysis and enter refinement DGNAME. The DAS option provides overlap signaling.
	DGNAME	a maximum of 8 character digit name	Digit name. This refinement contains the value NIL until an entry to field DGNAME in table DGHEAD or table DGCODE occurs. This entry is an index in the digit analysis tables.

Datafill example for table LTDATA

Sample datafill for table LTDATA appears in the following example.

MAP display example for table LTDATA

```
        LTDKEY
                                                  LTDRSLT
-------------------------------------------------------
ISDN 666 SERV
SERV N  N ALWAYS ALWAYS (DAS PRIDAS) $
```

Tools for verifying translations

Flexible Digit Analysis does not use translation verification tools.

SERVORD

Flexible Digit Analysis does not use SERVORD.

History

SN06 (DMS)

Applicability of AUDTRMT option specified for CR Q00757372.
Description history section added.

PRI Calling Line Identification Blocking

Ordering code

Functionality group ordering code: NI000022

Functionality ordering code: Not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, PRI Calling Line Identification Blocking has the following prerequisites:

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

Description

CLID Blocking is made up of CLID presentation and restriction.

CLID presentation is a service offered to the called party to identify the origin of a call. The called party is provided with the ISDN number of the calling party.

CLID restriction is a service offered to the calling party. The calling party's ISDN number is not presented to the called party. The restriction can be for individual calls or all calls.

An integral function of CLID presentation and restriction is call screening. The CLID number is screened to determine whether a network-provided or user-provided CLID is used to identify the calling party.

CLID blocking can be activated for an entire trunk group. The presentation of a calling party number can be suppressed or overridden for incoming calls on a PRI interface based on the call type.

Operation

The CLID Blocking capability operates when the CLID information is defined and the capability is enabled in table LTDATA. Table LTDATA provides the options for setting up CLID presentation and restriction.

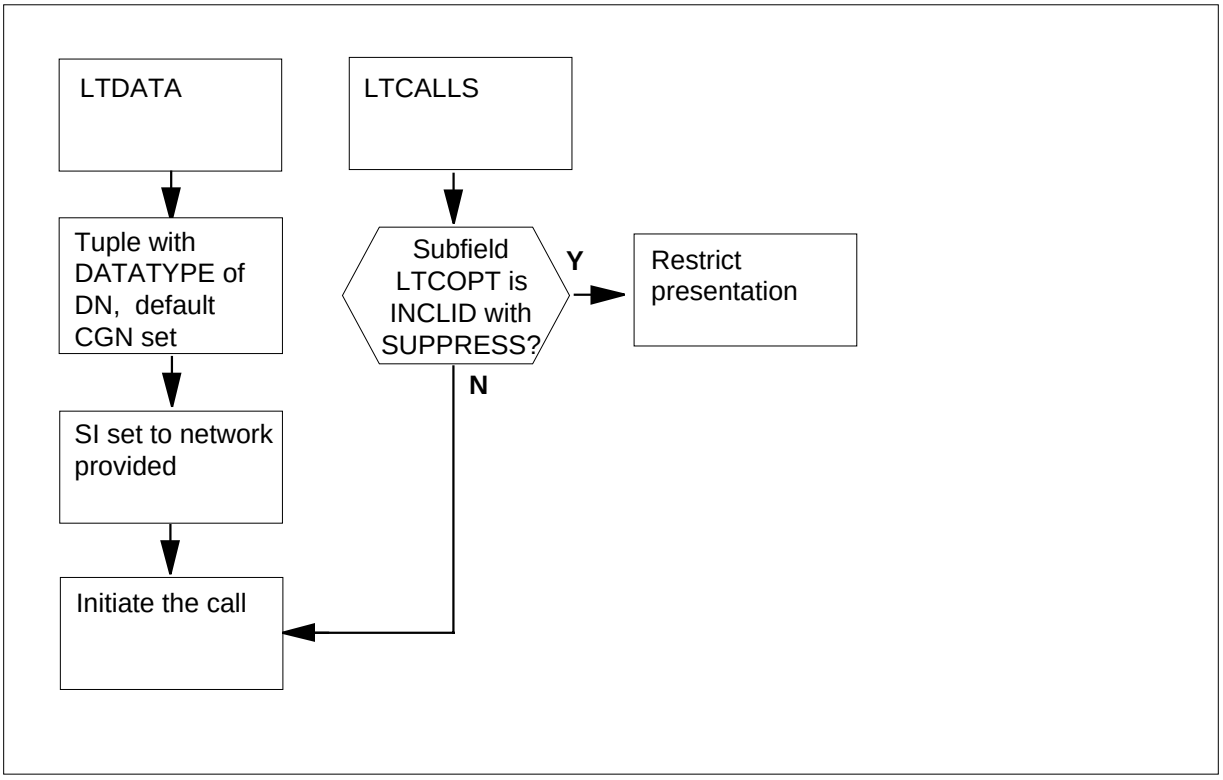
The table flow is different for originating and terminating exchanges. Refer to the following flowchart for the operation flow at the originating exchange. Refer to the flowchart for the operation flow at the terminating exchange. At

PRI Calling Line Identification Blocking (continued)

the terminating exchange, the calling party number (CGN), presentation indicator (PI), and screening indicator (SI) information elements (IE) are used.

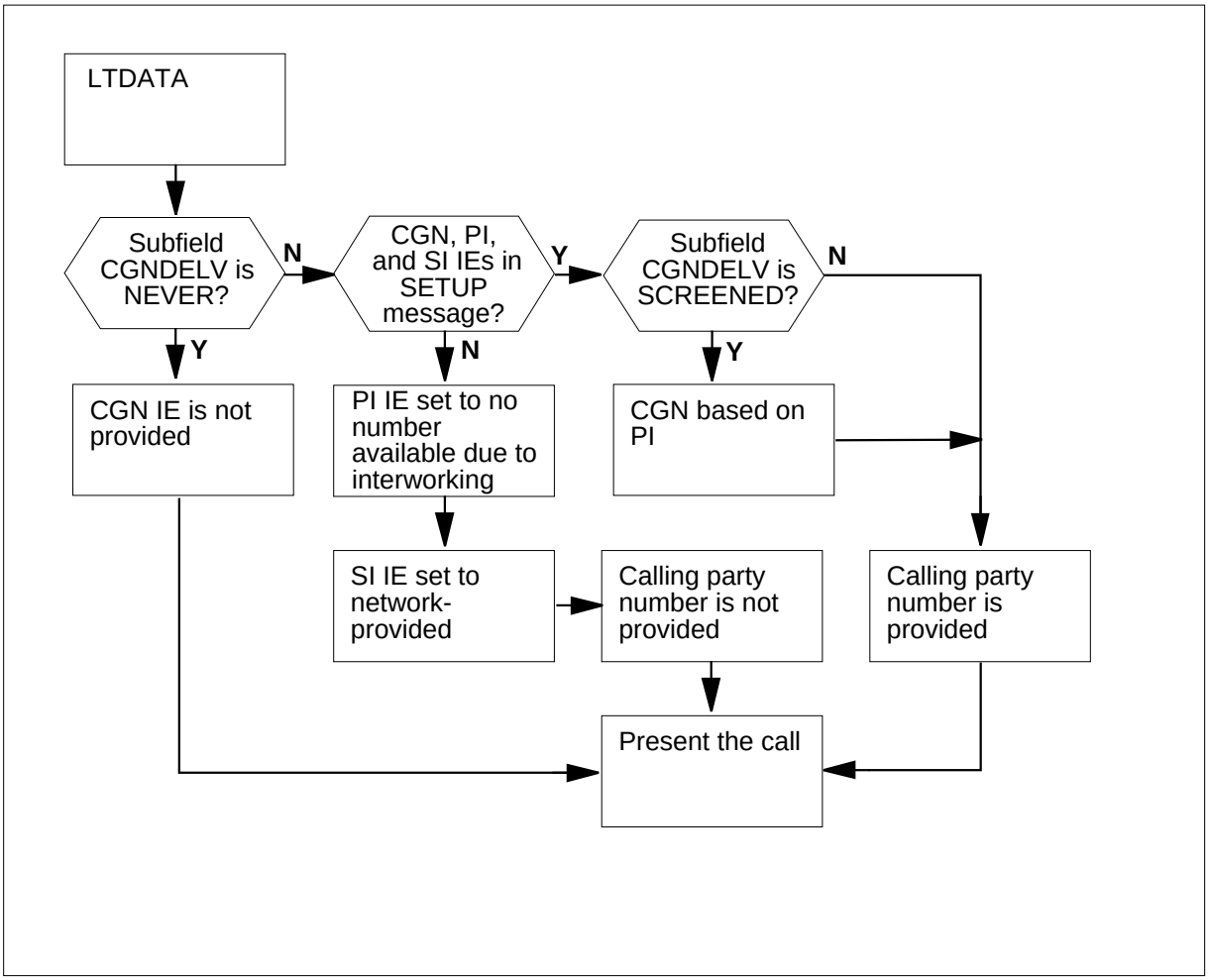
For CLID Blocking per trunk group, table LTCALLS allows the user to block the calls that can be routed over the trunk group. The table is datafilled with the trunk group's LTID, the call type, the initial route for the call, and subfield LTCOPT to allow the user to determine the blocking required.

Operation flow for Calling Line Identification Blocking at the originating exchange



PRI Calling Line Identification Blocking (continued)

Operation flow for Calling Line Identification Blocking at the terminating exchange



Translations table flow

Calling Line Identification Blocking does not affect translations.

PRI Calling Line Identification Blocking (continued)

Limitations and restrictions

The following limitations and restrictions apply to PRI Calling Line Identification Blocking:

- This capability does not alter the CLID presentation and restriction function currently provided at the far-end exchange.
- The DN option must be datafilled. In table LTDATA, the a tuple must be datafilled for each originating PRI interface (one LTID) to provide CLID presentation and restriction.
- For CLID restriction to work correctly on the terminating interface, the SERV tuple in table LTDATA must be datafilled. When not datafilled, the subfields CGNDELV and CDNDELV default to ALWAYS, which overrides any other presentation restrictions.

Interactions

The following paragraphs describe the interactions between PRI Calling Line Identification Blocking and other functionalities.

Integrated services access (ISA) is not required, but if it is not present, PUB or PVT are the only entries allowed in subfield CALLTYP of table LTCALLS. ISA is functionality code NTX793AA.

Activation/deactivation by the end user

PRI Calling Line Identification Blocking requires no activation or deactivation by the end user.

Billing

PRI Calling Line Identification Blocking does not affect billing.

Station Message Detail Recording

The end result of CLID Blocking is a network-provided calling party number (CGN) which is used in the networked SMDR extension record.

Datafilling office parameters

PRI Calling Line Identification Blocking does not affect office parameters.

PRI Calling Line Identification Blocking (continued)

Datafill sequence

The following table lists the tables that require datafill to implement PRI Calling Line Identification Blocking. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Calling Line Identification Blocking

Table	Purpose of table
LTDATA	Provides the calling party number (CGN) information.
LTCALLS	Provides initial setup for calls routed over the trunk group and CLID suppression.

Datafilling table LTDATA

The following table shows the datafill specific to PRI Calling Line Identification Blocking for table LTDATA. Only those fields that apply directly to PRI Calling Line Identification Blocking are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDATA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		see subfields	Logical terminal datakey. Datafill subfields LTINDEX (subfields LTGRP and LTNUM) and DATATYPE as one concatenated entry. Separate the three values with blank spaces. You are not prompted for the subfields individually.
	LTINDEX	see subfields	Logical terminal index. This field consists of subfields LTGRP and LTNUM.
	LTGRP	alphanumeric	Logical terminal group. Enter the trunk group name.
	LTNUM	numeric (1 to 1022)	Logical terminal number. Enter a number from 1 to 1022 for the logical terminal number within the group.
	DATATYPE	SERV	Logical terminal data type. Enter SERV for service.
LTDRSLT		see subfields	Logical terminal result. Datafill subfields DATATYPE and CGNDELV.

PRI Calling Line Identification Blocking (continued)

Datafilling table LTDATA (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTDRSLT (continued)	DATATYPE	SERV	Data type. Enter SERV for service.
	CGNDELV	SCREENED, ALWAYS or NEVER	Calling party number delivery. Enter one of the following values: • Enter SCREENED to send the calling party number based on the presentation indicator (PI). • Enter ALWAYS to send the calling party number and PI to the far-end exchange. This action is the default if a tuple with a DATATYPE of SERV is not datafilled for the interface. • Enter NEVER to never send the calling party number to the far-end exchange under any condition. ***Note 1:*** This field can be used to override the PI provided when subfield OPTION is DFLTPI. ***Note 2:*** Option DFLTPI is only valid in the international loads.

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA.

MAP display example for table LTDATA

```
         LTDKEY                                              LTDRSLT
_____________________________________________________________________

ISDN  505 SERV
                          SERV Y N SCREENED ALWAYS      $
```

Error messages for table LTDATA

Not applicable

PRI Calling Line Identification Blocking (continued)

Datafilling table LTCALLS

The following table shows the datafill specific to PRI Calling Line Identification Blocking for table LTCALLS. Only those fields that apply directly to PRI Calling Line Identification Blocking are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTCALLS (Sheet 1 of 4)

Field	Subfield or refinement	Entry	Explanation and action
LTID		see subfields	Logical terminal identifier. Datafill subfields LTGNUM (LTGRP and LTNUM) and CALLTYP as one concatenated entry. Separate the three values with blank spaces. You are not prompted for the subfields individually.
	LTGNUM	see subfields	Logical terminal group number. This field consists of subfields LTGRP and LTNUM. This is known as the LTID.
	LTGRP	alphanumeric	Logical terminal group. Enter the trunk group name from table LTDEF.
	LTNUM	numeric	Logical terminal number. Enter the trunk group number from table LTDEF.
LTID (continued)	CALLTYP	FX INWATS PUB PVT TIE or WATS	Call type. For integrated services access (ISA), enter one of the following values: • FX for foreign exchange • INWATS for inward wide area telephone service • PUB for public • PVT for private • TIE for tie line • WATS for outward wide area telephone service ***Note:*** When ISA is not present, only PUB or PVT are valid call types. When no tuple exists for a specified LTID and CALLTYP, the call is blocked.

PRI Calling Line Identification Blocking (continued)

Datafilling table LTCALLS (Sheet 2 of 4)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see subfields	Options. This field consists of subfield LTCOPT and refinement CLIDFEAT.
	LTCOPT	INCLID	Line trunk controller routing option. Enter INCLID. Determines the CLID blocking required.Enter $ to end the tuple. ***Note:*** INCLID can be specified only once per field LTID and call type (the key).

PRI Calling Line Identification Blocking (continued)

Datafilling table LTCALLS (Sheet 3 of 4)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS (continued)	CLIDFEAT	NTWKOVRD or SUPPRESS	Calling line identification feature. Enter SUPPRESS to restrict presentation of the incoming calling party number. The following features can be involved in a call over the PRI trunk: • Call Forward • Call Park • Call Pickup • Call Transfer • Automatic Call Distribution (ACD) • Network Ring Again Presentation of NAME is not affected. The presentation indicator (PI) for the calling number is restricted, but the digits are not discarded from the CGN information element (IE).

PRI Calling Line Identification Blocking (continued)

Datafilling table LTCALLS (Sheet 4 of 4)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS (continued)	CLIDFEAT (continued)		Enter NTWKOVRD to override the CLID restrictions defined by table CUSTNTWK at the terminating exchange. ***Note 1:*** SUPPRESS has no affect if the calling number delivery blocking override (CNDBO) feature is activated. CNDBO overrides DN suppression. Subfield CGNDELV in table LTDATA prevents the calling number being sent in the outgoing direction. ***Note 2:*** NTWKOVRD only applies when the PRI trunk terminates directly to a line agent with display capabilities. CLID restrictions defined in table CUSTNTWK are overridden. Other DN suppression features and subfield CGNDELV in table LTDATA are not affected. A calling party's DN may not be displayed if it is blocked by subfield CGNDELV. NTWKOVRD is compatible with CNDBO. ***Note 3:*** INCLID can be specified only once per field LTID and call type, thus SUPPRESS and NTWKOVRD cannot both be present in the same tuple. Both entries are not supported for attendant console interworking and noncall associative features (for example, network executive message waiting).

Datafill example for table LTCALLS

The following example shows sample datafill for table LTCALLS.

MAP display example for table LTCALLS

```
           LTID                    XLARTSEL
                                               OPTIONS
________________________________________________________

ISDN  1008   PVT   XLAIBN  0     CUST1  0  3
                                    ( INCLID SUPPRESS)$
```

PRI Calling Line Identification Blocking (end)

Error messages for table LTCALLS

Not applicable

Translation verification tools

PRI Calling Line Identification Blocking does not use translation verification tools.

SERVORD

PRI Calling Line Identification Blocking does not use SERVORD.

PRI DISPLAY Information Element Blocking

Ordering code

Functionality group ordering code: NI000022

Functionality ordering code: Not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, PRI DISPLAY Information Element Blocking has the following prerequisites:

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

Description

The DISPLAY Information Element (IE) Blocking capability blocks the delivery of the DISPLAY IE when the network interworking is PRI to PRI, or PRI to CCS7 using the ISDN user part (ISUP).

Operation

This capability defines, in the ISDN parameter (ISDNPARM) table, each ISDN trunk subgroup as a subgroup that blocks the information elements that may be received or sent over the PRI. The table specifies a list of information elements to be blocked for each PRI. A default action is set using field DFLTACT. A user-selected action is set using field PARMACT. Incoming and outgoing messages can be handled differently on an ISDN trunk subgroup basis. The D-channel associated with the PRI is defined in table TRKSGRP.

The DISPLAY information element can be routed either in a SETUP or NOTIFY message.

The DMS-100 switch sends back a STATUS message to the originator, with cause value 43 (access information discarded), when the PRI interface receives a message containing information elements that the originator has datafilled as not to be transported.

Translations table flow

PRI DISPLAY Information Element Blocking does not affect translations.

PRI DISPLAY Information Element Blocking (continued)

Limitations and restrictions

The following limitations and restrictions apply to PRI DISPLAY Information Element Blocking:

- A maximum of 64 different parameter names can be datafilled in table ISDNPARM. Field PARMACT has a maximum of 20 entries.
- A tuple cannot be deleted from table ISDNPARM if any PRI interfaces are using the tuple.
- A tuple in table ISDNPARM may be changed when its related D-channel is in the in-service (INS) state. A tuple may also be deleted when its related D-channel is INS, provided it is not accessed by any table TRKSGRP tuple, or when at least one other table ISDNPARM tuple exists with the same name. A tuple in table ISDNPARM may be changed but not deleted when the related D-channel is INS and only one reference to the table TRKSGRP remains.
- The D-channel may be taken out of service to change table ISDNPARM but all calls are lost when the D-channel is busied. Use the following procedure to minimize the impact:
  - — In table ISDNPARM, create a tuple with a new name in field NAME.
  - — Remove one PRI from service using the old name.
  - — In table TRKSGRP, change the field PARMNAME for that PRI to the new name.
  - — Return the PRI to service.
  - — Repeat steps 2 to 4 for all PRIs requiring the new name.
  - — Delete the old name if no PRI refers to it.
- Before any field in table TRKSGRP can be changed, the related D-channel must be in the installation-busy (INB) state.

Interactions

PRI DISPLAY Information Element Blocking has no functionality interactions.

Activation/deactivation by the end user

PRI DISPLAY Information Element Blocking requires no activation or deactivation by the end user.

Billing

PRI DISPLAY Information Element Blocking does not affect billing.

PRI DISPLAY Information Element Blocking (continued)

Station Message Detail Recording

PRI DISPLAY Information Element Blocking does not affect Station Message Detail Recording.

Datafilling office parameters

PRI DISPLAY Information Element Blocking does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI DISPLAY Information Element Blocking. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI DISPLSY Information Element Blocking

Table	Purpose of table
TRKSGRP	This table defines the attributes of the PRI trunk group D-channel.
ISDNPARM	This table allows certain PRI Q.931 optional information elements to prevent (block) certain network features from operating on certain PRI.

Datafilling table TRKSGRP

The following table shows the datafill specific to PRI DISPLAY Information Element Blocking for table TRKSGRP. Only those fields that apply directly to PRI DISPLAY Information Element Blocking are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKSGRP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SGRPKEY		see subfields	Subgroup key. Datafill subfields CLLI and SGRP as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually.
	CLLI	Trunk group name	Trunk group name. From table CLLI, enter the trunk group name to which the subgroup belongs.
SGRPKEY (continued)	SGRP	0	Subgroup. Enter 0 (zero).

PRI DISPLAY Information Element Blocking (continued)

Datafilling table TRKSGRP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SGRPVAR		see subfields	Subgroup variable refinement
	PARMNAME	alphanumeric (up to 8 characters)	Parameter name. Enter a name of up to eight characters. The default is DEFAULT which is used to block the Name information element. Use DEFAULT if the functions offered by this capability are not required. This field is an index into table ISDNPARM. The information found in table ISDNPARM is associated with the PRI interface defined in table TRKSGRP. ***Note:*** Subfield PARMNAME must correspond with field NAME in table ISDNPARM, except for entry DEFAULT which should not be entered in field NAME.

Datafill example for table TRKSGRP

The following example shows sample datafill for table TRKSGRP.

MAP display example for table TRKSGRP

```
SGRPKEY  CARDCODE
                                                        SGRPVAR
_____________________________________________________________

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

Error messages for table TRKSGRP

Not applicable

Datafilling table ISDNPARM

The following table shows the datafill specific to PRI DISPLAY Information Element Blocking for table ISDNPARM. Only those fields that apply directly

PRI DISPLAY Information Element Blocking (continued)

to PRI DISPLAY Information Element Blocking are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table ISDNPARM (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
NAME		alphabetic (1 to 8 characters)	Parameter name. Enter a name of up to eight characters. The information found in table ISDNPARM is associated with the PRI defined in table TRKSGRP. If one PRI interface is to handle information elements differently than another PRI interface, a different name must be specified for each. Names can be repeated. ***Note:*** Field NAME must correspond with subfield PARMNAME in table TRKSGRP, except for the entry DEFAULT which should not be entered in field NAME. If any information element associated with a particular NAME is not assigned an action through fields DFLTACT or PARMACT, it is blocked. This occurs if one or more of the MSGTYPEs for a NAME are not datafilled or datafilled only for one direction. Avoid this situation.
MSGTYPE		ALERT, CONNECT, NOTIFY or SETUP	Message type. Enter SETUP or NOTIFY to specify which Q.931 message information elements and actions apply to. The same information elements in different message types can be handled differently. ***Note:*** All message types for each NAME should be datafilled. For a given tuple, one MSGTYPE should be datafilled.

PRI DISPLAY Information Element Blocking (continued)

Datafilling table ISDNPARM (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
MSGDIR		IN, OUT, or BOTH	Message direction. This field specifies whether actions apply to messages received on the PRI (incoming) or messages sent on the PRI (outgoing). Certain information elements can be acted on differently depending on whether they are received or sent on the PRI. Enter one of the following values: • IN for incoming. • OUT for outgoing. • BOTH for incoming and outgoing. This is the default. ***Note:*** All message directions for each NAME and MSGTYPE should be datafilled. If incoming and outgoing information elements are to be treated identically, enter BOTH and datafill one tuple. Do not fill two tuples by entering separate IN and OUT entries.
DFLTACT		ATP, BLK or MAP	Default action. This field specifies an action that applies to all information elements not explicitly listed in field PARMACT. This field can be used to reduce the number of entries specified in field PARMACT. Enter BLK to block and ignore information elements. This action can be used when field MSGDIR is IN, OUT, or BOTH. ***Note:*** No other default actions are supported.
PARMACT		see subfields	Parameter action. Datafill subfields PARM and ACTION as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually. Enter a $ to end the tuple.

PRI DISPLAY Information Element Blocking (continued)

Datafilling table ISDNPARM (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
PARMACT (continued)	PARM	CDSM CGS, CN, DIE, FAC, HLC, IRQ, OCN, PI, RGN, RNN, SH5, SH6, SH7 or UNK	Parameter name. Enter DIE for DISPLAY information element.
	ACTION	ATP, BLK or MAP	Action. Enter BLK for block and ignore the parameter for the message type. ***Note:*** The following is the range of valid entries for fields MSGTYPE and PARMACT: *MSGTYPE* PARM — *PARMACT* ACTION SETUP DIE — BLK NOTIFY DIE — BLK The BLK action can be used when field MSGDIR is IN, OUT, or BOTH. When field PARMNAME in table TRKSGRP has DEFAULT entered, the SETUP message defaults to blocking the DISPLAY IE, and the NOTIFY message defaults to blocking the DISPLAY IE. The defaults apply when MSGDIR is IN, OUT, or BOTH. The DISPLAY IE associated with a particular NAME not assigned an action through fields DFLTACT or PARMACT, is blocked.

Datafill example for table ISDNPARM

The following example shows sample datafill for table ISDNPARM.

MAP display example for table ISDNPARM

```
NAME      MSGTYPE   MSGDIR   DFLTACT          PARMACT
_____________________________________________________

STRA        SETUP     BOTH        BLK       (DIE BLK)$
```

PRI DISPLAY Information Element Blocking (end)

Error messages for table ISDNPARM

The following error messages apply to table ISDNPARM.

Error messages for table ISDNPARM

Error message	Explanation and action
`PARAMETER parameter NOT SUPPORTED IN MSGTYPE msgtype`	The specified parameter is not supported for the indicated MSGTYPE. Enter a supported parameter for the indicated MSGTYPE.
`dfltact NOT SUPPORTED FOR PARM parameter`	The entry in field DFLTACT is not supported for a parameter in field PARMACT. Enter a different action in field DFLTACT.
`action NOT SUPPORTED FOR PARAMETER parameter`	In field PARMACT, the entered action is not valid for the parameter. Enter a different action for the parameter.
`PARAMETER parameter CANNOT BE ENTERED MORE THAN ONCE`	In field PARMACT, a parameter is entered more than once. Enter the parameter only once.

Translation verification tools

PRI DISPLAY Information Element Blocking does not use translation verification tools.

SERVORD

PRI DISPLAY Information Element Blocking does not use SERVORD.

PRI Equal Access

Functionality code

Functionality group ordering code: NI000022

Functionality ordering code: Not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, PRI Equal Access has the following prerequisites:

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

Description

PRI Equal Access provides basic equal access end office (EAEO) translation capabilities for public calls originating on a PRI trunk. This capability provides transit network selection for public calls.

Operation

The EAEO translation and carrier screening is allowed per PRI trunk group by datafilling the logical terminal identifier (LTID) of the PRI trunk.

Table LTCALLS provides for the routing of calls over the trunk group. The table is datafilled with the trunk group's LTID, the call type, and the Equal Access routing options.

Translations table flow

PRI Equal Access does affect call routing translations. Refer to PRI Call Routing capability for TRAVER examples.

Limitations and restrictions

PRI Equal Access has no limitations or restrictions.

Interactions

PRI Equal Access has no functionality interactions.

Activation/deactivation by the end user

PRI Equal Access requires no activation or deactivation by the end user.

PRI Equal Access (continued)

Billing

PRI Equal Access does affect billing.

Station Message Detail Recording

PRI Equal Access does affect Station Message Detail Recording.

Datafilling office parameters

PRI Equal Access does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI Equal Access. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Equal Access

Table	Purpose of table
LTCALLS	Provides the initial translations for calls routed over the trunk group.

Datafilling table LTCALLS

The following table shows the datafill specific to PRI Equal Access for table LTCALLS. Only those fields that apply directly to PRI Equal Access are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTCALLS (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTID		see subfields	Logical terminal identifier. Datafill subfields LTGNUM and CALLTYP as one concatenated entry. Separate the three values with blanks. You are not prompted for the subfields individually.
	LTGNUM	see subfields	Logical terminal group number. This is made up of subfields LTGRP and LTNUM.
	LTGRP	alphanumeric	Logical terminal group. Enter the trunk group name from table LTDEF.
	LTNUM	numeric	Logical terminal number. Enter the trunk group number from table LTDEF.
	CALLTYP	PUB	Call type. Enter PUB for public.

Datafilling table LTCALLS (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see subfields	Options
	LTCOPT	EA	Line trunk controller routing option. Enter EA for equal access. Enter a $ to end the tuple.
	PIC	alphanumeric	Primary InterLATA carrier. Enter the other common carrier (OCC) name. ***Note:*** The carrier must be specified in table OCCNAME first.
	CHOICE	Y or N	Choice. Use an equal access plan (EAP) prefix to identify an alternate other common carrier (OCC). Enter Y to use the EAP prefix. Enter N to not use the EAP prefix.

Datafill example for table LTCALLS

The following example shows sample datafill for table LTCALLS.

MAP display example for table LTCALLS

```
            LTID                XLARTSEL
                                                 OPTIONS
________________________________________________________

ISDN  1008  PUB  XLAIBN  0  CUST1   0  3
                                          ( EA  MCI N)$
```

Translation verification tools

PRI Equal Access does affect call routing translations. Refer to PRI Call Routing capability for TRAVER examples using Equal Access.

SERVORD

PRI Equal Access does not use SERVORD.

PRI Flexible Timers

Functionality code

Functionality group ordering code: NI000022

Functionality ordering code: Not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, the PRI Flexible Timers capability has the following prerequisites:

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

Description

This capability provides a mechanism for controlling ISDN PRI timers through a datafillable table. This independent control of the Q.931 layer 3 timers allows customization for individual networks.

Operation

The capability operates by defining the protocol variant, timers, and timer values in the ISDN protocol (ISDNPROT) table. The timer values are initially set with default values. Timer values can be changed at any time as the D-channel does not have to be in a specific state.

Translations table flow

The PRI Flexible Timers capability does not affect translations.

Limitations and restrictions

The following limitations and restrictions apply to the PRI Flexible Timers capability:

- New values do not affect timers that are already running. New values take effect only on timers started after a datafill change is made.
- Range checking is done by the DMS-core during table control.

Interactions

The PRI Flexible Timers capability has no functionality interactions.

PRI Flexible Timers (continued)

Activation/deactivation by the end user

The PRI Flexible Timers capability requires no activation or deactivation by the end user.

Billing

The PRI Flexible Timers capability does not affect billing.

Station Message Detail Recording

The PRI Flexible Timers capability does not affect Station Message Detail Recording.

Datafilling office parameters

The PRI Flexible Timers capability does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement the PRI Flexible Timers capability. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Flexible Timers

Table	Purpose of table
ISDNPROT	To define values for the PRI timers.

PRI Flexible Timers (continued)

Datafilling table ISDNPROT

The following table shows the datafill specific to PRI Flexible Timers for table ISDNPROT. Only those fields that apply directly to PRI Flexible Timers are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table ISDNPROT (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PROTVAR		NTNAPRI, U449PRI, U459PRI	Protocol variant. Enter NTNAPRI, U449PRI, or U459PRI. ***Note:*** Use NTNAPRI when connecting switching nodes manufactured by Northern Telecom.
PVCAPPL		USRTIMER, NETTIMER	Protocol variant application. Enter USRTIMER for user-side timers. Enter NETTIMER for network-side timers.
APPLDATA		see subfields	Application data
	LOG_DATA_FORMAT_TYPE	PRITIMER	Log data format type. Enter PRITIMER for PRI timers.
	TMR_OPT	see subfields	Timer option. Datafill subfields TIMER_NAME and TIMER_VALUE as one concatenated entry. Separate the two values with a blank. You are not prompted for the subfields individually. Enter a $ to end the tuple.

PRI Flexible Timers (continued)

Datafilling table ISDNPROT (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
APPLDATA (cont)	TIMER_ NAME	T301, T302, T303, T304, T305, T306, T308, T309, T310, T313, T314, T316, T317, T321, T322	Timer name. Enter T301, T302, T303, T304, T305, T306, T308, T309, T310, T313, T314, T316, T317, T321, or T322.
	TIMER_ VALUE	numeric (0 to 1023)	Timer value. Enter a number from 0 to 1023 for the timer interval. Zero (0) resets the timer to the default. Initially the timers are loaded with default values. The following are the NTNAPRI protocol variant timer names and ranges of acceptable timer values in seconds: Name — Value — Default T301 alerting message — 1 to 1023 — 180 T303 setup response — 1 to 30 — 4 T305 disconnect response — 1 to 80 — 30 T308 release response — 1 to 10 — 4 T309 data link establishment — 1 to 120 — 30 T310 posting dialing — 1 to 200 — 10 T313 connect response — 1 to 30 — 4 T316 restart acknowledge — 1 to 200 — 30 T321 backup D-channel failure — 1 to 80 — 40 T322 status — 1 to 30 — 4 ***Note:*** T313 is only a user-side timer. Other timer numbers (T302 interdigit, T304 overlap sending, T306 disconnect response, T314 message segments, and T317 restart) can be accessed but they are not used at this time and have no effect on the DMS-100 switch.

Datafill example for table ISDNPROT

The following example shows sample datafill for the PRI Flexible Timers capability in table ISDNPROT.

PRI Flexible Timers (end)

MAP display example for table ISDNPROT

```
PROTVAR    PVCAPPL                                  APPLDATA
_____________________________________________________________

NTNAPRI   USRTIMER  PRITIMER  (T301 150)(T322 1)$
```

Error messages for table ISDNPROT

The following error messages apply to table ISDNPROT.

Error messages for table ISDNPROT

Error message	Explanation and action
`INVALID TIMER VALUE: TIMER T3xx MUST BE LESS THAN OR EQUAL TO XXX sec`	An entered timer value is greater than that allowed. Reenter a value less than or equal to the number specified in the error message.

Translation verification tools

The PRI Flexible Timers capability does not use translation verification tools.

SERVORD

The PRI Flexible Timers capability does not use SERVORD.

PRI ISDN Treatments

Functionality code

Functionality group ordering code: NI000022

Functionality ordering code: Not applicable

Release applicability

BCS36 and up

Prerequisites

To operate, PRI ISDN Treatments has the following prerequisites:

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

Description

The ISDN Treatments capability is made up of the audible treatment function. Audible treatment supplies inband tones and announcements for intercept treatments per logical terminal identifier (LTID). With audible treatment, when a speech or a 3.1-kHz audio call is terminated to intercept treatment, the originating exchange returns a PROGRESS message to the terminating exchange and provides inband treatment. Without audible treatment, a DISCONNECT message, with cause, is returned and the call is terminated.

The PROGRESS message contains progress indicator number 8 and either cause value 1 (unallocated/unassigned number) or cause value 27 (destination out of order). The DISCONNECT message contains a variable cause value.

The AUDTRMT (audible treatment) flag, found under the SERV (service) refinement in table LTDATA, is used to optionally provide the ISDN Treatments capability on a per interface basis. If AUDTRMT is set to ‘N’ (for NO), call clearings are handled as normal. This is the default action. Setting AUDTRMT to ‘Y’ (for YES) enables inband treatment procedures for *originating* PRI calls with a bearer capability (BC) of speech or 3.1-kHz audio for the following scenarios:

- The call attempt results in a DMS treatment of VACT (vacant code), UNDN (unassigned number), BLDN (blank directory number), or PODN (ported out directory number). (Normally, a DISConnect or RELease COMplete message containing cause #1, “unallocated (unassigned) number”, would be sent to the calling interface.)
- The terminating interface receives a call clearing message containing cause #1, “unallocated (unassigned) number”.

PRI ISDN Treatments (continued)

- The call attempt results in a DMS treatment of TRBL (trouble intercept), TESS (terminating service suspended), or DNTR (deny termination). (Normally, a DISConnect or RELease COMplete message containing cause #27, “destination out of order”, would be sent to the calling interface.)

Operation

Datafill table LTDATA with the LTID information and DATATYPE of SERV. Enter Y in subfield AUDTRMT to allow audible treatment for calls having intercept treatment.

Translations table flow

ISDN Treatments does not affect translations.

Limitations and restrictions

ISDN Treatments is only functional for the originating PRI node and for the incoming trunk to the DMS-100 switch.

Interactions

PRI ISDN Treatments has no functionality interactions.

Activation/deactivation by the end user

PRI ISDN Treatments requires no activation or deactivation by the end user.

Station Message Detail Recording

PRI ISDN Treatments does not affect Station Message Detail Recording.

Datafilling office parameters

PRI ISDN Treatments does not affect office parameters.

Datafill sequence

The following table lists the table that requires datafill to implement PRI ISDN Treatments.

Datafill tables required for PRI ISDN Treatments

Table	Purpose of table
LTDATA	To provide LTID data and enable the capability.

Datafilling table LTDATA

The following table shows the datafill specific to PRI ISDN Treatments for table LTDATA. Only those fields that apply directly to PRI ISDN Treatments are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		see subfields	Logical terminal datakey. Datafill subfields LTGRP, LTNUM, and DATATYPE as one concatenated entry. Separate the three values with blanks. You are not prompted for the subfields individually.
	LTINDEX	see subfields	Logical terminal index. This is made up of subfields LTGRP and LTNUM.
	LTGRP	alphabetic	Logical terminal group. Enter the trunk group name.
	LTNUM	numeric (1 to 1022)	Logical terminal number. Enter the logical terminal number within the group.
	DATATYPE	SERV	Logical terminal data type. Enter SERV for service.
LTDRSLT		see subfields	Logical terminal result
	DATATYPE	SERV	Data type. Enter SERV for service.
	AUDTRMT	Y or N	Audible treatments. Message to return when a speech or a 3.1 KHz audio call is terminated to intercept treatment for this LTID. The option applies to these treatments: VACT, UNDN, BLDN, PODN, CONF, MHLD, ATBS, TESS, TRBL and DNTR. Enter Y to return a PROGRESS message and provide inband treatment (a tone or announcement). Enter N to return a DISCONNECT message, with cause, and terminate the call. ***Note:*** Only use when subfield DATATYPE is SERV.

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA.

MAP display example for table LTDATA

```
        LTDKEY
                                                        LTDRSLT
_____________________________________________________________________

ISDN 505 SERV
                              SERV Y  N SCREENED ALWAYS     $
```

Error messages for table LTDATA

Not applicable

Translation verification tools

PRI ISDN Treatments does not use translation verification tools.

SERVORD

PRI ISDN Treatments does not use SERVORD.

History

SN06 (DMS)

Applicability of AUDTRMT option specified for CR Q00757372.

Description history section added.

9 Datafilling NI0 ISDN PRI CNAM

The following chapter describes the NI0 ISDN PRI CNAM, NI000030, functionality.

PRI Calling Name Delivery

Ordering codes

Functional group ordering code: NI000030

Functionality ordering code: not applicable

Release applicability

NA009 and up

This chapter applies only to the NI-PRI variant.

Prerequisites

This chapter includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this chapter.

Description

The ISDN primary rate interface (PRI) Calling Name Delivery (I-CNAM) feature provides the ISDN PRI called party with the name of the calling party.

The switch retrieves the calling party name from one of the following three sources:

- the ISDN user part (ISUP) initial address message (IAM)
- a local table lookup
- a central name database using transaction capabilities application part (TCAP) messaging

This enhancement only affects the public network and is only supported within the National ISDN PRI (NI-PRI) variant. I-CNAM is available to the NA100 market in the NA009 release.

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 directory number (DN) occur 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 party name is retrieved.

The calling name privacy indicator is disregarded when determining whether or not 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. In order to obtain the calling party name, a ten-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 office parameter IAM_USE_NAME_CHARS in table OFCENG is set to Y, it is used.

If in table CUSTNTWK, suboption TCAPNM is datafilled with the option of LOCAL, the local name lookup feature is active. It searches the local DMS database (table DNATTRS) for a name for a particular calling DN. If a local name is not found, a TCAP name query may 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 in length and a permanent privacy indicator. The information retrieved by the database is passed back to the terminating switch in a TCAP response package.

If the name cannot be obtained from the TCAP central residence name database and 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).

Note: 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. A new PRI Calling Name Delivery option is required to enable the feature. Since line options cannot be assigned to trunks, the option must be associated with the logical terminal. Therefore, a TCAP_CNAM service option is created in table LTDATA for I-CNAM. This option is associated with the trunk's logical terminal identifier (LTID) and is a boolean. It is checked by a PRI terminating agent to determine whether to deliver the calling party name. If the TCAP_CNAM option does not appear on the PRI interface, the calling name is not delivered.
- Table OFCENG. The IAM information element of ISUP contains the generic name (GN) parameter. The GN contains the calling name. The new office parameter IAM_USE_NAME_CHARS in table OFCENG controls the use of the GN parameter to obtain the calling name from the IAM. This new enhancement is currently only supported within ISDN PRI NA009.

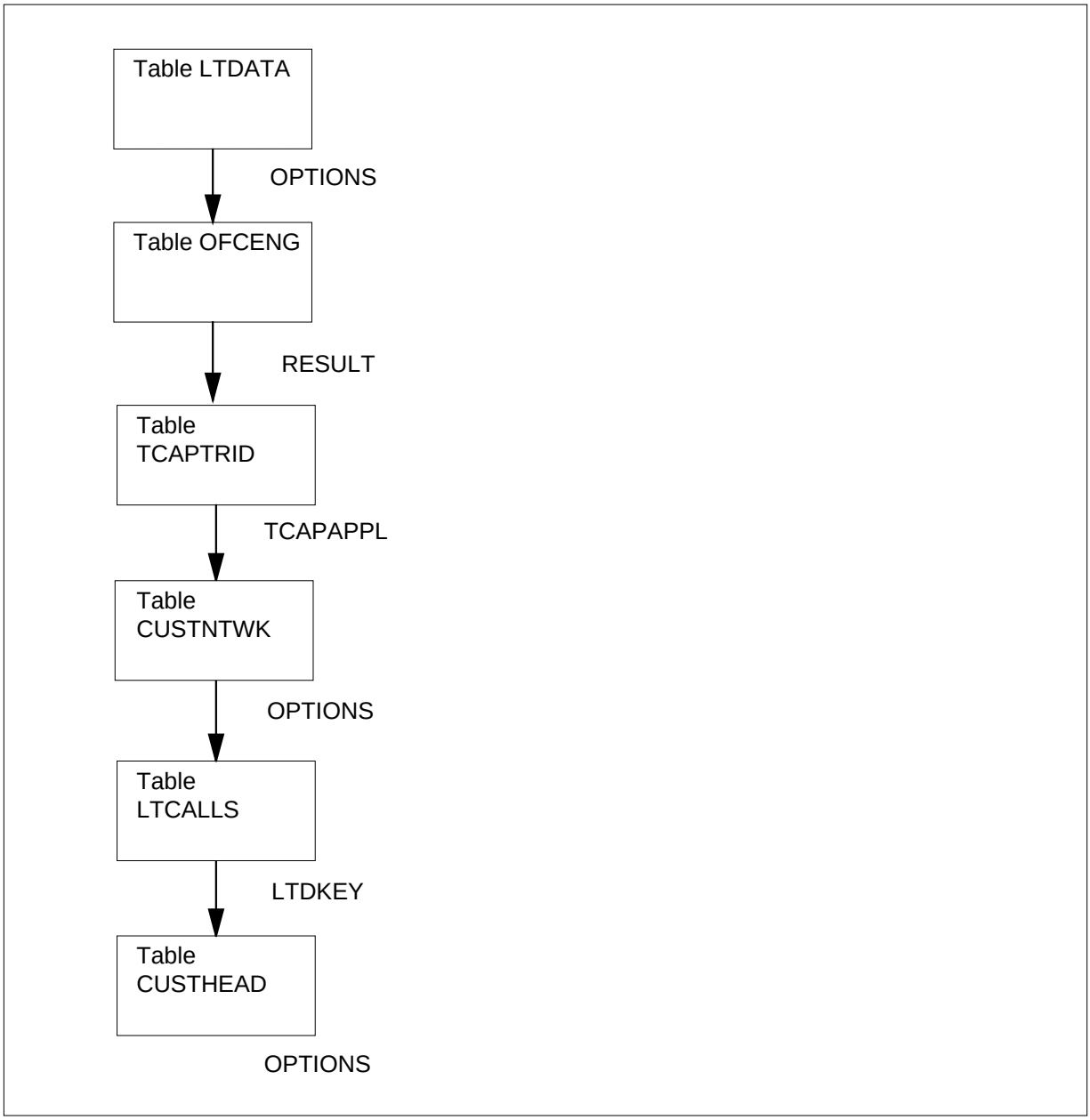
PRI Calling Name Delivery (continued)

- Table TCAPTRID. This table defines the number of TCAP transaction identifiers (TRID) required by eack network application. This table defines the number of IDs to support I-CNAM.
- Table CUSTNTWK. The new TCAPNM suboption delivered in NA009 under activity AF7157 is controlled by datafilling the suboption TCAPNM in table CUSTNTWK. The user is provided with two choices: LOCAL and NONLOCAL. When this suboption is set to LOCAL, the TCAPNM Local Lookup feature is in effect and searches the local DMS database for the calling name, or captures the calling name from the Party Info Parm (PIP) parameter of the ISUP IAM. The NONLOCAL setting effectively turns off the Local Lookup feature and I-CNAM is executed accordingly. The default value of the new TCAPNM suboption is NONLOCAL. The LOCAL value must be set to actviate the local lookup functionality.
- Table LTCALLS. A corresponding LTID in table LTCALLS must have the respective customer group provisioned as in table LTDATA to set the TCAP timer.
- Table CUSTHEAD. The TCAP timer is assigned on a customer group basis. The PRI TCAP_CNAM option in table LTDATA is assigned for each LTID. A customer group can only be allocated to a LTID with an IBN translations route. The customer group's attributes control the TCAP timer in table CUSTHEAD. The TCAP timer option (NDTIMOUT) has the range of 1 s to 6 s. The default timer for the TCAP interface is 3 s.

The PRI Calling Name Delivery translation process is shown in the flowchart that follows.

PRI Calling Name Delivery (continued)

Table flow for PRI Calling Name Delivery



PRI Calling Name Delivery (continued)

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

Datafill example for PRI Calling Name Delivery

Datafill table	Example data
LTDATA	ISDN 10 SERV SERV Y Y ALWAYS ALWAYS (TCAPNM) $
OFCENG	IAM_USE_NAME_CHARS Y
TCAPTRID	CNAM 100 0 N
CUSTNTWK	PRADEFAULT PUBLIC 0 $ 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 NI-PRI variant only.
- FCC regulations require the calling number presentation indication and calling name presentation to be linked. 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.
- End-to-end ISUP SS7 connectivity is required on interswitched calls to transmit the calling DN to the ISDN PRI terminating DMS-100 switch.
- All necessary datafill for providing the Residential and MDC TCAP CNAM (and BRI I-CNAM) functionality are required.
- The central name database requires a ten-digit DN in the TCAP query. Otherwise, an “unavailable” indication is sent to the called party.

Interactions

PRI Calling Name Delivery has no functionality interactions.

In the NA010 release, the PRI SUSP for CNAME feature allows the PRI I-CNAM feature to support interactions with the following:

- advanced intelligent network (AIN) features
- calling number screening and editing features
- redirection (call forwarding) features

For more information, see "PRI SUSP for CNAME" in the ISDN translations section of this document.

Activation/deactivation by the end user

PRI Calling Name Delivery requires no activation or deactivation by the end user.

Billing

PRI Calling Name Delivery does not affect billing.

Note: In the NA010 release, the PRI SUSP for CNAME feature allows the PRI I-CNAM feature to support subscriber usage-sensitive pricing (SUSP) billing. For more information, see "PRI SUSP for CNAME" in the ISDN translations section of this document.

Datafilling office parameters

The following table shows the office parameters used by PRI Calling Name Delivery. For more information about office parameters, refer to *Office Parameters Reference Manual.*

Office parameters used by PRI Calling Name Delivery

Table name	Parameter name	Explanation and action
OFCENG	IAM_USE_NAME_CHARS	This parameter delivers the new 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 new office parameter controls whether or not to use the calling name from the IAM.

PRI Calling Name Delivery (continued)

Datafill sequence

The following table lists the tables that require datafill to implement PRI Calling Name Delivery. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Calling Name Delivery

Table	Purpose of table
OFCENG	Office Engineering. This table contains data on engineering parameters for the office. Refer to "Datafilling office parameters" for information on how PRI Calling Name Delivery affects office parameters.
LTDATA	Logical Terminal Data. This table stores service-related data associated with an LTID.
CUSTNTWK	Customer Group Network. This table allows the operating company to specify a network name with which a customer group is associated. It also provides a predetermined global numeric identifier in the specified NETNAME used for the customer group throughout the network.

Datafilling table LTDATA

The following table shows the datafill specific to PRI Calling Name Delivery for table LTDATA. Only those fields that apply directly to PRI Calling Name Delivery are shown. For a description of the other fields, refer to the *Data Schema Reference Manual*.

Datafilling table LTDATA

Field	Subfield	Entry	Explanation and action
	OPTION	TCAP_CNAM	Enter TCAP_CNAM to enable PRI Calling Name Delivery.

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA.

MAP display example for table LTDATA

```
         LTDKEY                                                    LTDRSLT
-------------------------------------------------------------------------------
ISDN  10   SERV
                          SERV Y   Y  ALWAYS  ALWAYS  (TCAP_CNAM)$
```

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. For a description of the other fields, refer to the *Data Schema Reference Manual*.

Datafilling table CUSTNTWK

Field	Subfield	Entry	Explanation or action
	TCAPNM	LOCAL or 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.

Datafill example for table CUSTNTWK

The following example shows sample datafill for table CUSTNTWK.

MAP display example for table CUSTNTWK

```
        CUSTNAME     NETNAME    NETCGID
                                                          DNREVXLA
                                                           OPTIONS
_____________________________________________________________________

        RES1     PUBLIC          0 $ (TCAPNM LOCAL)$
```

Translation verification tools

PRI Calling Name Delivery does not use translation verification tools.

SERVORD

PRI Calling Name Delivery does not use SERVORD.

PRI SUSP for CNAME

Ordering codes

Functional group ordering code: NI000030

Functionality ordering code: not applicable

Release applicability

NA010 and up

PRI SUSP for CNAME was introduced in NA010.

Prerequisites

This document includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this document.

Description

PRI SUSP for CNAME provides subscriber usage-sensitive pricing (SUSP) billing for the ISDN primary rate interface (PRI) Calling Name Delivery (I-CNAM) feature.

PRI SUSP for CNAME also allows the I-CNAM feature to support interactions with the following:

- advanced intelligent network (AIN)
- calling number screening and editing features
- redirection (call forwarding) features

This functionality complies with TR-NWT-862, *Automatic Message Accounting Generic Requirements*, Issue 3, June 1993, supplement 1.

Operation

I-CNAM feature

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 the NA009 release.

The switch retrieves the calling party name from one of the following three sources:

- the ISDN user part (ISUP) initial address message (IAM)
- a local table lookup
- a central name database using transaction capabilities application part (TCAP) messaging

PRI I-CNAM only affects the public network and is only supported within the National ISDN primary rate interface (NI-PRI). The following peripheral types support PRI I-CNAM:

- ISDN line trunk controller (LTCI)
- ISDN digital trunk controller (DTCI)

For detailed information on the I-CNAM feature, refer to “PRI Calling Name Delivery" in the ISDN translations section of this document.

SUSP billing for I-CNAM

PRI SUSP for CNAME enhances I-CNAM to support SUSP billing. For detailed information, see “Billing" in this document.

I-CNAM feature interactions

PRI SUSP for CNAME allows the I-CNAM feature to support interactions with the following:

- AIN
- calling number screening and editing features
- redirection (call forwarding) features

For more information on these interactions, see “Interactions" in this document.

Translations table flow

PRI SUSP for CNAME does not affect translations table flow.

Limitations and restrictions

As of the NA010 release, AMA record generation for calling number delivery is not supported.

Refer to “PRI Calling Name Delivery" in the ISDN translations section of this document for additional I-CNAM limitations and restrictions.

PRI SUSP for CNAME (continued)

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 directory number (DN). In this case, I-CNAM uses the AIN calling party DN to determine the calling party name. If 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.

Note: For detailed information on calling number screening and editing, refer to “PRI Call Screening" in the ISDN translations section of this document.

Redirection features

PRI SUSP for CNAME enhances I-CNAM to support redirection (call forwarding) 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.

Activation/deactivation by the end user

PRI SUSP for CNAME requires no activation or deactivation by the end user.

PRI SUSP for CNAME (continued)

Billing

Overview

PRI SUSP for CNAME enhances I-CNAM to generate an AMA record when

- a SUSP audit occurs
- 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 will generate 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 switch generates an AMA record for each I-CNAM SUSP display subscriber as scheduled in table AMAOPTS through the CIDSUSPAUD option. 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 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 of times the switch delivered 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.

PRI SUSP for CNAME (continued)

Required provisioning for SUSP billing

The operating company must perform the following provisioning to enable SUSP billing for a terminating PRI LTID. Note that the Bellcore LAMA and CAMA packages must be present in the office.

1. In table LINEATTR, add a pretranslator name (for example, INCK or P622) to route calls.
2. In table STDPRTCT, position on the pretranslator and access subtable STDPRT. Add the DD (direct dial) option.
3. 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.

   Note: The supported trunk types are PRA (primary rate access) and IBNT2 (IBN two-way).

4. Assign I-CNAM to a trunk LTID in table LTDATA. Set refinement CNAM_SUSP for option TCAP_CNAM to Y.
5. Enable calling number (CGN) delivery on the trunk LTID in table LTDATA by setting subfield CGNDELV to ALWAYS.
6. In table AMAOPTS, set the SUSP option to ON to enable SUSP billing.
7. In table AMAOPTS, set the CIDSUSPAUD option to specify the frequency of the SUSP audit.

Note: Office parameter ISDNBRI_CNAMD_CND_ONE_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 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 will have a BC of 3_1KHZ. All data calls will have a BC of 64KDATA.

The following figure shows a SUSP I-CNAM AMA record generated with the CALLDUMP command for a voice call. Module code 071 is appended to the record to indicate the BC. The release cause value is 16 (normal clearing).

```
*HEX ID:AA  STRUCTURE CODE:40110C  CALL CODE:264C  SENSOR TYPE:036C
 SENSOR ID:0000000C  REC OFFICE TYPE:036C  REC OFFICE ID:0000000C
 CLASS FEATURE:082C  DATE:80601C  CONNECT TIME:2116484C  NPA:613C
 DIR NUMBER:1231234C  AVAIL COUNT:00002C  UNAVAIL COUNT:00000C
 MODULE CODE:071C  BEARER CAPABILITY:102C  NETWORK INTERWORKING:0C
 RELEASE CAUSE INDICATOR:00016C  MODULE CODE:000C
```

The following figure 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).

```
*HEX ID:AA  STRUCTURE CODE:40110C  CALL CODE:264C  SENSOR TYPE:036C
 SENSOR ID:0000000C  REC OFFICE TYPE:036C  REC OFFICE ID:0000000C
 CLASS FEATURE:082C  DATE:80601C  CONNECT TIME:2116484C  NPA:613C
 DIR NUMBER:1231234C  AVAIL COUNT:00000C  UNAVAIL COUNT:00000C
 MODULE CODE:071C  BEARER CAPABILITY:203C  NETWORK INTERWORKING:0C
 RELEASE CAUSE INDICATOR:00016C  MODULE CODE:000C
```

Station Message Detail Recording

PRI SUSP for CNAME does not affect Station Message Detail Recording.

Datafilling office parameters

PRI SUSP for CNAME does not affect office parameters.

Datafill sequence

The following table lists the table that requires datafill to implement PRI SUSP for CNAME.

Datafill table required for PRI SUSP for CNAME

Table	Purpose of table
LTDATA	Logical Terminal Data. This table stores service-related data associated with an LTID.

Datafilling table LTDATA

Table LTDATA stores service-related data associated with an LTID.

PRI SUSP for CNAME (continued)

PRI SUSP for CNAME adds refinement CNAM_SUSP to option TCAP_CNAM for DATATYPE SERV. To enable SUSP billing for a PRI LTID with I-CNAM, set refinement CNAM_SUSP to Y.

The following table shows the datafill specific to PRI SUSP for CNAME for table LTDATA. Only those fields that apply directly to PRI SUSP for CNAME are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		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 to 1022	Logical terminal number. Enter the logical terminal number within the group. The quantity of group numbers is restricted. A maximum of 31 entries is allowed.
	DATATYPE	SERV	Logical terminal data type. Enter the logical terminal data type SERV for service-related data associated with an LTID or PRA interface.
LTDRSLT		see subfield	Logical terminal result. This field consists of subfield DATATYPE.
	DATATYPE	SERV	Logical terminal data type. Enter the logical terminal data type SERV for service-related data associated with an LTID or PRA interface. Datafill refinements AUDTRMT, CGNREQD, CGNDELV, CDNDELV, and OPTION.

PRI SUSP for CNAME (continued)

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
	AUDTRMT	Y or N	Audible treatments. This field determines whether in-band tones and announcements are provided instead of disconnect with cause when treatments are applied to calls from this LTID. The option applies to these treatments: VACT, UNDN, BLDN, PODN, CONF, MHLD, ATBS, TESS, TRBL and DNTR. Enter Y (yes) to enable in-band treatment procedures for originating PRI calls with BC of speech or 3.1-kHz audio. ***Note:*** To make two BCs compatible with TBCT, datafill BCs in table BCCOMPAT before you datafill table LTDATA. Enter N (no) to disable in-band treatment procedures and handle call clearing as it was originally handled.
	CGNREQD	Y or N	Calling party number required. Enter Y to indicate that the calling number must be provided by the calling user equipment. Otherwise, enter N.
	CGNDELV	ALWAYS, NEVER, or SCREENED	Calling party number delivery. This field indicates when the calling number is delivered to the called interface. Enter one of the following values: • ALWAYS indicates that the actual calling number with the PI is sent. • NEVER indicates that the calling number with the PI is not sent. • SCREENED (the default value) indicates that if the PI is private, the calling number is not sent (it is replaced by asterisks).

PRI SUSP for CNAME (continued)

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
	CDNDELV	NEVER or ALWAYS	Called party number delivery. This field determines whether the called party number is delivered to the called interface. Enter one of the following values: • NEVER indicates that the called party number is not delivered to the called interface. • ALWAYS indicates that the called party number is always delivered to the called interface.
	OPTION	TCAP_CNAM	Option. This field contains options for PRI services. Enter TCAP_CNAM and enter the datafill for refinement CNAM_SUSP.
	CNAM_SUSP	Y, N	Enter Y to enable SUSP billing for the PRI LTID. Enter N to disable SUSP billing for the PRI LTID. The default is N. ***Note:*** Before setting refinement CNAM_SUSP to Y for a PRI LTID, the operating company must assign the billing DN in table TRKGRP (subfield BILLDN).

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA with DATATYPE SERV and option TCAP_CNAM. Refinement CNAM_SUSP is set to Y (SUSP billing enabled) in both tuples.

MAP display example for table LTDATA

```
          LTDKEY                                                    LTDRSLT
_____________________________________________________________________________

ISDN   381   SERV
                                SERV Y   Y   ALWAYS   ALWAYS   (TCAP_CNAM Y)$
ISDN   383   SERV
                                SERV   Y Y   ALWAYS   ALWAYS   (TCAP_CNAM Y)$
```

Error messages for table LTDATA

The following error and warning messages apply to table LTDATA.

Error messages for table LTDATA

Error message	Explanation and action
THE OPTION IS ONLY VALID FOR NI-PRI VARIANT	This warning message displays if the operating company attempts to provision the TCAP_CNAM option against a non-NI-PRI variant.
ISDNCIRCUIT IN TABLE AMAOPTS MUST BE ENABLED	This error message displays if parameter ISDNCIRCUIT in table AMAOPTS is not enabled.
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.
Billing DN not assigned in table TRKGRP	This warning message displays if the operating company has not assigned a billing DN in table TRKGRP.
Number of Billing DN digits not in range	This warning message indicates that the billing DN in table TRKGRP is outside the range of 3 to 10 digits.

Translation verification tools

PRI SUSP for CNAME does not use translation verification tools.

SERVORD

PRI SUSP for CNAME does not use SERVORD.

History

SN06 (DMS)

Applicability of AUDTRMT option specified for CR Q00757372.

Description history section added.

10 Datafilling PRI Hotel/Motel

The following chapter describes the PRI Hotel/Motel, NI000032, functionality.

PRI Hotel/Motel/SCOCS

Ordering codes

Functional group ordering code: NI00032

Functionality ordering code: Not applicable

Release applicability

NA009 and up

PRI Hotel/Motel/SCOCS was introduced in NA009.

Prerequisites

PRI Hotel/Motel/SCOCS has no prerequisites.

Description

The Primary Rate Interface Hotel, Motel, or Selective Class-of-Call Screening (PRI Hotel/Motel/SCOCS) feature is for originating-only services. This feature provides calls, normally through a PBX, with specified services on a call-by-call (CBC) basis over a single PRI. These services can be received without the need for a dedicated bearer channel for each service.

The Call-by-Call Hotel/Motel (HM) service allows the customer premises equipment (CPE) to request, on an individual call basis, that the DMS switch treat a call as an HM call. The HM class of service provides hotels and motels with detailed billing information after the call completes.

The Call-by-Call SCOCS service allows the CPE to request, on an individual call basis, that the DMS switch treat a call as an SCOCS call. SCOCS provides hotels, motels, dormitories, prisons, hospitals, and other institutions with detailed billing information after the call completes.

Operation

To use this feature, a caller located at a hotel, motel, or institution, goes off-hook and then dials 0 + the called number. The CPE sends a setup message that designates the requested service. The DMS switch interprets the setup message and routes the call to an operator services system (OSS). The operator at the OSS prompts the caller for the required information, for example, hotel room number, and enters the information at the operator's position. The operator completes the call.

At the completion of the call, the OSS provides the billing information to the automatic message accounting (AMA) system.. The OSS also sends the billing information to a billing system that forwards it to the originating hotel

or motel for HM service, or to the appropriate hotel, motel, or institution for SCOCS service.

Translations table flow

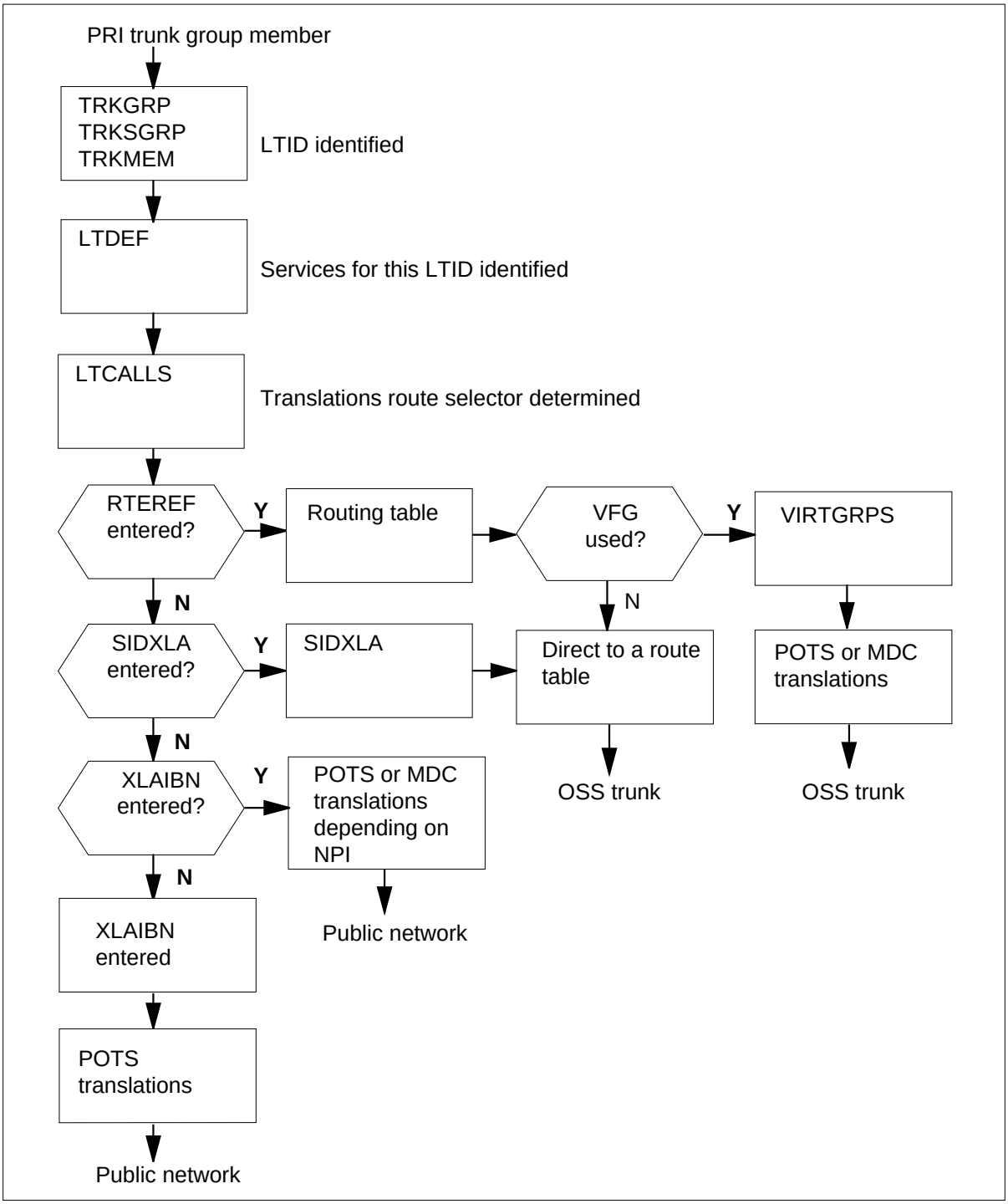
The PRI Hotel/Motel/SCOCS translations tables are described in the following list:

- LTDEF
- LTCALLS
- SIDXLA

The PRI Hotel/Motel/SCOCS translation process is shown in the flowchart that follows.

PRI Hotel/Motel/SCOCS (continued)

Table flow for PRI Hotel/Motel/SCOCS



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

Datafill example for PRI Hotel/Motel/SCOCS

Datafill table	Example data
TRKGRP	SL1NTPRI PRA 0 NPDGP NCIT ASEQ N (ISDN 1008) $
LTDEF	ISDN 50 2B BRAFS (NOPMD) (PVC FUNCTIONAL 2) (DTEI) (SPIDSFX 00) (EKTS) $
LTCALLS	ISDN 1 SCOCS XLAIBN 1 BNR_SCOCS 0 0 (SIDXLA SCOCS Y Y N) $
ISAXLA	SCOCS 1 1 (IBNRTE 702) $
VIRTGRPS	Hotel16 SIZE 2 IBN N BNR 0 0 0 N N N $

Limitations and restrictions

The following limitations and restrictions apply to PRI Hotel/Motel/SCOCS:

- VFGs do not support overflow. However, you can establish overflow for call-by-call through the DMS-100 routing tables.
- You cannot associate VFGs with bearer capabilities for a particular PRI.
- Service identifiers for SCOCS services have a range of 0-1023.
- The DMS switch does not evaluate carrier access code (CAC) digits, in accordance with TR-NWT-001379, called party number (CdPN) information element (IE).

Interactions

The following paragraphs describe the interactions between PRI Hotel/Motel/SCOCS and other functionalities.

Advanced Intelligent Network

The CBC services select a B-channel without a determination of whether the DMS switch uses the B-channel for Advanced Intelligent Network (AIN) triggering. The CPE must be able to make this determination to avoid the use of AIN B-channels for non-AIN outgoing calls.

Activation/deactivation by the end user

PRI Hotel/Motel/SCOCS requires no activation or deactivation by the end user.

Billing

PRI Hotel/Motel/SCOCS does not affect billing.

PRI Hotel/Motel/SCOCS (continued)

Station Message Detail Recording

PRI Hotel/Motel/SCOCS does not affect Station Message Detail Recording.

Datafilling office parameters

PRI Hotel/Motel/SCOCS does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement PRI Hotel/Motel/SCOCS. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for PRI Hotel/Motel/SCOCS

Table	Purpose of table
TRKGRP	Table TRKGRP contains operating company-defined data associated with each trunk group that exists in the switching unit.
LTDEF	Table LTCALLS defines the service profile of an ISDN logical terminal (LTID).
LTCALLS	Table LTCALLS sets the call route based on CBC service type and numbering plan.
ISAXLA	Table ISAXLA defines the service identifier data associated with SCOCS calls that use the service identifier to translate and route the calls.
VIRTGRPS	The DMS switch uses table VIRTGRPS to simulate finite resources (lines or trunks) in software.

Datafilling table TRKGRP

The following table shows the datafill specific to PRI Hotel/Motel/SCOCS for table TRKGRP. Only those fields that apply directly to PRI are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKGRP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY		see subfield	Group key. Subfield CLLI makes up this field.
	CLLI	alphanumeric (1 to 16 characters)	Common language location identifier. Enter the CLLI code assigned to the PRI trunk group in table CLLI.

Datafilling table TRKGRP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO		see subfields	Variable group data. Subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, SELSEQ, BILLDN, LTID, and OPTIONS make up this feild. ***Note:*** This table only describes the subfillds that are directly affected by PRI Hotel/Motel/SCOCS. Refer to table TRKGRP in the data schema section of this document for information on an alternate structure for this field that results from the datafill of table CUSTFLDS.
	GRPTYP	PRA	Group type. Enter PRA (primary rate access) to define a PRI trunk group type.
	LTID	$	Logical terminal identifier. Enter a $ to satisfy the table editor. The system automatically updates this field after you datafill the corresponding entry in table LTMAP. ***Note:*** The datafill example shows the tuple after the DMS switch automatically updates table TRKGRP with the LTID from table LTMAP.

Datafill example for table TRKGRP

The following example shows sample datafill for table TRKGRP.

MAP display example for table TRKGRP

```
GRPKEY
                                                    GRPINFO
-------------------------------------------------------------
SL1NTPRI
                          PRA 0 NPDGP NCIT ASEQ N (ISDN 1008)$
```

Datafilling table LTDEF

The following table shows the datafill specific to PRI Hotel/Motel/SCOCS for table LTDEF. Only those fields that apply directly to PRI Hotel/Motel/SCOCS

PRI Hotel/Motel/SCOCS (continued)

are shown. For a description of the other fields, refer to the data schema section of this document.

Field descriptions (Sheet 1 of 4)

Field	Subfield or refinement	Entry	Explanation and action
LTKEY		see subfields	Logical terminal key. Subfields LTGRP and LTNUM make up this field.
	LTGRP	alphanumeric (up to 8 characters)	Logical terminal group. Enter the name of a group of logical terminals. Table LTGRP lists the valid group names in field GROUP.
	LTNUM	1 to 1022	Logical terminal number. Enter a number to identify the logical terminal within the group.
LTAP		B, D, PB, BD, 2B, 2BD	Logical terminal access privilege. Enter the access privilege of the logical terminal. Enter B for circuit switching or ISDN MFT terminals. Enter D for D-channel packet switching. Enter PB for provisioned channel packet switching. Enter BD for combined circuit switching. Enter 2B for two B-channel circuit switching. Enter 2BD for D-channel packet switching and circuit switching on the same NI-2 terminal A terminal with the 2BD option must also have CLASSREF subfield LTCLASS = BRAFS, BRAFS subfield OPTION = PVC, DTEI, and PVC refinements VERSION = FUNCTIONAL and ISSUE = 2. You must specify the NITYPE option with a value of NI2. ***Note 1:*** If you do not specify the PVC option, it is added by default as PVC FUNCTIONAL 2. ***Note 2:*** The DMS switch blocks attempts to change an existing access privilege to 2BD.
CLASSREF		see subfield	Class reference. Subfiled LTCLASS makes up this field.

PRI Hotel/Motel/SCOCS (continued)

Field descriptions (Sheet 2 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	LTCLASS	PRA	Logical terminal class. The set of services that are allowed for this logical terminal are identified by this field. Enter PRA for primary rate access.
	NUMBCHNL	1 to 479	Number of B-channels. Enter the maximum number of B-channels allowed for this logical terminal. The sum of this field over all logical terminal identifiers (LTID) on an interface must not exceed the number of B-channels on the interface.
	NUMCALLS	1 to 479	Number of calls. Enter the maximum number of simultaneous calls allowed on this logical interface. The sum of the incoming calls (field INCCALLS) and outgoing calls (field OUTCALLS) must be less than or equal to the number of calls allowed (field NUMCALLS).
	INCCALLS	0 to 479	Incoming calls. Enter the maximum number allowed for reserved incoming-only calls on this logical terminal.
	OUTCALLS	0 to 479	Outgoing calls. Enter the maximum number of reserved outgoing-only calls that are allowed on this logical terminal at any time.
	VARISSUE	see subfields	Variant issue. Subfields VARIANT and ISSUE make up this field.

PRI Hotel/Motel/SCOCS (continued)

Field descriptions (Sheet 3 of 4)

Field	Subfield or refinement	Entry	Explanation and action

	VARIANT	AUSTPRI, ETSIPRI, INSPRI, NTNAPRI, NIPRI, N449PRI, U449PRI, U459PRI	Variant type. Enter the PRI protocol for the LTID as follows:
			• AUSTPRI = Australian PRI
			• ETSIPRI = ETSI PRI (Europe)
			• INSPRI = Japan INS-1500 PRI
			• NTNAPRI = Northern Telecom PRI
			• NIPRI = NI-2 PRI
			
			Note: If the corresponding LTID tuple in table LTDATA , has field DATATYPE = SERV, and subfield OPTION =TBCT, the DMS switch rejects attempts to change the VARIANT from NIPRI and generates the following error message.
			
			`Cannot change VARIANT: TBCT provisioned on LTID in Table LTDATA. Delete TBCT from the tuple in LTDATA first.`
			
			Note: If the corresponding tuple in table LTCALLS has field CALLTYPE = PVT an attempt to change the PRA VARIANT to NIPRI fails with the following message.
			
			`ERROR: delete Private service type ENTRY from table LTCALLS for this INTERFACE BEFORE changing the LTDEF variant to NIPRI.`
			• N449PRI - AT&T SYS85
			• U449PRI - AT&T 4ESS
			• U459PRI - AT&T 5ESS

Field descriptions (Sheet 4 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	ISSUE	1990, TS141990, V1, NI2V1	Issue. Enter the issue of the PRI variant as follows: • If the entry in field VARIANT is ETSIPRI, enter 1990. • If the entry in field VARIANT is AUSTPRI, enter TS141990. • If the entry in field VARIANT is INSPRI, N449PRI, NTNAPRI, U449PRI, or U459PRI, enter V1. • If the entry in field VARIANT is NIPRI, enter NI2V1. This value is dependent on the choice of the VARIANT.
	PROFNAME	alphanumeric (up to 8 characters), NIL	Profile name. This field is the key to table PRIPROF. Enter a profile name linking a profile (set of function switches) to an interface. You must first datafill this name in table PRIPROF. The default for this field is NIL and disables all available function switches. Entries correspond with entries for VARIANT and ISSUE in table PRIPROF.
	OPTION	NOCMD, NOPMD, NOVBD, NOVOICE	Option. Enter up to four options. Enter NOCMD to indicate that circuit mode data calls are not allowed. Enter NOPMD to indicate that packet mode data calls are not allowed. Enter NOVBD to indicate that voice band calls are not allowed. Enter NOVOICE to indicate that voice calls are not allowed.

Datafill example for table LTDEF

The following example shows sample datafill for table LTDEF.

PRI Hotel/Motel/SCOCS (continued)

MAP display example for table LTDEF

```
   LTKEY      LTAP                                                  CLASSREF
_____________________________________________________________________________
   ISDN 50       2B
BRAFS   (NOPMD) (PVC FUNCTIONAL 2)  (DTEI ) (SPIDSFX 00)    (EKTS) $
   ISDN 800      2B
BRAFS   (NITYPE NI2)    (PVC FUNCTIONAL 2)  (DTEI ) (SPIDSFX 01)
(EKTS ) (CACH ) $
   ISDN 810      2B
BRAFS   (NITYPE NI2)    (PVC FUNCTIONAL 2)  (DEFLTERM ) (TERML 4) $
```

Datafilling table LTCALLS

The following table shows the datafill specific to PRI Hotel/Motel/SCOCS for table LTCALLS. Only those fields that apply directly to PRI Hotel/Motel/SCOCS are shown. For a description of the other fields, refer to the data schema section of this document.

Field descriptions (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
LTID		see subfields	Logical terminal identifier. Subfields LTGRP, LTNUM, and CALLTYPE make up this field.
	LTGRP	alphanumeric (up to 8 characters)	Logical terminal group. Enter the logical terminal group.
	LTNUM	1 to 1022	Logical terminal number. Enter the logical terminal number within the group.
	CALLTYPE	HM, SCOCS	Call type. Enter the call type associated with the LTID. You can associate more than one call type with the same identifier. HM provides for hotel and motel services. SCOCS is an originating-only service that allows you to associate several distinct classes of service with a single PRI.

PRI Hotel/Motel/SCOCS (continued)

Field descriptions (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	XLARTE	RTEREF, IBNRTE, XLAIBN, XLALEC	Translation route. Enter the translation route selector as follows: • Enter RTEREF if translation is done by a specific table and index, such as OFRT, IBNRTE, and other routing tables. • Enter IBNRTE to indicate the IBN route. • Enter XLAIBN for integrated business network (IBN) translations. Use this selection only in PBX or Centrex offices. • Enter XLALEC for local exchange carrier translations, such as POTS (plain ordinary telephone service), or in PBX or Centrex type offices. If the entry in this field is XLALEC, and the entry in subfield CALLTYPE is PVT, INWATS, or TIE, the table requires no other datafill.
	OPTIONS	see subfield	Option. Subfield LTCOPT makes up this field.
	LTCOPT	EA, INCLID, LPIC, SIDXLA	Logical terminal option. Enter EA to allow equal access for all connected inter-LATA and international carriers, and datafill refinements PIC and CHOICE. EA is valid if the entry in field CALLTYP is PUB. Enter INCLID to allow ISDN primary rate interface (PRI) calling number delivery (CND) screening capabilities. Enter LPIC, and datafill refinements LCARRIER and LCHOICE, to implement the enhancement intra-LATA Competition. LTCOPT = LPIC allows equal access for all connected intra-LATA calls. LPIC is valid if the entry in field CALLTYP is PUB and the entry in field XLARTE is XLALEC or XLAIBN. Enter SIDXLA to allow SID routing on a specific PRI ISA call type. Any entry outside the range indicated for this field is invalid.

PRI Hotel/Motel/SCOCS (continued)

Datafill example

The following example shows sample datafill for table LTCALLS.

MAP display example for table LTCALLS

```
      LTID                XLARTSEL
                                                                  OPTIONS
_____________________________________________________________________________

ISDN  556   HM       XLAIBN  600  COMKODAK 0 0                          $

ISDN  557   SCOCS    XLAIBN  600  COMKODAK 0 0 (SIDXLA SCOCS Y Y N)  $

ISDN  558   PUB      XLAIBN  600  COMKODAK 0 0                          $

ISDN  559   PUB      XLALEC    1                                       $

PRAIC  18   PUB      XLALEC   42 (EA CAR1 Y)  (LPIC CAR1 Y)           $

PRAIC  11   PUB      XLAIBN   49 (EA CAR1 Y)  (LPIC CAR2 Y)           $
```

Datafilling table ISAXLA

The following table shows the datafill specific to PRI Hotel/Motel/SCOCS for table ISAXLA. Only those fields that apply directly to PRI Hotel/Motel/SCOCS are shown. For a description of the other fields, refer to the data schema section of this document.

Field descriptions (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
IRTRNAME		alphanumeric (up to 128 8-character names)	Router name. Enter up to 128 router names datafilled in table LTCALLS under the XLAISA selector, or in field IRTRNAME in table MBGXLA. The DMS switch allows multiple tuples with the same router name.
SIDFROM		0 to 1023	Service identifier from. Enter the lower boundary of the SID values that continue translations and routing.

Field descriptions (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
SIDTO		0 to 1023	Service identifiers to. Enter the upper boundary of the SID values that continue translations and routing. ***Note 1:*** The SIDFROM and SIDTO values form a range of values that can be datafilled over the entire range of the SIDs, over a subrange of the SIDs, or over a single SID. ***Note 2:*** The SIDFROM and SIDTO values cannot overlap each other for the same router name. ***Note 3:*** A maximum of 128 different SIDFROM and SIDTO combinations can be specified for the same router name.
RTEID		see subfield	Route identifier This field is made up of subfield TABNAME. This is an optional table route reference.
	TABNAME	IBNRT2 IBNRT3 IBNRT4 IBNRTE OFR2 OFR3 OFR4 OFRT or ITOPS	Table name. Enter the routing table name. If no route identifier is used, enter $. Any entry outside the range of indicated values for this field is invalid.
INDEX		0 to 1023 or alphanumeric	Index. Enter the index into the routing table. If the entry in subfield TABNAME is TOPS, enter the call origination index into table TOPS.

Datafill example

The followng example shows sample datafill for table ISAXLA.

PRI Hotel/Motel/SCOCS (continued)

MAP display example for table ISAXLA

```
IRTRNAME   SIDFROM   SIDTO                              RTEID
_____________________________________________________________

HM         1            1                        (IBNRTE 702)
```

Datafilling table VIRTGRPS

The following table shows the datafill specific to PRI Hotel/Motel/SCOCS for table VIRTGRPS. Only those fields that apply directly to PRI Hotel/Motel/SCOCS are shown. For a description of the other fields, refer to the data schema section of this document.

Field descriptions (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
KEY		see subfield	Virtual facility group (VFG) key. This field is the key to table VIRTGRPS and is made up of subfield VIRTGRP.
	VIRTGRP	alphanumeric (1 to 6 characters) or blank	Virtual facility group. If the entry is the first entry for the VFG, enter a user-defined name. The addition of a tuple defines the name that is used in other tables that need VFGs. If the entry is not the first entry for the VFG, leave this field blank.
DATA		see subfields	Virtual facility group data. This field is made up of subfields MEMBERS and INCTYPE.
	MEMBERS	see subfields	Virtual facility group members. This subfield is made up of refinement VFGTYPE, and subfields USESGRP and SIZE.
	VFGTYPE	SIZE or USES	Virtual facility group type. If this is the first entry for the VFG, enter SIZE. If this is not the first entry, enter USES.

PRI Hotel/Motel/SCOCS (continued)

Field descriptions (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	SIZE	0 to 2048	Size. Datafill this refinement if the value of subfield VFGTYPE is SIZE. Enter the number of simultaneous accesses allowed for the VFG.
	USESGRP	alphanumeric or nil	Virtual facility group name. Datafill this refinement if the value of VFGTYPE is USES. The VFG name is the name of the VFG specified in table VIRTGRPS. This entry provides the means to have virtual two-way trunks or to associate more than one set of screening data with the same set of virtual circuits, or both. If the entry is not the first for the VFG, enter NILVFG.
	INCTYPE	IBN, POTS	Incoming type. If this is the first entry for the VFG, do one of the following steps: Enter IBN if the call is entering the Integrated Business Network (IBN) translation environment. Enter POTS if the call is entering the POTS translation environment.
	BILLNUM	numeric (vector of up to 11 digits) or N	Billing number. Enter the billing number to which the DMS switch charges for the next leg of the call. If the call is charged to the originator's billing number for the next leg of the call, enter N.
	LINEATTR	0 to 4095	Line attribute index. Enter the line attribute index that specifies the translations and screening tables used for the next leg of the call.
	LINECDR	Y or N	Line call detail recording. Enter Y (yes) if CDR is required to record virtual line type calls. Enter N (no) if CDR is not required.

PRI Hotel/Motel/SCOCS (continued)

Field descriptions (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see subfield	Options. Subfield OPTION makes up this field. Subfield OPTION is a vector of up to 11 multiples.
	OPTION	CUSTGRP, EA, ENTRYID, IBNPIC, INTPIC, LPIC, RC, TBO, TOLLRST, VFGALSC, VFGAMA, or VFGLSC	Option. Enter the list of options assigned to the VFG. Each option and its refinement must be separated by a space. Use as many records as required to datafill the list of options and associated refinements. If an option is not provided, the subfield requires no datafill.

Datafill example

The followng example shows sample datafill for table VIRTGRPS.

MAP display example for table VIRTGRPS

```
KEY    DATA     OPTIONS
_____________________________________________________________

Hotel6 SIZE 2 IBN N BNR 0 0 0 N N N $
```

Translation verification tools

PRI Hotel/Motel/SCOCS does not use translation verification tools.

The following examples show the output from TRAVER when it is used to verify PRI Hotel/Motel/SCOCS.

PRI Hotel/Motel/SCOCS (continued)

TRAVER output example for PRI Hotel/Motel/SCOCS -hotel/motel example

```
>traver tr wits3nilt1 n cdn 7222001 hm b
TABLE TRKGRP
WITS3NILT1 PRA 0 PRAC NCRT ASEQ N (ISDN 100) $ $
TABLE LTCALLS
ISDN 100 HM XLAIBN 0 THE_FAR_SIDE 0 25 $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE LINEATTR
0 1FR NONE NT FRO1 0 613 P622 NLCA TSPS 10 NIL NILSFC
LATA1 0 NIL NIL 00 Y THE_FAR_SIDE 0 0 (HOT) $
LCABILL OFF – BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P622 (1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 7 810 N NP 0 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:  NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 755 1 (38) (1) (84) (0) 3 $
 . SUBTABLE HNPACODE
 . 722 722 DN 613 722
AIN Info Collected TDP:  no subscribed trigger.
TABLE FNPA7DIG
EMPTY TABLE:  TUPLE NOT FOUND
AIN Info Analyzed TDP:  no subscribed trigger.
```

(continued)

PRI Hotel/Motel/SCOCS (continued)

TRAVER output example for PRI Hotel/Motel/SCOCS -hotel/motel example (continued)

```
TABLE TOFCNAME
613 722 $
TABLE DNINV
613 722 2001 L HOST 00 0 01 06
AIN Term Attempt TDP:  no subscribed trigger.
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP00100 SOC Option is idle.
LNP Info:  Called DN is resident.
LNP Info:  Called DN has native NPANXX
LNP Info:  HNPA results are used.
TABLE CLSVSCRC

***TRAVER:  SUCCESSFUL CALL TRACE***

DIGIT TRANSLATION ROUTES
1 LINE              61137222001
TRATMENT ROUTES.  TREATMENT IS:  GNCT
1 T120

***TRAVER:  SUCCESSFUL CALL TRACE***
```

PRI Hotel/Motel/SCOCS (end)

TRAVER output example for PRI Hotel/Motel/SCOCS -SCOCS EXAMPLE

```
>traver r wits3nilt1 n cdn pvt 4444 scocs 1 b
TABLE TRKGRP
WITS3NILT1 PRA 0 PRAC NCRT ASEQ N (ISDN 100) $ $
TABLE LTCALLS
ISDN 100 SCOCS XLAIBN 0 THE_FAR_SIDE 0 25 (SIDXLA SCOCS1
N Y N) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE ISAXLA
SCOCS1 0 100 (IBNRTE 333) $
TABLE IBNRTE
 333 N N N N N WITS3NILT1 0
EXIT TABLE IBNRTE

***TRAVER:  SUCCESSFUL CALL TRACE***

DIGIT TRANSLATION ROUTES
1 WITS3NILT1    N CDN E164 L 444 NIL_NSF BC 3.1_KHZ_AUD
TREATMENT ROUTES.  TREATMENT IS: GNCT
T120

***TRAVER:  SUCCESSFUL CALL TRACE***
```

SERVORD

PRI Hotel/Motel/SCOCS does not use SERVORD.

11 Datafilling B-Channel Packet PRI

The following chapter describes the B-Channel Packet PRI, NI000034, functionality.

PRI with Semipermanent Packet

Ordering codes

Functional group ordering code: NI000034

Functionality ordering code: not applicable

Release applicability

NA011 and up

PRI with Semipermanent Packet was introduced in NA011.

Prerequisites

PRI with Semipermanent Packet has no prerequisites.

Description

The PRI with Semipermanent Packet (Provisioning and Query Tools) feature provides X.25 primary rate B-channel packet services to meet National ISDN-2 requirements. This feature allows operating company personnel to assign a B-channel on the PRI T1 link or any DS-0 on a T-SPAN 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.

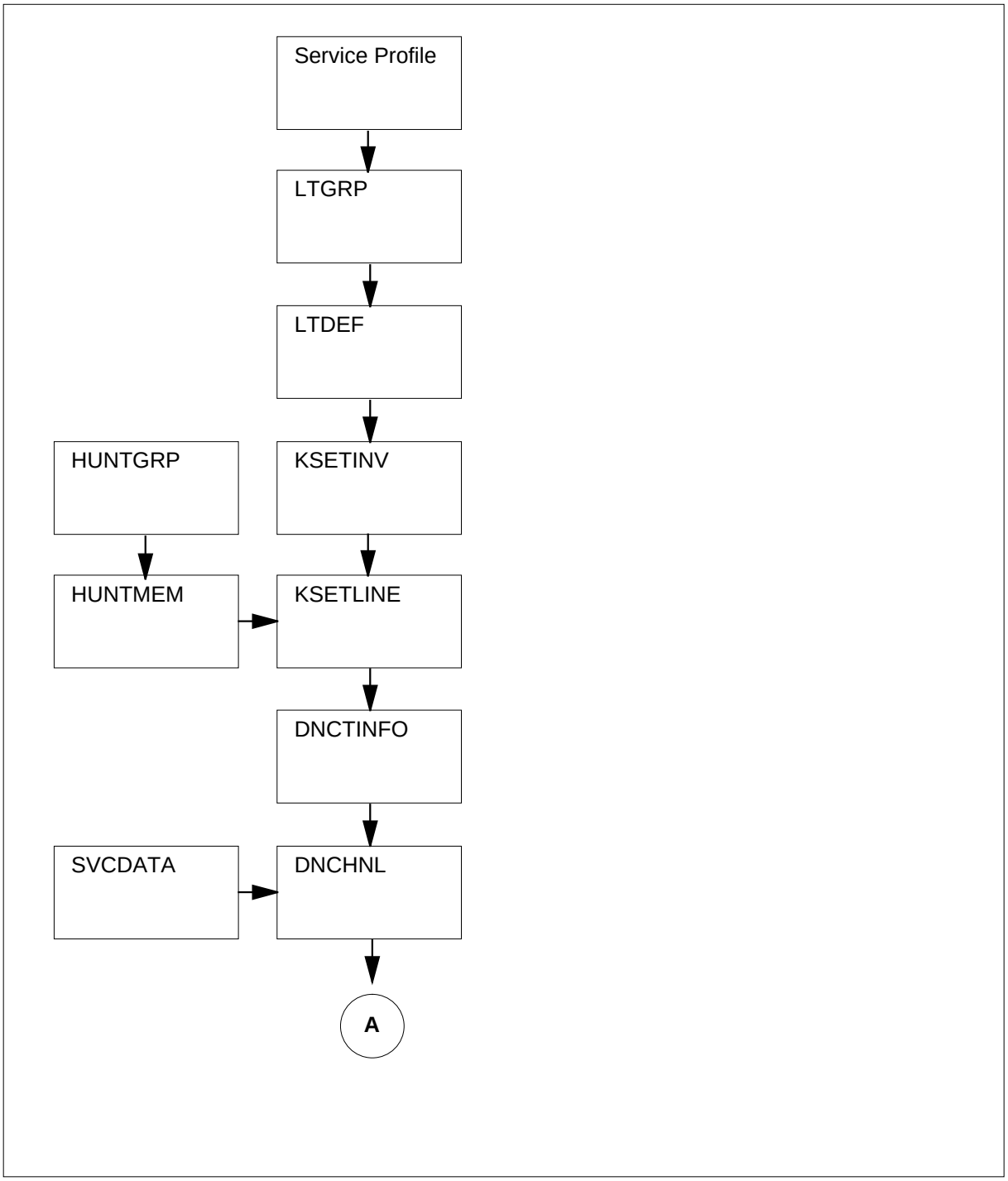
Provisioning

The DS-1 channels that carry X.25 packet services are defined as trunks for identification and maintenance purposes. The DS-1 channels that carry X.25 packet services are viewed as lines for routing and translation purposes. PRI packet services has a line service profile (identified by a logical terminal identifier [LTID] plus an associated directory number [DN]) and a trunk maintenance profile (identified by a common language location identifier [CLLI]). The packet PRI trunks are similar to X.75 trunk in terms of internal connectivity.

The following diagram shows the tables that datafill for PRI with Semipermanent Packet.

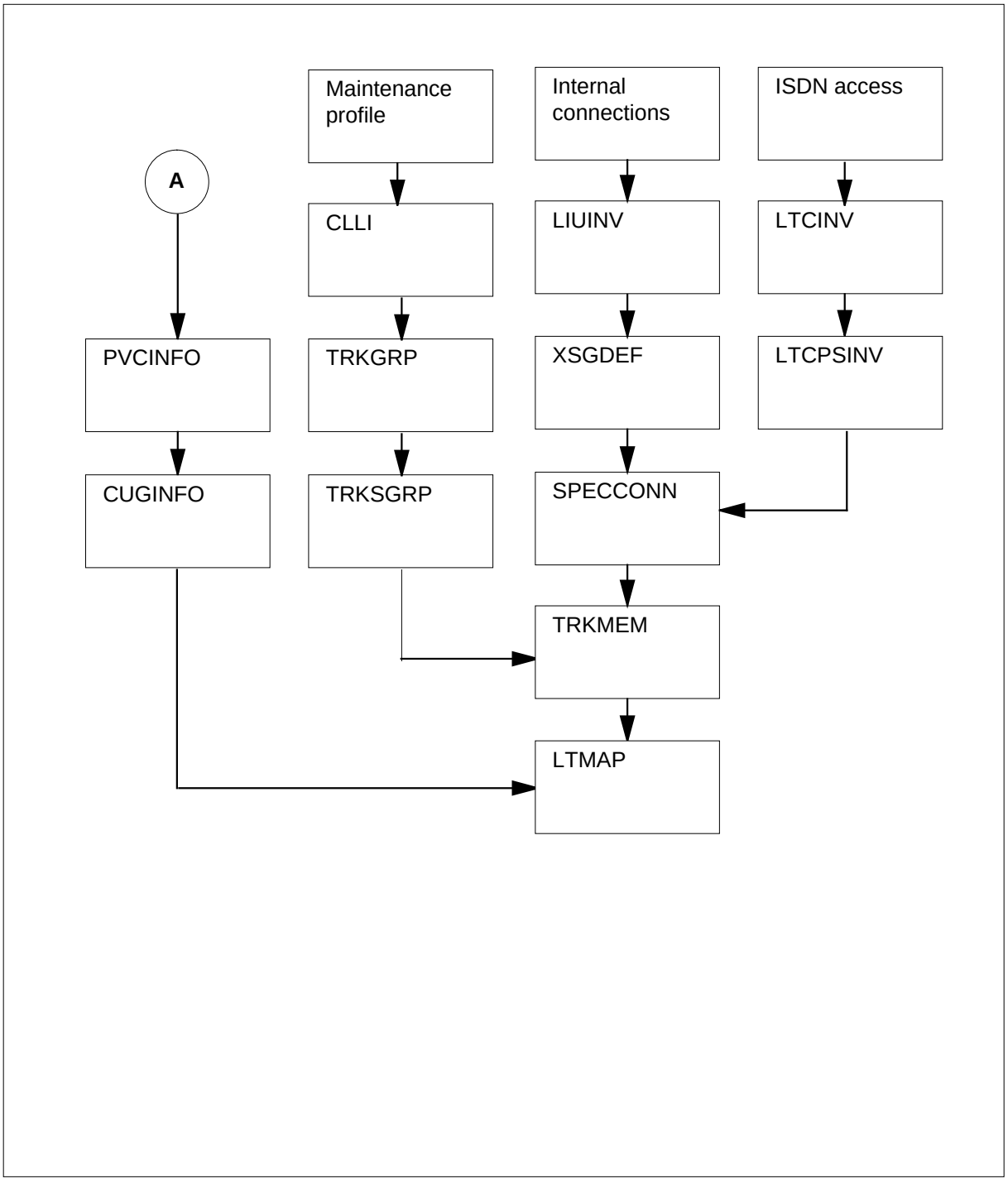
PRI with Semipermanent Packet (continued)

Table flow for PRI with Semipermanent Packet



PRI with Semipermanent Packet (continued)

Table flow for PRI with Semipermanent Packet (continued)



PRI with Semipermanent Packet (continued)

Example provisioning of a DS-0 channel as PRI with Semipermanent Packet

The following tables show example provisioning of a DS-0 channel as PRI with Semipermanent Packet.

Precondition datafill

An example provisioning of a DS-0 channel (LTC 0 6 23) as PRI with Semipermanent Packet is shown in table “Datafill example with PRI with Semipermanent Packet." For this example datafill to be valid, the datafill in the table assumes the PRA interface is provisioned as shown in table “Example of precondition datafill."

Example of precondition datafill for PRI with Semipermanent Packet

Datafill table	Example data
LTGRP	PRAOG 9 $
LTDEF	PRAOG 18 B PRA 6 6 0 6 NIPRI NI2V1 NIL $
LTCPSINV	LTC 0 N (0 DS30A) (1 DS30A) (2 DS30A) (3 DS30A) (4 DS30A) (5 DS30A) (6 DS1PRA ESFB8ZS N 1 NIL) (7 DS1PRA ESFB8ZS N 1 NIL) (8 DS1PRA ESFB8ZS N 1 NIL) (9 DS1PRA ESFB8ZS N 1 NIL) (10 NILTYPE) (11 NILTYPE) (12 DS1PRA ESFB8ZS N 1 NIL) (13 DS1PRA ESFB8ZS N 1 NIL) (14 NILTYPE) (15 DCH) (16 NILTYPE) (17 DCH) (18 NILTYPE) (19 DCH) $
CLLI	PRIOG 55 22 LOOP_AROUND_ISDN_PRI
TRKGRP	PRIOG PRA 0 PRAC NCRT ASEQ N (PRAOG 18) $ $
TRKSGRP	PRIOG0 DS1SIG ISDN 20 20 87Q931 2 N STAND NETWORK PT PT USER N UNEQ 255 N DEFAULT LTC 0 6 24 64K HDLC $ $
LTMAP	PRAOG 18 CLLI PRIOG (TEI 0) $
TRKMEM	PRIOG 0 0 LTC 0 6 2 PRIOG 1 0 LTC 0 6 3PRIOG 2 0 LTC 0 6 4 PRIOG 3 0 LTC 0 6 5 PRIOG 4 0 LTC 0 6 6 PRIOG 5 0 LTC 0 6 7 PRIOG 6 0 LTC 0 6 8 PRIOG 7 0 LTC 0 6 9 PRIOG 8 0 LTC 0 6 10 PRIOG 9 0 LTC 0 6 11PRIOG 10 0 LTC 0 6 12PRIOG 11 0 LTC 0 6 13 PRIOG 12 0 LTC 0 6 14PRIOG 13 0 LTC 0 6 15PRIOG 14 0 LTC 0 6 16PRIOG 15 0 LTC 0 6 17PRIOG 16 0 LTC 0 6 18PRIOG 17 0 LTC 0 6 19PRIOG 18 0 LTC 0 6 20PRIOG 19 0 LTC 0 6 21PRIOG 20 0 LTC 0 6 22

Note: The DS-0 LTC 0 6 23 is not in use by voice PRI.

Datafill example for PRI with Semipermanent Packet

The following table lists the datafill content used in the “Tableflow for PRI with Semipermanent Packet" flowchart. The DS-0 channel (LTC 0 6 23) is

PRI with Semipermanent Packet (continued)

provisioned as PRI with Semipermanent Packet by datafilling the following tables.

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) (ICB N) (LCP N) (RPOAB N) $
DNCHNL	6135551001 B B (LLFSQ MOD8) (LLWS 7) (T1 20) (T2 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
LTCPSINV	LTC 0 N (0 DS30A) (1 DS30A) (2 DS30A) (3 DS30A) (4 DS30A) (5 DS30A) (6 DS1PRA ESFB8ZS N 1 NIL) (7 DS1PRA ESFB8ZS N 1 NIL) (8 DS1PRA ESFB8ZS N 1 NIL) (9 DS1PRA ESFB8ZS N 1 NIL) (10 NILTYPE) (11 NILTYPE) (12 DS1PRA ESFB8ZS N 1 NIL) (13 DS1PRA ESFB8ZS N 1 NIL) (14 NILTYPE) (15 DCH) (16 NILTYPE) (17 DCH) (18 NILTYPE) (19 DCH) $
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 CWCTH N $ $
TRKSGRP	PKTPRI 0 DS1SIG X25
TRKMEM	PKTPRI 1 0 LTC 0 6 23
LTMAP	PRAPKT 1 CLLI PKTPRI (MEM 1) $

Note: This datafill assumes the PRA interface is provisioned as shown in the Precondition Datafill for PRI with Semipermanent Packet table.

Service profile

For this feature, the service profile for PRI is identical to the service profile for BRI. The default value for the Default Throughput Class Area (DTCA) for this feature is 64 kbit/s. According to Bellcore specifications, the default value for DTCA is 9.6 kbit/s. But the operating company gains no advantage with a

PRI with Semipermanent Packet (continued)

default value of 9.6 kbit/s on a 64 kbit/s channel. The technician, however, can change the DTCA value to any of the following values with the SERVORD command CHAPH: 75, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, or 64000.

The following tables are included in the service profile:

- LTGRP
- LTDEF
- KSETINV
- KSETLINE
- DNCTINFO
- DNCHNL
- PVCINFO
- CUGINFO

Maintenance profile

The trunk tables (CLLI, TRKGRP, TRKSGRP, and TRKMEM) define the maintenance profile for this feature on PRI.

- Table CLLI defines a common language name for the PRI with Semipermanent Packet trunks.
- Table TRKGRP defines a group of PRI with Semipermanent Packet trunks. The group type for these trunks is PRA.
- Table TRKSGRP for PRI with Semipermanent Packet is distinguished from the voice PRI subgroup by having a different signaling type. The signaling type for PRI with Semipermanent Packet subgroup is X.25.

Use the PRA group type in table TRKGRP and use the X.25 signaling type for this feature. Use CLLI with type X.25 subgroup only for packet services on PRI.

- If a PRA CLLI is present with one of its two subgroups with signaling type ISDN, then the other subgroup cannot be signaling type X.25.
- If a PRA CLLI is present with one of its two subgroups having signaling type X.25, then the other subgroup cannot be signaling type ISDN.

The result is that a new CLLI must be defined for PRI with Semipermanent Packet. This CLLI is used exclusively for this feature.

PRI with Semipermanent Packet (continued)

ISDN PRI access

The access definition for Packet PRI is the same as the access definition for voice PRI. Operating company personnel use tables LTCINV and LTCPSINV to define access definitions.

Internal connections

This feature uses table SPECCONN to make the internal connections between an XSG channel and a DS-0 endpoint.

Mapping a maintenance profile to a DS-0 channel

Tables CLLI, TRKGRP, and TRKSGRP define the maintenance profile. The DMS switch uses table TRKMEM to map a member of the trunk group to a DS-0 channel.

Mapping a service profile to a maintenance profile

The LTID identifies the service profile for this feature. The CLLI and MEMBER identify the maintenance profile. The DMS switch uses table LTMAP to map the service profile to the maintenance profile. To map an LTID to CLLI and MEMBER, specify the member when the map type is CLLI using option MEM in table LTMAP.

Query tools

Query tools display information about ISDN services, such as logical terminals (LT), DNs, and line equipment. Use the QPHF and QLT modified commands to query this feature on PRI.

QPHF

Use the non-menu QPHF (query packet handler function) command to display provisioning information about all objects included in the service. (Objects include 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.
- If the operating company personnel use the QPHF X.75 command to enter an X.25 PRI CLLI, the following error message displays:

```
THIS IS A PRI CLLI. USE QPHF CLLI.
```

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
- DS-0 endpoint Notice that the DS-0 endpoint displays for PRI instead of a LEN, which displays for BRI.

Translations table flow

PRI with Semipermanent Packet does not affect translations table flow.

Limitations and restrictions

The following lists the limititations and restrictions between PRI with Semipermanent Packet (Provisioning and Query Tools) and other functionalities.

- Packet on PRI does not support PRI with Intelligent Cellular Peripheral.
- This feature does not support SERVORD commands SLT ATT and SLT DET.
- Only BRI Packet terminals for B channels are supported on PRI.
- Only fully initializing BRA functional sets are supported.
- Only MLH and DLH hunt groups are allowed for Packet on PRI.
- BRI Packet terminals do not allow sharing of DNs.
- The only selection sequence supported in Table TRKSGRP is CWCTH and then CCWCTH.

PRI with Semipermanent Packet (continued)

Interactions

The following paragraphs describe the interactions between PRI with Semipermanent Packet (Provisioning and Query Tools) and other functionalities.

- This feature interacts with AF7625, PRI with Semipermanent B Packet (Maintenance & CallP).
- This feature interacts with AF6777, Shared DN.
- This feature can share a DN with BRI VI and CMD. PKT BRI and PKT PRI can reside in the same hunt group.

Activation/deactivation by the end user

PRI with Semipermanent Packet requires activation or deactivation by the end user for switched virtual circuit (SVC) call types. For a permament virtual circuit (PVC), activation is required.

Billing

PRI with Semipermanent Packet does not change packet billing records.

Station Message Detail Recording

PRI with Semipermanent Packet does not affect Station Message Detail Recording.

Datafilling office parameters

The table that follows lists the office parameter used by PRI with Semipermanent Packet. For additional information about office parameters, refer to the *Office Parameters Reference Manual.*

Office parameters used by PRI with Semipermanent Packet

Table name	Parameter name	Explanation and action
OFCOPT	MAX_LAPB_TERMINALS	This parameter sets maximums for link access protocol balanced (LAPB) terminals. All ISDN terminals require an LTID, and this parameter sets limits for this type of packet terminal. Increase the value for this parameter as needed to provision this feature. The default value is 10; the maximum value is 32767.

Datafill sequence

Implementation of the PRI with Semipermanent Packet feature requires all the tables listed in the table flow diagram (Table flow for PRI with Semipermanent Packet). Tables must fill with data in the order listed in the table flow diagram.

Datafill tables required for PRI with Semipermanent Packet

Tables	Purpose of table
CLLI	Common Language Location Identifier. This table contains the CLLI codes that uniquely identify each announcement, tone, or trunk group, the trunk group size, and administrative information.
TRKGRP	Trunk Group. This table contains customer-defined data associated with each trunk group in the switching unit.
TRKSGRP	Trunk Subgroup. This table defines the attributes of the D-channel in each PRI trunk group.
TRKMEM	Trunk Member. This table defines the attributes of the B-channels in each trunk group.
LTMAP	Logical Terminal Mapping. This table associates the LTID of the PRI trunk with the trunk group CLLI.

Datafilling table TRKSGRP

The following table shows the datafill specific to PRI with Semipermanent Packet for table TRKSGRP. Only those fields that apply directly to PRI with Semipermanent Packet are shown.

Datafilling table TRKSGRP

Field	Subfield	Entry	Explanation and action
SGRPVAR		X25	The signaling type X25 distinguishes PRI with Semipermanent Packet on PRI CLLI from other types of CLLIs.

Datafill example for table TRKSGRP

The following example shows sample datafill for table TRKSGRP.

MAP display example for table TRKSGRP

```
SGRPKEY   CARDCODE   SGRPVAR
------------------------------------------------
PKTPRI 0  DS1SIG     X25
```

PRI with Semipermanent Packet (continued)

Error messages for table TRKSGRP

The following error messages apply to table TRKSGRP.

Error messages for table TRKSGRP

Message	Description
Cannot mix signaling types in subgroups if ISDN is involved	For PRI with Semipermanent Packet, use signaling type X25 for both subgroups 0 and 1. This error message displays under the following conditions: The trunk group type is PRA and the signaling type is X25 for subgroup 0. During datafill in table TRKSGRP, if the signaling type ISDN datafills subgroup 1, then this error message displays. The trunk group type is PRA and the signaling type is ISDN for subgroup 0. During datafill in table TRKSGRP, if the signaling type X25 datafills subgroup 1, then the error message displays. For X25 signaling type, use both subgroups 0 and 1. Use a tuple in the TRKSGRP table with signaling type X25 for the same CLLI and for the other subgroup, provided the first subgroup has X25 signaling.
SELSEQ must be CWCTH or CCWCTH for X25 trunks	This error message displays when table TRKSGRP datafills for PRI with Semipermanent Packet and for X75 trunks. In table TRKGRP, the datafill for PKTPRI CLLI contains an incorrect entry for SELSEQ. For this feature, the SELSEQ for PKTPRI CLLI is CWCTH or CCWCTH because the functionality is similar to X75 trunks. Go to table TRKGRP and delete the tuple with key as PKTPRI CLLI. Add an entry in table TRKGRP with PKTPRI CLLI and with SELSEQ as either CWCTH or CCWCTH. Then datafill table TRKSGRP.
Cardcode must be DS1SIG on Packet PRI trunks	This error message displays if the cardcode value in table TRKSGRP is not DS1SIG for PRI with Semipermanent Packet on PRI trunks. For this feature, use cardcode DS1SIG with signaling type X25.

Datafilling table TRKMEM

The datafill for table TRKMEM does not change with the PRI with Semipermanent Packet feature.

Error messages for table TRKMEM

The following error messages apply to table TRKMEM.

Error message for table TRKMEM

Error message	Explanation and action
DS-0 must be nailed up in SPECCONN for X25 PRA	While tables CLLI, TRKGRP, and TRKSGRP datafill, table SPECCONN does not datafill. When table TRKMEM datafills, table TRKMEM searches for a DS-0 connection on table SPECCONN. If the DS-0 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 DS-0.

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.

Datafilling table LTMAP

Field	Subfield	Entry	Explanation and action
OPTION		MEM (values 0 to 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.

MAP display example for table LTMAP

```
OPTION
------------------------------------------------------
PRAPKT 1 CLLI PKTPRI (MEM1)$
```

PRI with Semipermanent Packet (continued)

Error messages for table LTMAP

The following error messages apply to table LTMAP.

Error message for table LTMAP (Sheet 1 of 2)

Error message	Explanation and action
Only MEM option should be present for Packet on PRI	PRI with Semipermanent Packet LTID supports option MEM only. Perform the LTMAP datafill with only option MEM present.
The maptype should be CLLI for Packet on PRI LTIDs	This error message displays if MEM option is present in table LTMAP with a map type other than CLLI. Use CLLI instead of LEN as the datafill for MAP types.
Table TRKMEM should be datafilled before LTMAP	This error message displays if table TRKMEM does not datafill to map the CLLI and MEMBER to DS-0 datafill in SPECCONN.
The trunk group should be PRA for Packet on PRI trunk	This error message displays if the trunk type is not PRA. Use CLLI. CLLI has a PRA trunk group type.
The signaling type of subgroup should be X25 for Packet on PRI CLLI MEM	This error message displays if the subgroup to which CLLI and member belong, does not have the X25 signaling type. Use Packet on PRI CLLI with an X25 subgroup and member in table LTMAP.
The CLLI & MEMBER are already in use	This error message displays if CLLI and MEMBER already map in table LTMAP. The same CLLI and MEMBER cannot map to another LTID.
The terminal class of the LTID is not BRAFS	This error message displays if the terminal class of an LTID is not basic rate access functional set (BRAFS). The terminal class of an LTID is BRAFS for PRI with Semipermanent Packet.
The access privilege of LTID must be PB	This error message displays if the access privilege of the LTID is not PB. The access privilege of the LTID is PB for PRI with Semipermanent PAcket.
The LTID is not datafilled in KSETINV	This error message displays if table KSETINV does not datafill for the correct LTID. The LTID datafills in table KSETINV.

PRI with Semipermanent Packet (continued)

Error message for table LTMAP (Sheet 2 of 2)

Error message	Explanation and action
Table KSETLINE not datafilled	This error message displays if table KSETLINE does not datafill. The LTID datafills in table KSETLINE.
Table DNCHNL not datafilled	This error message display if the LTID does not datafill in table DNCHNL. The LTID datafills in table DNCHNL.
Table DNCTINFO not datafilled	This error message displays if the LTID does not datafill in table DNCTINFO. The LTID datafills in table DNCTINFO.
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 DS-0.

Translation verification tools

PRI with Semipermanent Packet does not use translation verification tools.

SERVORD

PRI with Semipermanent Packet does not use SERVORD.

User interface

PRI with Semipermanent Packet affects the user interface.

PRI with Semipermanent Packet (continued)

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.

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 X25 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 X25 service by displaying channel type X25. 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 X25 PRI as the channel type and X25 B as the link type.

PRI with Semipermanent Packet (end)

Directories and modified commands required for PRI with Semipermanent Packet (Sheet 2 of 2)

Directory	Command
	QPHF DN The QPHF DN command displays all the information for a directory number with one exception: the display shows X25 PRI as the channel type. QPHF X75 If the operating company personnel enter an X25 PRI CLLI using the QPHF X75 command, the following error message displays: This is a PRI CLLI. Use QPHF CLLI.

12 Datafilling NI0 Circular Hunt-NA

The following chapter describes the NI0 Circular Hunt-NA, NI000036, functionality.

ISP Even Call Distribution

Ordering codes

Functional group ordering code: NI000036

Functionality ordering code: not applicable

Release applicability

NA010 and up

ISP Even Call Distribution was introduced in NA010.

Prerequisites

This document includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this document.

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

  To provide even call distribution, ISP Even Call Distribution introduces the following circular hunt selection algorithms:

  — CHCL and CHCCL (trunk group level)

  — SG_CWCTH, SG_CCWCTH, GRP_CWCTH, and GRP_CCWCTH (trunk member level)

  Note: In this document, “trunk group level" refers to the processing of calls through the trunk groups that make up a route list. “Trunk member level" refers to the processing of calls through individual members of a trunk group.

- support of a maximum of 220 primary rate interface (PRI) trunk groups in a PRI route list

  Before the ISP Even Call Distribution feature, the recommended maximum number of PRI routes in a route list was 50. In the NA009 release, the Random and Circular Hunting feature introduced table SUPERTKG. Each tuple in this table is a super-group (a collection of up to 220 PRI trunk groups). With super-groups, the maximum number of PRI routes in a route list is 220. This increased limit allows the association of a large trunk group configuration with a single destination, such as an ISP.

- 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 trunk 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 types of switches:

- The translations system always tried to route a call to the first trunk group in its list with a free trunk member. This type of processing caused heavy use of some trunks and terminating equipment and underuse of other trunks and terminating equipment. With this type of processing, the switch did not distribute calls evenly.

  Note: A free trunk member is an idle channel that does not process a call in the current search cycle.

- When a call moved to the next route in the route list, the switch performed retranslation. This retranslation used a large amount of real time. This retranslation also caused problems in conditions where the number of retranslations was greater than 50.
- A killer trunk is a trunk with a high seizure rate but a very short holding time for each call. This condition can indicate that although calls reach the trunk, subscribers receive a bad connection and immediately hang up. With existing algorithms, the selection process repeatedly accessed killer trunks. Calls did not continue to the next trunk group in the super-group. This condition had a large effect on call traffic.

ISP Even Call Distribution provides even call distribution over PRI trunks at the trunk group and trunk member levels. This feature supports a maximum of 220 trunk groups with the use of table SUPERTKG. This feature introduces new selection algorithms, with which only a single call fails when the switch

ISP Even Call Distribution (continued)

selects a killer trunk. The next call proceeds to the next channel, which reduces the effect on call traffic.

Changes to table control for routing tables

ISP Even Call Distribution adds two new trunk group selection algorithms for route selector SG in the following routing tables:

- North American (NA) routing tables (OFRT, OFR2, OFR3, OFR4, HNPACONT.RTEREF, and FNPACONT.RTEREF)
- universal routing tables (ACRTE, PXRTE, CTRTE, FARTE, OFCRTE, FTRTE, and NSCRTE)
- IBN routing tables (IBNRTE, IBNRT2, IBNRT3, and IBNRT4)

Route selector SG applies to Northern Telecom North America (NTNA) and Northern Telecom National ISDN (NTNI) PRI protocol variants only. Route selector SG has the following three subfields:

- ALGORITHM indicates the selection algorithm for trunk groups defined in table SUPERTKG. The NA009 Random and Circular Hunting feature introduced two selection algorithms: CYC (cyclical) and RND (random). ISP Even Call Distribution introduces the following additional selection algorithms:
  - — CHCL (circular hunt in clockwise direction)
  - — CHCCL (circular hunt in counterclockwise direction)
- ATTEMPTS indicates the maximum number of trunk groups (1 to 220) to search for a free trunk member. With selection algorithms CHCL and CHCCL, the recommended maximum number of search attempts is 50.

  Note 1: For the CHCL and CHCCL selection algorithms, if the ATTEMPTS value is greater than 50, the switch generates log report DFIL616. The table editor also displays a warning message if the operating company sets subfield ATTEMPTS to a value greater than 50.

  Note 2: Refer to “Effect of ATTEMPTS value on real time and hit rate" for more information on subfield ATTEMPTS and its effect during searches for a free trunk member.
- SUPERTKG_NAME is an index to the tuple in table SUPERTKG that contains the list of trunk groups.

ISP Even Call Distribution (continued)

Effect of ATTEMPTS value on real time and hit rate

The following table lists the maximum number of attempts needed to find a free trunk member with varying ATTEMPTS values. The values listed in the table are based on the following conditions:

- Traffic to the ISP is high.
- Table TRKGRP and the routing tables contain either of the following sets of datafill:
  - — subfield SELSEQ in table TRKGRP set to SG_CWCTH and subfield ALGORITHM in the routing table set to CHCL
  - — subfield SELSEQ in table TRKGRP set to SG_CCWCTH and subfield ALGORITHM in the routing table set to CHCCL
- The super-group defined in table SUPERTKG contains X trunk groups.
- The super-group defined in table SUPERTKG contains one free trunk member.

Effect of ATTEMPTS value on real time and hit rate

Percentage of super-group searched (ATTEMPTS / X) $\times 100\%$	**Maximum number of call attempts needed to find a free trunk member**
10%	11
25%	5
50%	3
75%	2
100%	1

Changes to table control for table TRKGRP

ISP Even Call Distribution adds the following four values to subfield SELSEQ in table TRKGRP. These values indicate the type of selection algorithm to use during searches for a free trunk member. These new algorithms apply to NTNA and NTNI PRI protocol variants only.

- SG_CWCTH (super-group circular hunt in clockwise direction)
- SG_CCWCTH (super-group circular hunt in counterclockwise direction)
- GRP_CWCTH (trunk group member circular hunt in clockwise direction)
- GRP_CCWCTH (trunk group member circular hunt in counterclockwise direction)

ISP Even Call Distribution (continued)

SG_CWCTH selection algorithm

With the SG_CWCTH algorithm, the search for a free trunk member starts with the member after the last searched member. The switch searches the remaining trunk members in a clockwise direction up to and including the last trunk member. If no free trunk member is available, the switch selects the next trunk group that uses the selection algorithm defined in the routing table.

Note: For even call distribution, use the SG_CWCTH algorithm with the CHCL super-group selection algorithm defined in the routing table.

SG_CCWCTH selection algorithm

With the SG_CCWCTH algorithm, the search for a free trunk member starts with the member before the last searched member. The switch searches the remaining trunk members in a counterclockwise direction up to and including the first trunk member. If no free trunk member is available, the switch selects the next trunk group that uses the selection algorithm defined in the routing table.

Note: For even call distribution, use the SG_CCWCTH algorithm with the CHCCL super-group selection algorithm defined in the routing table.

GRP_CWCTH selection algorithm

With the GRP_CWCTH algorithm, the search for a free trunk member starts with the member after the last searched member. The switch searches the remaining members in a clockwise direction up to and including the last trunk member. If no free trunk member is available, the search continues from the first trunk member up to (not including) the starting point.

Note: For best results, do not use the GRP_CWCTH algorithm with the CHCL and CHCCL super-group selection algorithms. Use the GRP_CWCTH algorithm for clockwise searches within a single NTNA or NTNI PRI trunk group.

GRP_CCWCTH selection algorithm

With the GRP_CCWCTH algorithm, the search for a free trunk member starts with the member before the last searched member. The switch searches the remaining members in a counterclockwise direction up to and including the first trunk member. If no free trunk member is available, the search continues from the last trunk member up to (not including) the starting point.

Note: For best results, do not use the GRP_CCWCTH algorithm with the CHCL and CHCCL super-group selection algorithms. Use the GRP_CCWCTH algorithm for counterclockwise searches within a single NTNA or NTNI PRI trunk group.

ISP Even Call Distribution (continued)

Log report DFIL616

ISP Even Call Distribution introduces log report DFIL616. The switch generates this log report if both of the following conditions are true:

- Any of the following routing tables has subfield ALGORITHM set to either CHCL or CHCCL for route selector SG:
  - OFRT, OFR2, OFR3, OFR4
  - HNPACONT.RTEREF
  - FNPACONT.RTEREF
  - ACRTE, PXRTE, CTRTE, FARTE, OFCRTE, FTRTE, NSCRTE
  - IBNRTE, IBNRT2, IBNRT3, IBNRT4
- Any of the previously listed tables has subfield ATTEMPTS set to a value greater than 50 for route selector SG.

Generation of this log warns the operating company that real-time call traps are possible if the ATTEMPTS value exceeds 50.

Even call distribution at trunk group and trunk member levels

Each entry in table SUPERTKG is a super-group (a collection of trunk groups).

Each entry in the routing tables contains the following:

- a route selector (SG)
- a selection algorithm (either CHCL or CHCCL), defined by subfield ALGORITHM
- a value that indicates the maximum number of trunk groups to search for a free trunk member during call processing, defined by subfield ATTEMPTS
- an index into table SUPERTKG, defined by subfield SUPERTKG_NAME

Call distribution occurs as follows when the switch uses route selector SG during call routing. (These steps are based on a single SG selector found in the routing table.)

1. The switch uses the SUPERTKG_NAME index in the routing table to access table SUPERTKG.
2. Based on the selection algorithm in the routing table, the switch selects a trunk group from the tuple in table SUPERTKG.

ISP Even Call Distribution (continued)

3. If the trunk group has a free trunk member, the switch makes available the call to that member.
4. If the trunk group does not have a free trunk member, the switch searches the next trunk group in the same super-group.

The switch repeats the above process until the switch finds a trunk group with a free trunk member.

If the switch reaches the ATTEMPTS value in the same super-group without finding a free member, the following occurs:

1. The switch sends an ATB indication.
2. The switch stops call routing.

Selection algorithms

The switch performs the search for a free trunk member at both the trunk group level and the trunk member level.

At the trunk group level, ISP Even Call Distribution introduces the following selection algorithms for selecting a trunk group:

- CHCL (circular hunt in clockwise direction)
- CHCCL (circular hunt in counterclockwise direction)

At the trunk member level, ISP Even Call Distribution introduces the following selection algorithms for selecting a free trunk member:

- SG_CWCTH (super-group circular hunt in clockwise direction)
- SG_CCWCTH (super-group circular hunt in counterclockwise direction)
- GRP_CWCTH (trunk group member circular hunt in clockwise direction)
- GRP_CCWCTH (trunk group member circular hunt in counterclockwise direction)

ISP Even Call Distribution (continued)

As indicated in the following table, use the CHCL/SG_CWCTH and CHCCL/SG_CCWCTH algorithms together for even call distribution.

Selection algorithms (trunk group and trunk member levels)

	SG_CWCTH	SC_CCWCTH
CHCL	Use CHCL with SG_CWCTH for a complete circular clockwise hunt at the trunk group and trunk member levels	Not recommended (Note)
CHCCL	Not recommended (Note)	Use CHCCL with SG_CCWCTH for a complete circular counterclockwise hunt at the trunk group and trunk member levels
Note: With the use of the CHCL/SG_CCWTH and CHCCL/SG_CWCTH algorithms together, trunk group selection and trunk member selection will advance in opposite directions. The switch does not block the operating company from using these algorithms together. However, use of these algorithms together does not result in a complete circular selection in either the clockwise or counterclockwise direction. Nortel does not recommend use of these algorithms together.		

Call distribution with selection algorithms CHCL (trunk group level) and SG_CWCTH (trunk member level)

This section describes the use of the CHCL and SG_CWCTH selection algorithms together. The use of these algorithms together results in a complete circular clockwise hunt at the trunk group and trunk member levels.

The processing described in this section is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP shown in the following figures.

MAP display example for table IBNRTE

```
RTE  RTELIST
-------------------------------------------------------------
100  (SG CHCL 50 ISP1GRP1) $
```

MAP display example for table SUPERTKG

```
SGNAME    TRKGRPS
-----------------------------------------------------------------
ISP1GRP1 (ISP1TRK01)(ISP1TRK02)...(ISP1TRK07)...(ISP1TRK60) $
```

ISP Even Call Distribution (continued)

MAP display example for table TRKGRP

```
GRPKEY     GRPINFO
-------------------------------------------------------
ISP1TRK01  PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 11) $ $
ISP1TRK02  PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 12) $ $
.
.
.
ISP1TRK60  PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 70) $ $
```

The route list defined by table IBNRTE tuple 100 has the following datafill:

- subfield IBNRTSEL set to SG (super-group selector)
- subfield ALGORITHM (selection algorithm) set to CHCL (circular hunt in clockwise direction)
- subfield ATTEMPTS (maximum number of search attempts) set to 50
- subfield SUPERTKG_NAME (super-group name) set to ISP1GRP1

Tuple ISP1GRP1 in table SUPERTKG contains trunk groups ISP1TRK01 through ISP1TRK60.

Tuples ISP1TRK01 through ISP1TRK60 in table TRKGRP have subfield SELSEQ set to SG_CWCTH (super-group circular hunt in clockwise direction).

Description of call distribution Call distribution occurs as described in the following paragraphs.

> ***Note:*** Within the route list (trunk group level), the search moves in a clockwise direction (CHCL algorithm). Within each trunk group (trunk member level), the search also moves in a clockwise direction (SG_CWCTH algorithm).

The switch routes a call through table IBNRTE tuple 100. This routing starts a circular hunt in the clockwise direction (CHCL algorithm) in table SUPERTKG tuple ISP1GRP1.

For the first call, the search starts from trunk group ISP1TRK01. This trunk group has subfield SELSEQ in table TRKGRP set to SG_CWCTH (super-group circular hunt in clockwise direction). Therefore, the search for a free trunk member starts at the first member of trunk group ISP1TRK01. The search continues in a clockwise direction through the last member of trunk

ISP Even Call Distribution (continued)

group ISP1TRK01. If the switch finds a free trunk member, the switch offers the call to that member. If the switch does not find a free trunk member, the search continues in a clockwise direction. The search stops at (CHCL algorithm) the next trunk group in the super-group. The search continues through a total of 50 trunk groups (the ATTEMPTS value). At this point, the switch sends an ATB indication and stops call routing.

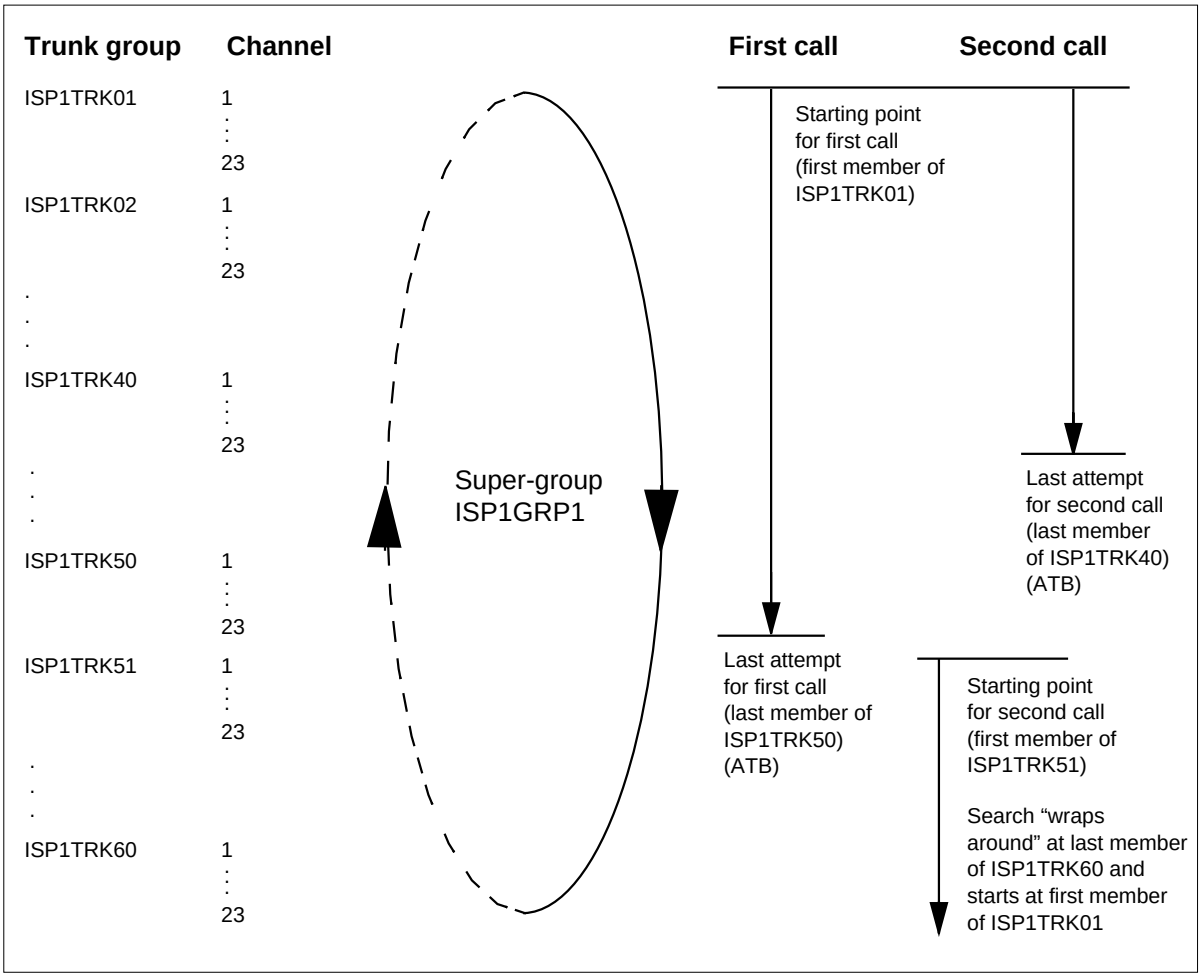
For each call after the first call, the search starts from the last searched trunk group in super-group ISP1GRP1. Because this trunk group has subfield SELSEQ in table TRKGRP set to SG_CWCTH, the search starts from the trunk member after the last searched trunk member. From the starting point, the switch searches clockwise up to (and including) the last trunk member. If no free trunk member is available in this trunk group, the switch continues clockwise (CHCL algorithm) to the next trunk group in super-group ISP1GRP1. This process continues until the switch reaches the ATTEMPTS value (50 trunk groups). At this point, the switch sends an ATB indication and stops call routing.

Example The following figure shows call distribution with selection algorithms CHCL (trunk group level) and SG_CWCTH (trunk member level). With this datafill, the switch considers all the members of the trunk groups in a super-group as one group during searches for a free member. The large ellipse in the figure represents this search process.

Note: The information in the figure is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP described earlier in this section. The switch routes each of the two calls shown in the figure through table IBNRTE tuple 100.

ISP Even Call Distribution (continued)

Call distribution with CHCL and SG_CWCTH selection algorithms



The following paragraphs describe the circular hunt process shown in the figure.

> ***Note:*** If the switch finds a free trunk member during the hunt process, the switch offers the call to that member. In the processing shown in the figure, the switch does not find a free trunk member for either the first or second call.

For the first call, the switch searches in a clockwise direction through 50 trunk groups (ISP1TRK01 through ISP1TRK50). The switch searches in a clockwise direction within each trunk group. The switch does not find a free trunk member. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

ISP Even Call Distribution (continued)

For the second call, the search starts from the first trunk member of trunk group ISP1TRK51. (At this point, the switch has finished searching trunk group ISP1TRK50. Therefore, the first trunk member of trunk group ISP1TRK51 is the trunk member after the last searched trunk member.) From this point, the search continues in a clockwise direction through a total of ten trunk groups (ISP1TRK51 through ISP1TRK60). The switch searches in a clockwise direction within each trunk group. Because no free member is available in the last trunk group in the super-group (ISP1TRK60), the search “wraps around" to the first trunk group (ISP1TRK01).

Because the ATTEMPTS value is 50, the switch continues through an additional 40 trunk groups (ISP1TRK01 through ISP1TRK40). The software searches clockwise within each trunk group. The switch does not find a free trunk member in trunk group ISP1TRK40. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

Call distribution with selection algorithms CHCCL (trunk group level) and SG_CCWCTH (trunk member level)

This section describes the use of the CHCCL and SG_CCWCTH selection algorithms together. The use of these algorithms together results in a complete circular counterclockwise hunt at the trunk group and trunk member levels.

The processing described in this section is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP shown in the following figures.

MAP display example for table IBNRTE

```
RTE  RTELIST
-------------------------------------------------------
100  (SG CHCCL 50 ISP1GRP1) $
```

MAP display example for table SUPERTKG

```
SGNAME    TRKGRPS
-------------------------------------------------------------
ISP1GRP1 (ISP1TRK01)(ISP1TRK02)...(ISP1TRK07)...(ISP1TRK60) $
```

ISP Even Call Distribution (continued)

MAP display example for table TRKGRP

```
GRPKEY     GRPINFO
-------------------------------------------------------
ISP1TRK01  PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 11) $ $
ISP1TRK02  PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 12) $ $
.
.
.
ISP1TRK60  PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 70) $ $
```

The route list defined by table IBNRTE tuple 100 has the following datafill:

- subfield IBNRTSEL set to SG (super-group selector)
- subfield ALGORITHM (selection algorithm) set to CHCCL (circular hunt in counterclockwise direction)
- subfield ATTEMPTS (maximum number of search attempts) set to 50
- subfield SUPERTKG_NAME (super-group name) set to ISP1GRP1

Tuple ISP1GRP1 in table SUPERTKG contains trunk groups ISP1TRK01 through ISP1TRK60.

Tuples ISP1TRK01 through ISP1TRK60 in table TRKGRP have subfield SELSEQ set to SG_CCWCTH (super-group circular hunt in counterclockwise direction).

Description of call distribution Call distribution occurs as described in the following paragraphs.

> ***Note:*** Within the route list (trunk group level), the search moves in a counterclockwise direction (CHCCL algorithm). Within each trunk group (trunk member level), the search also moves in a counterclockwise direction (SG_CCWCTH algorithm).

The switch routes a call through table IBNRTE tuple 100. This routing starts a circular hunt in the counterclockwise direction (CHCCL algorithm) in table SUPERTKG tuple ISP1GRP1.

For the first call, the search starts from trunk group ISP1TRK01. This trunk group has subfield SELSEQ in table TRKGRP set to SG_CCWCTH (super-group circular hunt in counterclockwise direction). Therefore, the search for a free trunk member starts at the last member of trunk group ISP1TRK01. The search continues in a counterclockwise direction through

ISP Even Call Distribution (continued)

the first member of trunk group ISP1TRK01. If the switch finds a free trunk member, the switch makes available the call to that member. If the switch does not find a free trunk member, the search continues in a counterclockwise direction (CHCCL algorithm). The search stops at the previous trunk group in the super-group (ISP1TRK60). The search continues in a counterclockwise direction through a total of 50 trunk groups (the ATTEMPTS value). At this point, the switch sends an ATB indication and stops call routing.

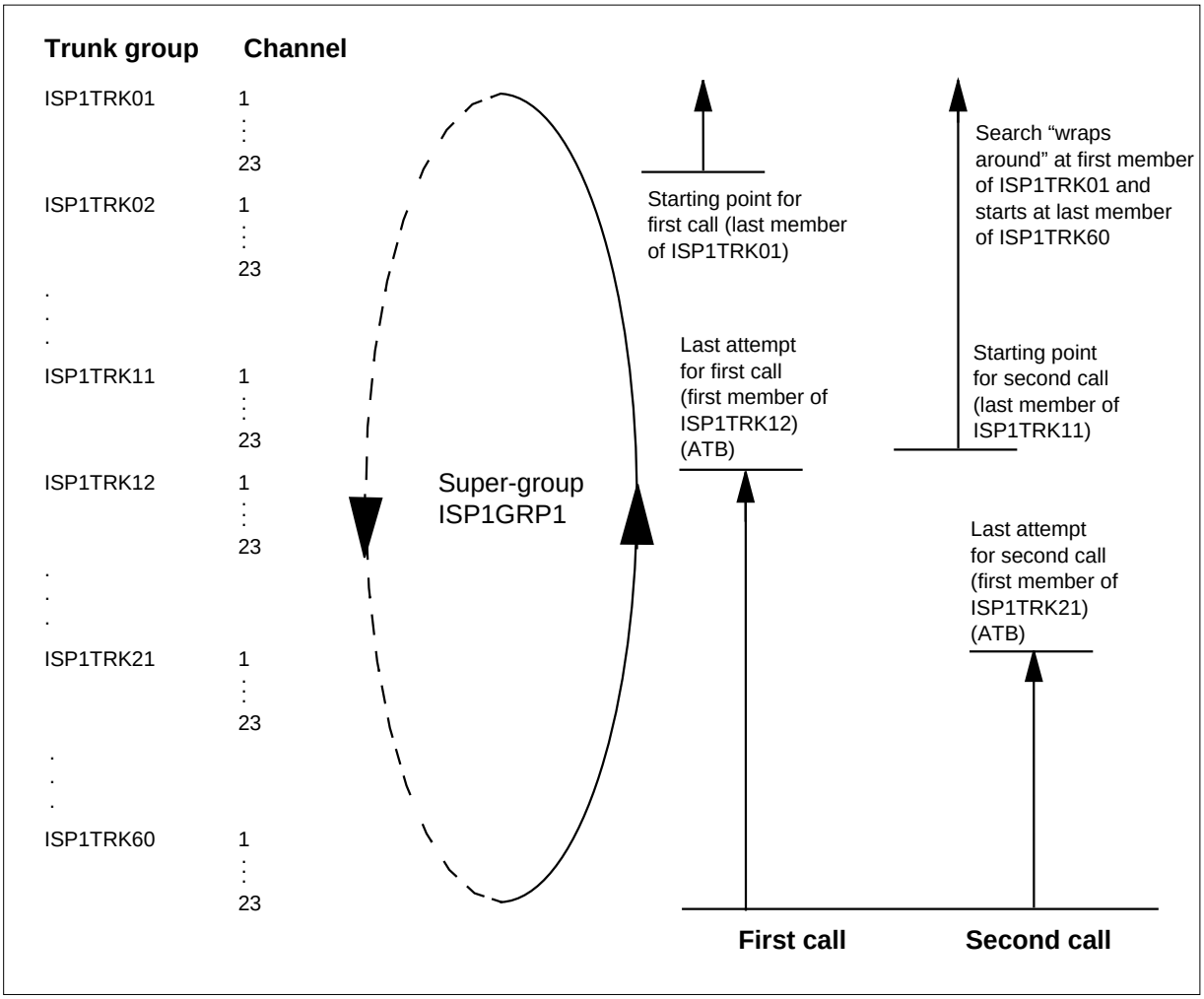
For each call after the first call, the search starts from the last searched trunk group in super-group ISP1GRP1. Because this trunk group has subfield SELSEQ in table TRKGRP set to SG_CCWCTH, the search starts from the trunk member before the last searched trunk member. From the starting point, the switch searches counterclockwise up to (and including) the first trunk member. If no free trunk member is available in this trunk group, the switch continues counterclockwise (CHCCL algorithm). The search stops at the previous trunk group in super-group ISP1GRP1. This process continues until the switch reaches the ATTEMPTS value (50 trunk groups). At this point, the switch sends an ATB indication and stops call routing.

Example The following figure shows call distribution with selection algorithms CHCCL (trunk group level) and SG_CCWCTH (trunk member level). With this datafill, the switch considers all the members of the trunk groups in a super-group as one group during searches for a free member. The large ellipse in the figure represents this search process.

Note: The information in the figure is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP described earlier in this section. The switch routes each of the two calls shown in the figure through table IBNRTE tuple 100.

ISP Even Call Distribution (continued)

Call distribution with CHCCL and SG_CCWCTH selection algorithms



The following paragraphs describe the circular hunt process shown in the figure.

> ***Note:*** If the switch finds a free trunk member during the hunt process, the switch offers the call to that member. In the processing shown in the figure, the switch does not find a free trunk member for either the first or second call.

For the first call, the switch searches in a counterclockwise direction through 50 trunk groups (ISP1TRK01 and [ISP1TRK60 through ISP1TRK12]). The switch searches in a counterclockwise direction within each trunk group. The switch does not find a free trunk member. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

ISP Even Call Distribution (continued)

For the second call, the search starts from the last trunk member of trunk group ISP1TRK11. (At this point, the switch has finished searching trunk group ISP1TRK12. Therefore, the last trunk member of trunk group ISP1TRK11 is the trunk member before the last searched trunk member.) From this point, the search continues in a counterclockwise direction through a total of 11 trunk groups (ISP1TRK11 through ISP1TRK01). Because no free member is available in the first trunk group in the super-group (ISP1TRK01), the search "wraps around" to the last trunk group (ISP1TRK60).

Because the ATTEMPTS value is 50, the switch continues through an additional 39 trunk groups (ISP1TRK60 through ISP1TRK22), searching counterclockwise within each trunk group. The switch does not find a free trunk member in trunk group ISP1TRK22. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

Call distribution with selection algorithms CHCL (trunk group level) and SG_CCWCTH (trunk member level)

This section describes the use of the CHCL and SG_CCWCTH selection algorithms together. The processing described in this section is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP shown in the following figures.

ATTENTION

With the use of the CHCL and SG_CCWCTH algorithms together, trunk group selection and trunk member selection will advance in opposite directions. The switch does not block the operating company from using these algorithms together. However, use of these algorithms together will not result in a complete circular selection in either the clockwise or counterclockwise direction. Nortel does not recommend use of these algorithms together.

MAP display example for table IBNRTE

```
RTE  RTELIST
-----------------------------------------------------
100  (SG CHCL 50 ISP1GRP1) $
```

ISP Even Call Distribution (continued)

MAP display example for table SUPERTKG

```
SGNAME    TRKGRPS
-----------------------------------------------------------------
ISP1GRP1 (ISP1TRK01)(ISP1TRK02)...(ISP1TRK07)...(ISP1TRK60) $
```

MAP display example for table TRKGRP

```
GRPKEY     GRPINFO
-------------------------------------------------------
ISP1TRK01  PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 11) $ $
ISP1TRK02  PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 12) $ $
.
.
.
ISP1TRK60  PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 70) $ $
```

The route list defined by table IBNRTE tuple 100 has the following datafill:

- subfield IBNRTSEL set to SG (super-group selector)
- subfield ALGORITHM set to CHCL (circular hunt in clockwise direction)
- subfield ATTEMPTS (maximum number of search attempts) set to 50
- subfield SUPERTKG_NAME (super-group name) set to ISP1GRP1

Tuple ISP1GRP1 in table SUPERTKG contains trunk groups ISP1TRK01 through ISP1TRK60.

Tuples ISP1TRK01 through ISP1TRK60 in table TRKGRP have subfield SELSEQ set to SG_CCWCTH (super-group circular hunt in counterclockwise direction).

Description of call distribution Call distribution occurs as described in the following paragraphs.

Note: Within the route list (trunk group level), the search moves in a clockwise direction (CHCL algorithm). Within each trunk group (trunk member level), the search moves in a counterclockwise direction (SG_CCWCTH algorithm).

ISP Even Call Distribution (continued)

The switch routes a call through table IBNRTE tuple 100. This routing starts a circular hunt in the clockwise direction (CHCL algorithm) in table SUPERTKG tuple ISP1GRP1.

For the first call, the search starts from trunk group ISP1TRK01. This trunk group has subfield SELSEQ in table TRKGRP set to SG_CCWCTH (super-group circular hunt in counterclockwise direction). Therefore, the search for a free trunk member starts at the last member of trunk group ISP1TRK01. The search continues in a counterclockwise direction through the first member of trunk group ISP1TRK01. If the switch finds a free trunk member, the switch makes available the call to that member. If the switch does not find a free trunk member, the search continues in a clockwise direction (CHCL algorithm). The search stops at the next trunk group in the super-group. The search continues in a clockwise direction through a total of 50 trunk groups (the ATTEMPTS value). The switch searches in a counterclockwise direction within each trunk group. When the software reaches the ATTEMPTS value, the switch sends an ATB indication and stops call routing.

For each call after the first call, the search starts from the last searched trunk group in super-group ISP1GRP1. Because this trunk group has subfield SELSEQ in table TRKGRP set to SG_CCWCTH, the search starts from the trunk member before the last searched trunk member. From the starting point, the switch searches counterclockwise up to (and including) the first trunk member. If no free trunk member is available in this trunk group, the switch continues clockwise (CHCL algorithm). The search stops at the next trunk group in super-group ISP1GRP1. This process continues until the switch reaches the ATTEMPTS value (50 trunk groups). At this point, the switch sends an ATB indication and stops call routing.

Example The following paragraphs describe the search for a free trunk member for two calls routed through table IBNRTE tuple 100. In the processing described in these paragraphs, the switch does not find a free trunk member for either the first or second call. The information in these paragraphs is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP described earlier in this section.

For the first call, the switch searches in a clockwise direction through 50 trunk groups (ISP1TRK01 through ISP1TRK50). The switch searches in a counterclockwise direction within each trunk group. The switch does not find a free trunk member. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

For the second call, the search starts from the last trunk member of trunk group ISP1TRK51. (At this point, the switch has finished searching trunk group

ISP Even Call Distribution (continued)

ISP1TRK50. Therefore, the last trunk member of trunk group ISP1TRK51 is the trunk member before the last searched trunk member.) From this point, the search continues in a clockwise direction through a total of ten trunk groups (ISP1TRK51 through ISP1TRK60). The switch searches in a counterclockwise direction within each trunk group. Because no free trunk member is available in the last trunk group in the super-group (ISP1TRK60), the search “wraps around" to the first trunk group (ISP1TRK01).

Because the ATTEMPTS value is 50, the switch continues through an additional 40 trunk groups (ISP1TRK01 through ISP1TRK40), searching counterclockwise within each trunk group. The switch does not find a free trunk member in trunk group ISP1TRK40. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

Call distribution with selection algorithms CHCCL (trunk group level) and SG_CWCTH (trunk member level)

This section describes the use of the CHCCL and SG_CWCTH selection algorithms together. The processing described in this section is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP shown in the following figures.

ATTENTION

With the use of the CHCCL and SG_CWCTH algorithms together, trunk group selection and trunk member selection will advance in opposite directions. The switch does not block the operating company from using these algorithms together. However, use of these algorithms together will not result in a complete circular selection in either the clockwise or counterclockwise direction. Nortel does not recommend use of these algorithms together.

MAP display example for table IBNRTE

```
RTE  RTELIST
-------------------------------------------------------
100  (SG CHCCL 50 ISP1GRP1) $
```

ISP Even Call Distribution (continued)

MAP display example for table SUPERTKG

```
SGNAME    TRKGRPS
-------------------------------------------------------------
ISP1GRP1 (ISP1TRK01)(ISP1TRK02)...(ISP1TRK07)...(ISP1TRK60) $
```

MAP display example for table TRKGRP

```
GRPKEY     GRPINFO
-----------------------------------------------------
ISP1TRK01  PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 11) $ $
ISP1TRK02  PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 12) $ $
.
.
.
ISP1TRK60  PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 70) $ $
```

The route list defined by table IBNRTE tuple 100 has the following datafill:

- subfield IBNRTSEL set to SG (super-group selector)
- subfield ALGORITHM set to CHCCL (circular hunt in counterclockwise direction)
- subfield ATTEMPTS (maximum number of search attempts) set to 50
- subfield SUPERTKG_NAME (super-group name) set to ISP1GRP1

Tuple ISP1GRP1 in table SUPERTKG contains trunk groups ISP1TRK01 through ISP1TRK60.

Tuples ISP1TRK01 through ISP1TRK60 in table TRKGRP have subfield SELSEQ set to SG_CWCTH (super-group circular hunt in clockwise direction).

Description of call distribution Call distribution occurs as described in the following paragraphs.

Note: Within the route list (trunk group level), the search moves in a counterclockwise direction (CHCCL algorithm). Within each trunk group (trunk member level), the search moves in a clockwise direction (SG_CWCTH algorithm).

ISP Even Call Distribution (continued)

The switch routes a call through table IBNRTE tuple 100. This routing starts a circular hunt in the counterclockwise direction (CHCCL algorithm) in table SUPERTKG tuple ISP1GRP1.

For the first call, the search starts from trunk group ISP1TRK01. This trunk group has subfield SELSEQ in table TRKGRP set to SG_CWCTH (super-group circular hunt in clockwise direction). Therefore, the search for a free trunk member starts at the first member of trunk group ISP1TRK01. The search continues in a clockwise direction through the last member of trunk group ISP1TRK01. If the switch finds a free trunk member, the switch offers the call to that member. If the switch does not find a free trunk member, the search continues in a counterclockwise direction (CHCCL algorithm) to the previous trunk group in the super-group. The search continues in a counterclockwise direction through a total of 50 trunk groups (the ATTEMPTS value). The switch searches in a clockwise direction within each trunk group. When it reaches the ATTEMPTS value, the switch sends an ATB indication and stops call routing.

For each call after the first call, the search starts from the last searched trunk group in super-group ISP1GRP1. Because this trunk group has subfield SELSEQ in table TRKGRP set to SG_CWCTH, the search starts from the trunk member after the last searched trunk member. From the starting point, the switch searches clockwise up to (and including) the last trunk member. If no free trunk member is available in this trunk group, the switch continues counterclockwise (CHCCL algorithm) to the previous trunk group in super-group ISP1GRP1. This process continues until the switch reaches the ATTEMPTS value (50 trunk groups). At this point, the switch sends an ATB indication and stops call routing.

Example The following paragraphs describe the search for a free trunk member for two calls routed through table IBNRTE tuple 100. In the processing described in these paragraphs, the switch does not find a free trunk member for either the first or second call. The information in these paragraphs is based on the datafill in tables IBNRTE, SUPERTKG, and TRKGRP described earlier in this section.

For the first call, the switch searches in a counterclockwise direction through 50 trunk groups (ISP1TRK01 and [ISP1TRK60 through ISP1TRK12]). The switch searches in a clockwise direction within each trunk group. The switch does not find a free trunk member. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

For the second call, the search starts from the first trunk member of trunk group ISP1TRK11. (At this point, the switch has finished searching trunk group ISP1TRK12. Therefore, the first trunk member of trunk group ISP1TRK11 is

the trunk member after the last searched trunk member.) From this point, the search continues in a counterclockwise direction through a total of 11 trunk groups (ISP1TRK11 through ISP1TRK01). The switch searches in a clockwise direction within each trunk group. Because no free member is available in the first trunk group in the super-group (ISP1TRK01), the search “wraps around" to the last trunk group (ISP1TRK60).

Because the ATTEMPTS value is 50, the switch continues through an additional 39 trunk groups (ISP1TRK60 through ISP1TRK22), searching clockwise within each trunk group. The switch does not find a free trunk member in trunk group ISP1TRK22. At this point, the switch reaches the ATTEMPTS value of 50, sends an ATB indication, and stops call routing.

Even call distribution at trunk member level

The following sections describe call distribution with the GRP_CWCTH and GRP_CCWCTH selection algorithms.

Call distribution with GRP_CWCTH selection algorithm

For best results, do not use the GRP_CWCTH algorithm with the CHCL and CHCCL super-group selection algorithms. Use the GRP_CWCTH selection algorithm for clockwise searches within a single NTNA or NTNI PRI trunk group.

The following figure shows sample datafill for the GRP_CWCTH selection algorithm for trunk group ISP1TRK01 in table TRKGRP.

MAP display example for table TRKGRP

```
GRPKEY     GRPINFO
-------------------------------------------------------
ISP1TRK01  PRA 0 NPDGP NCRT GRP_CWCTH N (ISDN 11) $ $
```

Call distribution for two calls occurs as described in the following paragraphs.

Trunk group ISP1TRK01 has subfield SELSEQ in table TRKGRP set to GRP_CWCTH (trunk group member circular hunt in clockwise direction). Therefore, for the first call, the search starts from the first member of trunk group ISP1TRK01. The search continues in a clockwise direction through the last member of trunk group ISP1TRK01. If the switch finds a free trunk member, the switch offers the call to that member.

For the second call, the search starts from the trunk member after the last searched trunk member. If no free trunk member is available from the starting

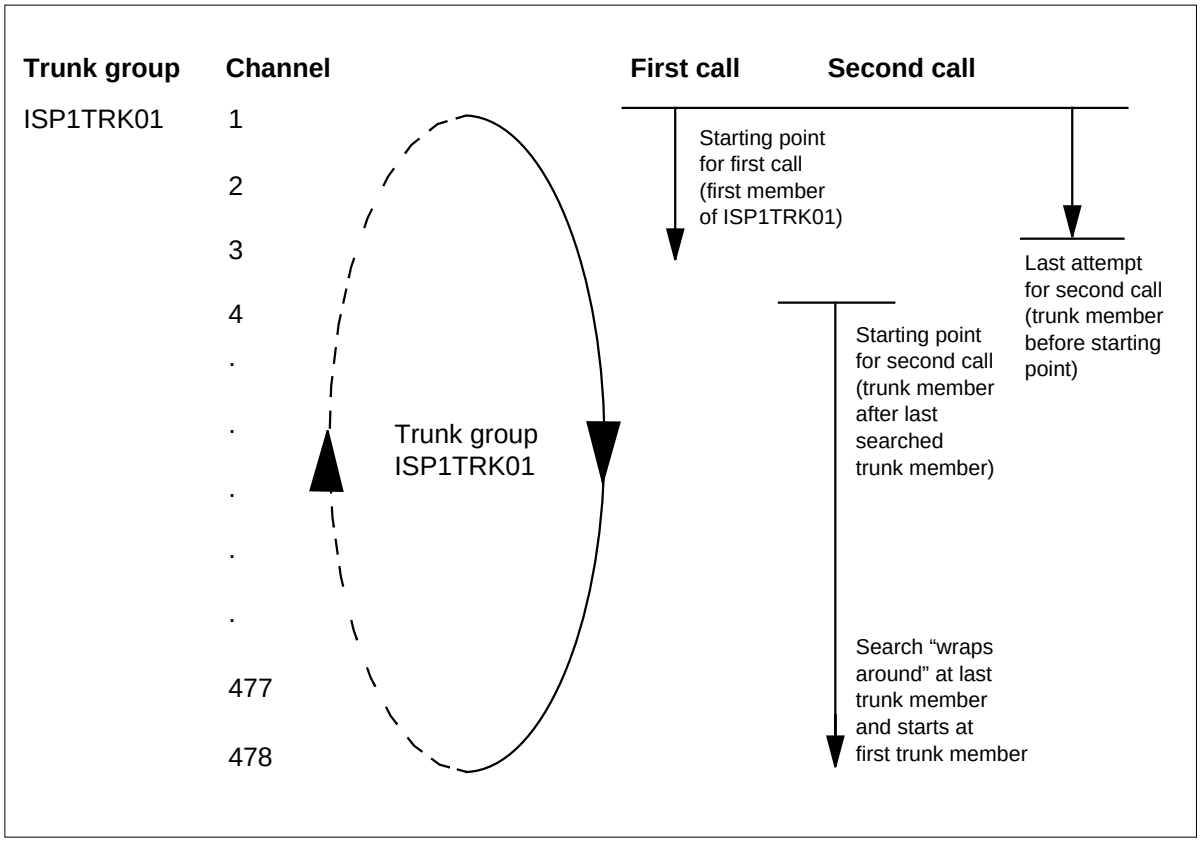
ISP Even Call Distribution (continued)

point to the last trunk member, the search “wraps around" and continues up to but not including the starting point.

With this selection method, the starting point of the search for a free member is always “c + 1", where “c" is the last searched trunk member in the trunk group.

Example The following figure shows call distribution with the GRP_CWCTH selection algorithm. For the first call, the search finds a free trunk member (channel 3), and stops at that channel. For the second call, the search starts with channel 4 (the trunk member after the last searched trunk member). The search continues clockwise from channel 4 through the end of the trunk group without finding a free trunk member. The search then “wraps around" and continues up to but not including the starting point. Because the starting point for the second call was channel 4, the search stops at channel 3.

Call distribution with GRP_CWCTH selection algorithm



Call distribution with GRP_CCWCTH selection algorithm

For best results, do not use the GRP_CCWCTH algorithm with the CHCL and CHCCL super-group selection algorithms. Use the GRP_CCWCTH selection

ISP Even Call Distribution (continued)

algorithm for counterclockwise searches within a single NTNA or NTNI PRI trunk group.

The following figure shows sample datafill for the GRP_CCWCTH selection algorithm for trunk group ISP1TRK01 in table TRKGRP.

MAP display example for table TRKGRP

```
GRPKEY     GRPINFO
-------------------------------------------------------
ISP1TRK01  PRA 0 NPDGP NCRT GRP_CCWCTH N (ISDN 11) $ $
```

Call distribution for two calls occurs as described in the following paragraphs.

Trunk group ISP1TRK01 has subfield SELSEQ in table TRKGRP set to GRP_CCWCTH (trunk group member circular hunt in counterclockwise direction). Therefore, for the first call, the search starts from the last member of trunk group ISP1TRK01. The search continues in a counterclockwise direction through the first member of trunk group ISP1TRK01. If the switch finds a free trunk member, the switch offers the call to that member.

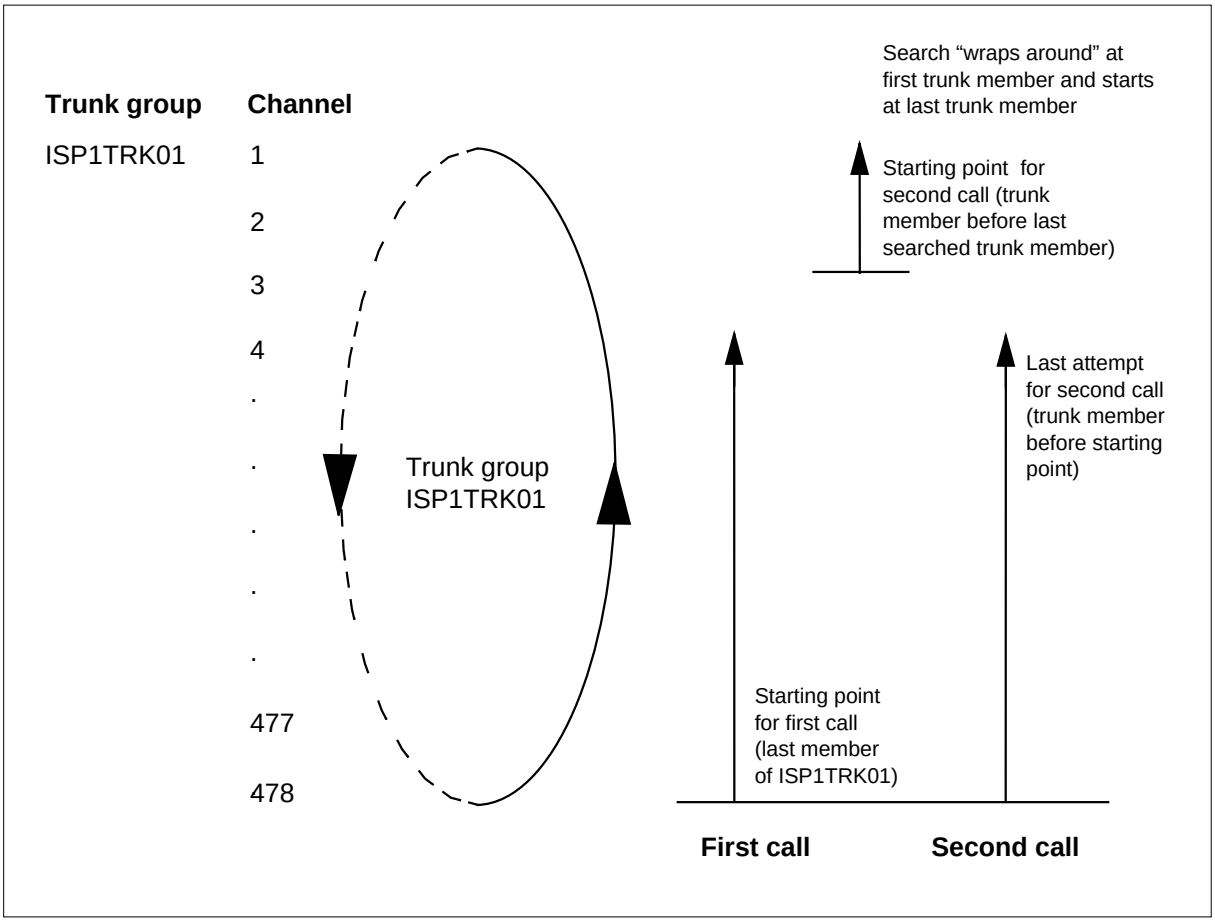
For the second call, the search starts from the trunk member before the last searched trunk member. If no free trunk member is available from the starting point to the first trunk member, the search “wraps around" and continues up to but not including the starting point.

With this selection method, the starting point of the search for a free member is always “c - 1", where “c" is the last searched trunk member in the trunk group.

Example The following figure shows call distribution with the GRP_CCWCTH selection algorithm. For the first call, the search finds a free trunk member (channel 4), and stops at that channel. For the second call, the search starts with channel 3 (the trunk member before the last searched trunk member). The search continues counterclockwise from channel 3 through the beginning of the trunk group without finding a free trunk member. The search then “wraps around" and continues up to but not including the starting point. Because the starting point for the second call was channel 3, the search stops at channel 4.

ISP Even Call Distribution (continued)

Call distribution with GRP_CCWCTH selection algorithm



ISP Even Call Distribution (continued)

Translations table flow

The ISP Even Call Distribution translations tables are described in the following list:

- The routing tables indicate the route or routes to follow after call translation.
  - — The NA routing tables include tables OFRT, OFR2, OFR3, OFR4, HNPACONT.RTEREF, and FNPACONT.RTEREF.
  - — The universal routing tables include tables ACRTE, PXRTE, CTRTE, FARTE, OFCRTE, FTRTE, and NSCRTE.
  - — The IBN routing tables include tables IBNRTE, IBNRT2, IBNRT3, and IBNRT4.

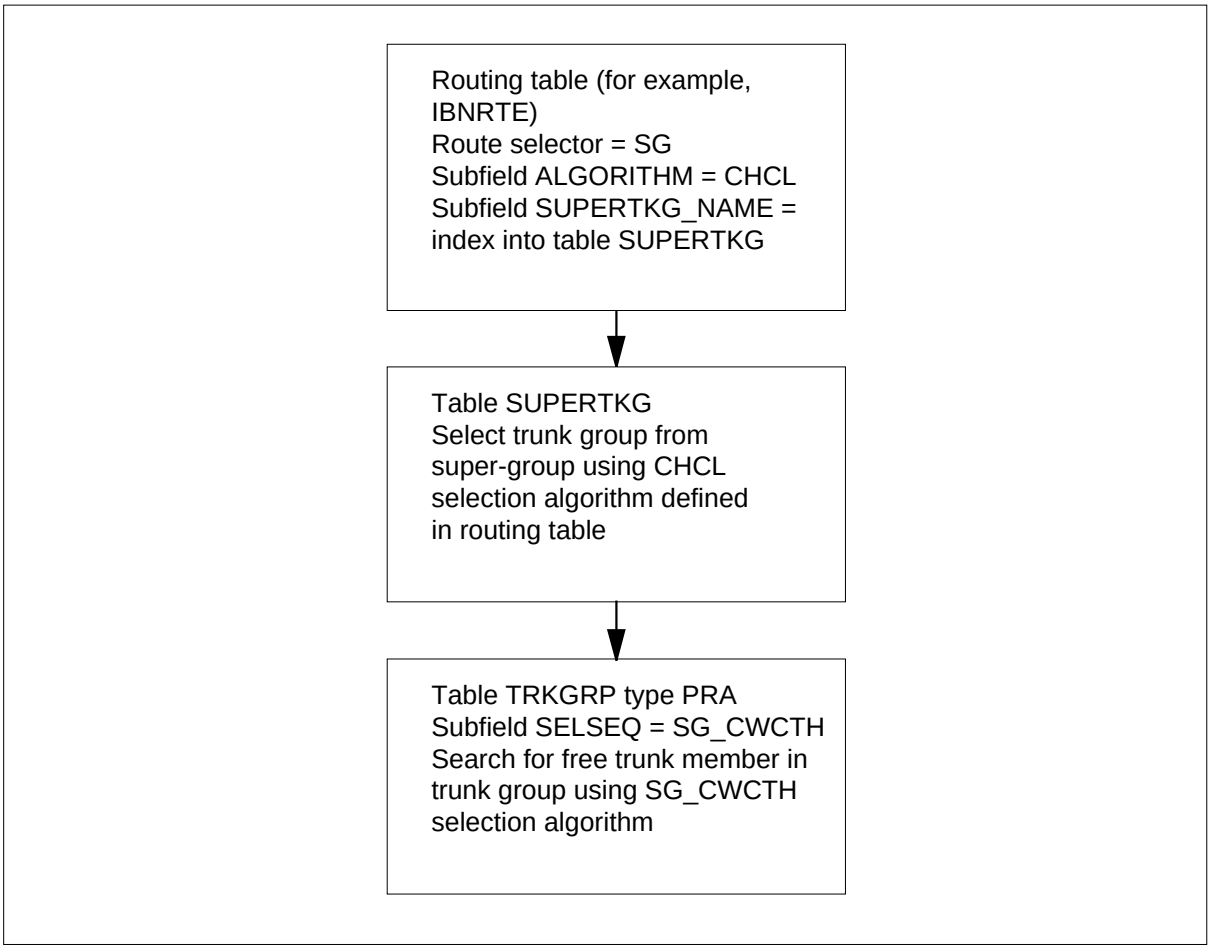
  ISP Even Call Distribution adds selection algorithms CHCL and CHCCL to subfield ALGORITHM in these routing tables.
- Table SUPERTKG (Super Trunk Group) joins up to 220 trunk groups together into super-groups.
- Table TRKGRP (Trunk Group) contains information that applies to the whole trunk group. This information includes the B-channel selection sequence, the logical terminal identifier (LTID) of the trunk group, and the billing directory number (DN).

  ISP Even Call Distribution adds selection algorithms SG_CWCTH, SG_CCWCTH, GRP_CWCTH, and GRP_CCWCTH to table TRKGRP subfield SELSEQ for the PRA group type.

The ISP Even Call Distribution translation process for super-group clockwise circular hunting is shown in the flowchart that follows.

ISP Even Call Distribution (continued)

Table flow for ISP Even Call Distribution (super-group clockwise circular hunting)



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

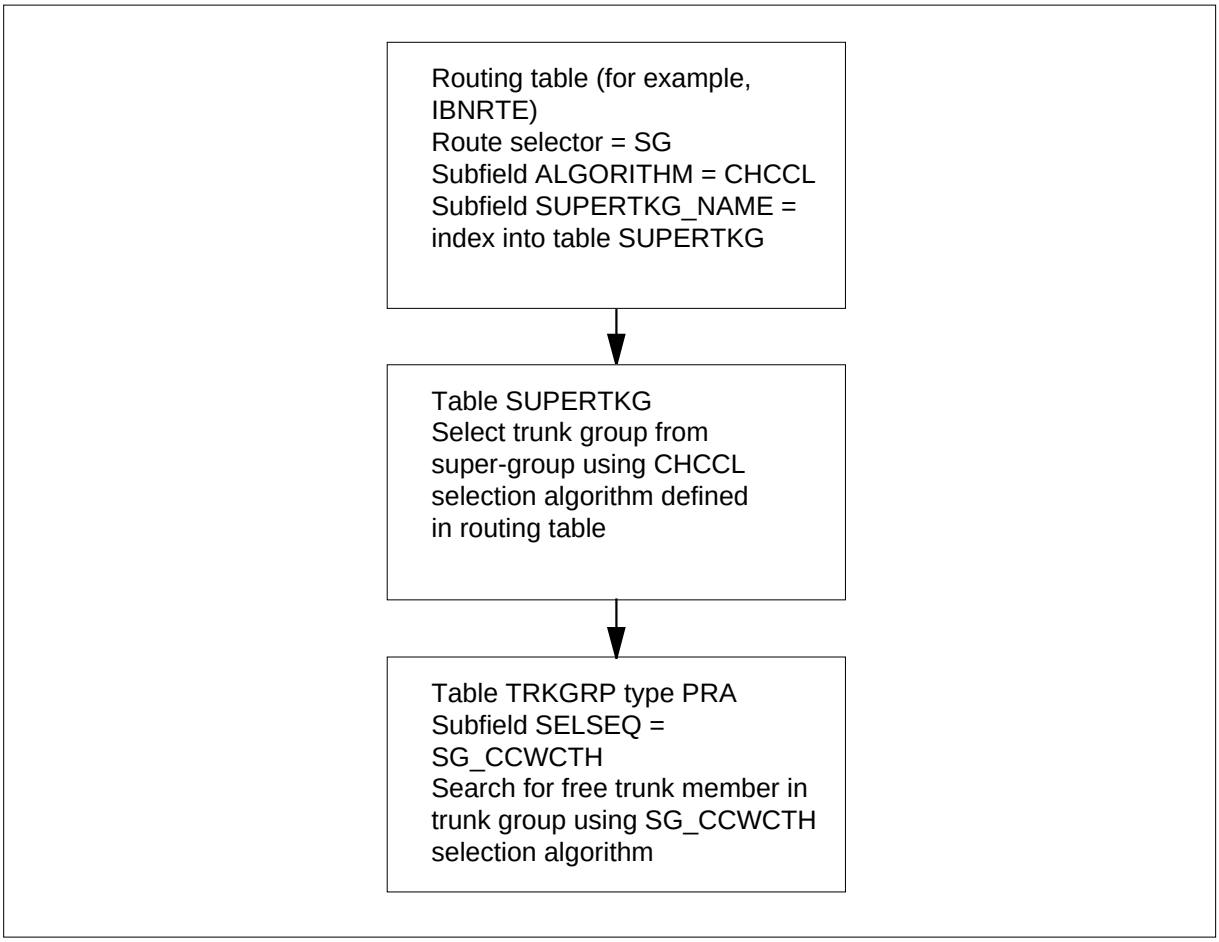
Datafill example for ISP Even Call Distribution

Datafill table	Example data
Routing table	100 (SG CHCL 50 ISP1GRP1) $
SUPERTKG	ISP1GRP1 (ISP1TRK01)(ISP1TRK02)...(ISP1TRK07)...(ISP1TRK60) $
TRKGRP	ISP1TRK01 PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 11) $ $ISP1TRK02 PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 12) $ $...ISP1TRK60 PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 70) $ $

The ISP Even Call Distribution translation process for super-group counterclockwise circular hunting is shown in the flowchart that follows.

ISP Even Call Distribution (continued)

Table flow for ISP Even Call Distribution (super-group counterclockwise circular hunting)



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

Datafill example for ISP Even Call Distribution

Datafill table	Example data
Routing table	100 (SG CHCCL 50 ISP1GRP1) $
SUPERTKG	ISP1GRP1 (ISP1TRK01)(ISP1TRK02)...(ISP1TRK07)...(ISP1TRK60) $
TRKGRP	ISP1TRK01 PRA 0 NPDGP NCRT SG_CWCCTH N (ISDN 11) $ $ISP1TRK02 PRA 0 NPDGP NCRT SG_CWCCTH N (ISDN 12) $ $...ISP1TRK60 PRA 0 NPDGP NCRT SG_CWCCTH N (ISDN 70) $ $

ISP Even Call Distribution (continued)

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.
- Do not use the existing route list algorithms CYC, RND and standard RTE advance with the SG_CWCTH and SG_CCWCTH selection algorithms. Use the SG_CWCTH and SG_CCWCTH selection algorithms for super-group hunting at the trunk group (route list) level.

  Note: *Standard RTE advance* refers to having multiple RTE selectors in a routing table.

- Do not use the ASEQ and DSEQ trunk selection algorithms with the CHCL and CHCCL trunk group selection algorithms.
- For best results, use the GRP_CWCTH and GRP_CCWCTH selection algorithms with single trunk group configurations. Do not use these algorithms with the CHCL and CHCCL algorithms defined in the routing table.
- 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 within trunk groups in a super-group.
- The recommended ATTEMPTS value of 50 is based on a total of 23 B-channels in each trunk group. With non-facility associated signaling, reduce the ATTEMPTS value so that the total number of B-channels searched in a super-group does not exceed 1150.
- For best results, do not use the following selection algorithms together. Use of these algorithms together does not result in a complete circular selection in either the clockwise or counterclockwise direction.
  - — CHCL and SG_CCWCTH
  - — CHCCL and SG_CWCTH

Interactions

ISP Even Call Distribution has no effect on any existing stage of call routing (for example, bearer capability routing).

ISP Even Call Distribution (continued)

Activation/deactivation by the end user

ISP Even Call Distribution requires no activation or deactivation by the end user.

Billing

ISP Even Call Distribution does not affect billing.

Station Message Detail Recording

ISP Even Call Distribution does not affect Station Message Detail Recording.

Datafilling office parameters

ISP Even Call Distribution does not affect office parameters.

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 to be datafilled.

Datafill tables required for ISP Even Call Distribution

Table	Purpose of table
TRKGRP	Trunk Group. This table contains information that applies to the whole trunk group. This information includes the B-channel selection sequence, the LTID of the trunk group, and the billing DN.
Routing tables	The routing tables indicate the route or routes to follow after call translation. • The NA routing tables include tables OFRT, OFR2, OFR3, OFR4, HNPACONT.RTEREF, and FNPACONT.RTEREF. • The universal routing tables include tables ACRTE, PXRTE, CTRTE, FARTE, OFCRTE, FTRTE, and NSCRTE. • The IBN routing tables include tables IBNRTE, IBNRT2, IBNRT3, and IBNRT4.

Datafilling table TRKGRP

Subfield SELSEQ in table TRKGRP determines the selection sequence for trunks within a trunk group. ISP Even Call Distribution adds the following selection algorithm values for subfield SELSEQ for the PRA group type. These new algorithms apply to NTNA and NTNI PRI protocol variants only.

- SG_CWCTH (super-group circular hunt in clockwise direction)
- SG_CCWCTH (super-group circular hunt in counterclockwise direction)

ISP Even Call Distribution (continued)

- GRP_CWCTH (trunk group member circular hunt in clockwise direction)
- GRP_CCWCTH (trunk group member circular hunt in counterclockwise direction)

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. For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKGRP (Sheet 1 of 3)

Field	Subfield	Entry	Explanation and action
GRPKEY		see subfield	Group key. This field includes subfield CLLI.
	CLLI	alphanumeric (1 to 16 characters)	Common language location identifier. This subfield indicates the common language location identifier (CLLI) code assigned to the trunk group in table CLLI.
GRPINFO		see subfield	Variable group data. This field includes subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, SELSEQ, BILLDN, LTID, and OPTIONS. Only subfield SELSEQ applies to ISP Even Call Distribution.
	SELSEQ	SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	Selection sequence. This subfield determines the selection sequence for trunks within a trunk group. Enter SG_CWCTH for super-group circular hunting in the clockwise direction. With this algorithm, the search for a free trunk member starts with the member after the last searched member. The switch searches the remaining trunk members in a clockwise direction up to and including the last trunk member. If no free trunk member is available, the switch selects the next trunk group using the selection algorithm defined in the routing table. ***Note:*** For even call distribution, use the SG_CWCTH algorithm with the CHCL super-group selection algorithm defined in the routing table.

ISP Even Call Distribution (continued)

Datafilling table TRKGRP (Sheet 2 of 3)

Field	Subfield	Entry	Explanation and action
			Enter SG_CCWCTH for super-group circular hunting in the counterclockwise direction. With this algorithm, the search for a free trunk member starts with the member before the last searched member. The switch searches the remaining trunk members in a counterclockwise direction up to and including the first trunk member. If no free trunk member is available, the switch selects the next trunk group using the selection algorithm defined in the routing table. ***Note:*** For even call distribution, use the SG_CCWCTH algorithm with the CHCCL super-group selection algorithm defined in the routing table.

ISP Even Call Distribution (continued)

Datafilling table TRKGRP (Sheet 3 of 3)

Field	Subfield	Entry	Explanation and action
			Enter GRP_CWCTH for trunk group member circular hunting in the clockwise direction. With this algorithm, the search for a free trunk member starts with the member after the last searched member. The switch searches the remaining members in a clockwise direction up to and including the last trunk member. If no free trunk member is available, the search continues from the first trunk member up to (not including) the starting point. ***Note:*** For best results, do not use the GRP_CWCTH algorithm with the CHCL and CHCCL super-group selection algorithms defined in the routing table. Use the GRP_CWCTH algorithm for clockwise searches within a single NTNA or NTNI PRI trunk group. Enter GRP_CCWCTH for trunk group member circular hunting in the counterclockwise direction. With this algorithm, the search for a free trunk member starts with the member before the last searched member. The switch searches the remaining members in a counterclockwise direction up to and including the first trunk member. If no free trunk member is available, the search continues from the last trunk member up to (not including) the starting point. ***Note:*** For best results, do not use the GRP_CCWCTH algorithm with the CHCL and CHCCL super-group selection algorithms defined in the routing table. Use the GRP_CCWCTH algorithm for counterclockwise searches within a single NTNA or NTNI PRI trunk group.

Datafill example for table TRKGRP

The following example shows sample datafill for table TRKGRP.

ISP Even Call Distribution (continued)

MAP display example for table TRKGRP

```
GRPKEY   GRPINFO
-------------------------------------------------------
64K7DT0  PRA 0 NPDGP NCRT SG_CWCTH N (ISDN 20) $ $
64K8DT0  PRA 0 NPDGP NCRT SG_CCWCTH N (ISDN 21) $ $
```

Methods of changing subfield SELSEQ value

With the ISP Even Call Distribution feature, changes to the trunk selection sequence for a trunk group (subfield SELSEQ) are possible for some trunk selection sequences, under some conditions. The following table lists the methods of changing the value of subfield SELSEQ.

Note: The information in the table applies only to the ISP Even Call Distribution feature. Selection sequence changes not listed in the table are beyond the scope of this feature. For these types of changes, create a new trunk group that has the required selection sequence value. Delete the trunk members from the old trunk group and add the members to the new trunk group. For ASEQ-to-DSEQ or DSEQ-to-ASEQ changes, all the members must be either installation busy (INB) or unequipped.

Methods of changing SELSEQ value (Sheet 1 of 2)

Current SELSEQ value	New SELSEQ value	Method of changing SELSEQ value
ASEQ, DSEQ (without feature AD3901) (Note)	SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	Change the entry in table TRKGRP by placing the trunk group (all B- and D-channels) in INB state. The new SELSEQ value will apply from the next call after dynamic download is complete.
ASEQ, DSEQ (with feature AD3901) (Note)	SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	Change the entry in table TRKGRP without changing the B- and D-channel states. The new SELSEQ value will apply from the next call after dynamic download is complete.
CWCTH, CCWCTH	SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	Change the entry in table TRKGRP without changing the B- and D-channel states. The new SELSEQ value will apply from the next call after dynamic download is complete.
Note: With DMS-250 feature AD3901 (Off-hook Queuing Enhancements), the ASEQ and DSEQ selection sequences are known as enhanced ASEQ/DSEQ.		

ISP Even Call Distribution (continued)

Methods of changing SELSEQ value (Sheet 2 of 2)

Current SELSEQ value	New SELSEQ value	Method of changing SELSEQ value
MIDL, LIDL	SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	Perform the following steps: 1. Create a new trunk group with the required SELSEQ value. 2. Delete the current B- and D-channels from the existing trunk group. 3. Add the B- and D-channels to the new trunk group.
SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	ASEQ, DSEQ (without feature AD3901) (Note)	Perform the following steps: 1. Create a new trunk group with the required SELSEQ value. 2. Delete the current B- and D-channels from the existing trunk group. 3. Add the B- and D-channels to the new trunk group.
SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	ASEQ, DSEQ (with feature AD3901) (Note)	Change the entry in table TRKGRP without changing the B- and D-channel states. The new SELSEQ value will apply from the next call after dynamic download is complete.
SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	CWCTH, CCWCTH	Change the entry in table TRKGRP without changing the B- and D-channel states. The new SELSEQ value will apply from the next call after dynamic download is complete.
SG_CWCTH, SG_CCWCTH, GRP_CWCTH, GRP_CCWCTH	MIDL, LIDL	Perform the following steps: 1. Create a new trunk group with the required SELSEQ value. 2. Delete the current B- and D-channels from the existing trunk group. 3. Add the B- and D-channels to the new trunk group.

Note: With DMS-250 feature AD3901 (Off-hook Queuing Enhancements), the ASEQ and DSEQ selection sequences are known as enhanced ASEQ/DSEQ.

Datafilling routing tables

Subfield ALGORITHM for route selector SG in the NA, universal, and IBN routing tables indicates the selection algorithm for trunk groups defined in

ISP Even Call Distribution (continued)

table SUPERTKG. ISP Even Call Distribution adds the following two selection algorithms to subfield ALGORITHM:

- CHCL (circular hunt in clockwise direction)
- CHCCL (circular hunt in counterclockwise direction)

Note: The NA routing tables include tables OFRT, OFR2, OFR3, OFR4, HNPACONT.RTEREF, and FNPACONT.RTEREF. The universal routing tables include tables ACRTE, PXRTE, CTRTE, FARTE, OFCRTE, FTRTE, and NSCRTE. The IBN routing tables include tables IBNRTE, IBNRT2, IBNRT3, and IBNRT4.

The following table shows the datafill specific to ISP Even Call Distribution for the NA and universal routing tables. Only those fields that apply directly to ISP Even Call Distribution are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling NA and universal routing tables (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
RTELIST		see subfield	Route list. This field includes subfield RTESEL and additional subfields that depend on the value in subfield RTESEL. A route list includes up to eight routes; each route has a selector and data.
	RTESEL	SG	Route selector. This subfield indicates the route selector. Enter SG (super-group) and datafill subfields ALGORITHM, ATTEMPTS, and SUPERTKG_NAME.
	ALGORITHM	CHCL, CHCCL	Algorithm. This subfield indicates the selection algorithm for trunk groups defined in table SUPERTKG. Enter one of the following values: • Enter CHCL for circular hunting in the clockwise direction. • Enter CHCCL for circular hunting in the counterclockwise direction.

ISP Even Call Distribution (continued)

Datafilling NA and universal routing tables (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
	ATTEMPTS	numeric (1 to 50)	Maximum number of search attempts. This subfield sets the maximum number of trunk groups to search for a free trunk member. For ALGORITHM settings CHCL and CHCCL, set subfield ATTEMPTS to a value less than or equal to 50. This recommended limit reduces real-time use during searches in the 220 possible trunk groups in table SUPERTKG. ***Note:*** The recommended ATTEMPTS value of 50 is based on a total of 23 B-channels in each trunk group. With non-facility associated signaling, reduce the ATTEMPTS value so that the total number of B-channels searched in a super-group does not exceed 1150. Refer to “Effect of ATTEMPTS value on real time and hit rate" for more information on subfield ATTEMPTS and its effect during searches for a free trunk member.
	SUPERTKG_NAME	alphanumeric (1 to 16 characters)	Super-group name. This subfield indicates the super-group name from table SUPERTKG.

The following table shows the datafill specific to ISP Even Call Distribution for the IBN routing tables. Only those fields that apply directly to ISP Even Call Distribution are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling IBN routing tables (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
RTE		1 to 1023 or blank	IBN route reference index. This field indicates the route reference number assigned to the route list.
RTELIST		see subfield	Route list. This field includes subfield IBNRTSEL.

ISP Even Call Distribution (continued)

Datafilling IBN routing tables (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
	IBNRTSEL	SG	IBN route selector. This subfield indicates the route selector. Enter SG (super-group) and datafill subfields ALGORITHM, ATTEMPTS, and SUPERTKG_NAME.
	ALGORITHM	CHCL, CHCCL	Algorithm. This subfield indicates the selection algorithm for trunk groups defined in table SUPERTKG. Enter one of the following values: • Enter CHCL for circular hunting in the clockwise direction. • Enter CHCCL for circular hunting in the counterclockwise direction.
	ATTEMPTS	numeric (1 to 50)	Maximum number of search attempts. This subfield indicates the maximum number of trunk groups to search for a free trunk member. For ALGORITHM settings CHCL and CHCCL, set subfield ATTEMPTS to a value less than or equal to 50. This recommended limit reduces real-time use during searches in the 220 possible trunk groups in table SUPERTKG. ***Note:*** The recommended ATTEMPTS value of 50 is based on a total of 23 B-channels in each trunk group. With non-facility associated signaling, reduce the ATTEMPTS value so that the total number of B-channels searched in a super-group does not exceed 1150. Refer to “Effect of ATTEMPTS value on real time and hit rate" for more information on subfield ATTEMPTS and its effect during searches for a free trunk member.
	SUPERTKG_ NAME	alphanumeric (1 to 16 characters)	Super-group name. This subfield indicates the super-group name from table SUPERTKG.

ISP Even Call Distribution (continued)

Datafill examples for routing tables

The following example shows sample datafill for

- the NA routing tables (OFRT, OFR2, OFR3, OFR4, HNPACONT.RTEREF, and FNPACONT.RTEREF)
- the IBN routing tables (IBNRTE, IBNRT2, IBNRT3, and IBNRT4)

MAP display example for NA and IBN routing tables

```
RTE   RTELIST
------------------------------------------------------------
155   (SG CHCL 10 ISP4GRP1) $
```

The following example shows sample datafill for the universal routing tables (ACRTE, PXRTE, CTRTE, FARTE, OFCRTE, FTRTE, and NSCRTE).

MAP display example for universal routing tables

```
XLANAME  RTEREF  RTELIST
------------------------------------------------------------
XLA1    155     (SG CHCL 10 ISP4GRP1) $
```

Error message for routing tables

The following error message applies to the NA, universal, and IBN routing tables.

Error message for IBN routing tables

Error message	Explanation and action
`Warning : Recommended ATTEMPTS value for CHCL and CHCCL is 50`	For ALGORITHM settings CHCL and CHCCL, set subfield ATTEMPTS to a value less than or equal to 50. With non-facility associated signaling, reduce the ATTEMPTS value so that the total number of B-channels searched in a super-group does not exceed 1150.

Translation verification tools

Before the ISP Even Call Distribution feature, the TRAVER tool moved through the routing table (for example, table IBNRTE). The tool listed the trunk group from the current route in its output.

ISP Even Call Distribution (continued)

With the ISP Even Call Distribution feature, the TRAVER tool works in the same way, with the following exception. For route selector SG, the TRAVER tool indexes into table SUPERTKG and finds the current trunk group for the super-group. The tool lists that trunk group in its output.

Note: If TRAVER finds an SG selector, its output only shows a digit translation route when the super-group contains a free trunk.

The following example shows the output from TRAVER when it is used to verify ISP Even Call Distribution.

ISP Even Call Distribution (end)

TRAVER output example for ISP Even Call Distribution

```
> TRAVER L 5551000 8035551008 B
TABLE IBNLINES
ISDN 00 0 02 00 0 DP STN IBN 5551000 LONS634 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
613 555 1000 1000
    (PUBLIC ( ADDRESS 613 555 1000) (NAME FIRST) $)$
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
LONS634 AIN AIN CDPTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
LONS634 0 0 0 0 ( XLAS LONSXLA FEATXLA NDGT) ( OCTXLA FEATXLA)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
LONS634 NXLA LONSXLA FEATXLA 0 NDGT
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE IBNXLA: XLANAME LONSXLA
LONSXLA 803 ROUTE N Y 3 Y 3 15 NDGT N T IBNRTE 101 $
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE IBNRTE
 101 SG CHCL 45 NEW1
   TABLE SUPERTKG
   NEW1 (64K6DT0) (64K7DT0) $
EXIT TABLE IBNRTE
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
613 555 555 613
AIN Info Analyzed TDP: no subscribed trigger.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 64K6DT0                   N CDN  PVT  L  5551008 NIL_NSF   BC SPEECH

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO
2 LKOUT

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

SERVORD

ISP Even Call Distribution does not use SERVORD.

13 Datafilling NI0 E911 SCRN NI-2

The following chapter describes the NI0 E911 SCRN NI-2I, NI000043, functionality.

E911 Preferred DN

Ordering codes

Functional group ordering code: NI000043

Functionality ordering code: NI000038

Release applicability

NA012 and up

NA012 introduced E911 Preferred DN.

Requirements

This document includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this document.

Description

Private branch exchange (PBX) users do their own moves and changes of directory numbers (DN). The DN in the public safety answering point (PSAP) location may not be up-to-date or stored. The E911 Preferred DN feature ensures the PSAP receives the correct DN from a National integrated services digital network (ISDN) primary rate interface (PRI) trunk.

The E911 Preferred DN feature provides a default DN as the preferred DN or the user provided Calling Number (CGN) for 911 calls to the PSAP (if the CGN passes screening). The default DN option allows emergency personnel to arrive at a location near the emergency. The emergency personnel contact directs the emergency personnel to the correct emergency location.

If the PSAP database stores the accurate CGN location, then the PSAP receives the CGN. The accurate CPN allows emergency personnel to go to the emergency location.

> ***Note:*** Some CGNs are private numbers and the PSAP database can not connect some of the private numbers to an address. The CGN must pass screening in order for the PSAP to receive the CGN. If screening fails, the PSAP receives the default DN.

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.

E911 Preferred DN (continued)

Operation

The E911 Preferred DN feature provides a subscription parameter E911DN. The operating company can assign E911DN to each NIPRI interface. The value of subscription parameter E911DN is calling number (CGN) or default. For incoming 911 calls only, CGN indicates to the switch to send the screened Calling Number (CGN) digits to the 911 operator. The default value indicates to the switch to send default DN as the CGN.

The operating company must datafill a default DN for the NI-PRI interface before using the E911 Preferred DN feature. The E911 Preferred DN feature adds option E911DN to field DN selector. The operating company datafills the 10-digit default DN in table LTDATA using the DN selector. This number represents the centralized location to direct emergency services.

The E911DN option only affects calls whose CGN is 911, 0911, or 1911. If the E911DN option is the CGN and the incoming CGN is not available, then the switch sends the default DN as the CGN. The switch sets the screening indicator (SI) for the CGN to network provided.

The E911 Preferred DN feature uses the Call Screening feature to screen the CGN. The Call Screening feature analyzes the incoming CGN digits to make sure the call comes in on a valid ISDN interface. The location and emergency services information is more accurate when the switch validates or screens the CGN.

The E911 Preferred DN feature screens the CGN of a 911 call when the operating company does not datafill the calling line indentifier (CLI) selector for the ISDN interface. If the operating company does not datafill the CLI selector and does datafill option E911DN, then the switch screens all 911 calls. The switch does not screen non-911 calls. 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.

> ***Note:*** If the operating company does not datafill CLI selector, then the switch can not edit the CGN. The editing option is part of the CLI selector. If the operating company datafills the CLI selector, then the switch can edit 911 calls. Also, the switch screens and edits all non-911 calls.

If call screening passes then the switch sends the validated CGN. The switch sets the SI to user provided passed screening. If call screening fails, then the switch sends the default DN as the CGN. The connected SI says network provided. This makes sure the 911 operator receives a validated DN.

E911 Preferred DN (continued)

If option E911DN is the default, then the switch provides the default DN as the CGN. The switch sets the SI to network provided.

The ISDN PRI trunk can route the 911 call out of the switch to another trunk. Other trunks can transmit a CGN or a billing number. The E911 Preferred DN feature replaces the billing number with the DN that the switch transmits as the CGN. The switch sends the same DN when the outgoing trunks transmits the CGN or billing number. The switch does not do the normal billing number determination for the 911 calls.

If there is one change in direction, then the switch processes the redirection number (RN1) and not the CGN. The switch sets the SI for the CGN to user provided not screened.

If option E911DN value is the default then the switch sends the default DN as RN1. If the value of option E911DN is CGN then the switch screens RN1, because the operating company does not datafill RN screening. If RN1 passes screening, the switch sets the SI to user provided passed screening. If RN1 fails screening, then the switch sends the default DN as RN1.

If the terminating agent is an SS7 trunk then the switch provides the RN1 as the Original Called Number (OCN) and the charge number. If the terminating agent is an MF trunk, then the switch provides the RN1 as the ANI.

If there are multiple redirections during a call, then the switch provides the RN1 and RN2 to the NIPRI interface. The switch processes RN1 and RN2 separately.

If the terminating agent is an SS7 trunk then the switch provides the RN1 as the OCN and RN2 as the redirecting number (RGN). The charge number for SS7 trunks are identical to RGN. If the terminating agent is an MF trunk, then the ANI is identical to RGN. The switch does not apply normal RN billing.

Translations table flow

E911 Preferred DN does not affect translations table flow.

Limitations and restrictions

The limitations and restrictions that follow apply to E911 Preferred DN:

- E911 Preferred DN is only for NIPRI interfaces.
- E911 Preferred DN pertains only to incoming 911, 0911, or 1911 calls on a NIPRI interface.
- If the operating company does not datafill the CLI selector in table LTDATA for an NI-PRI interface, then the CGN screening of non-911 calls

does not occur. If the operating company datafills option E911DN, then the switch screens 911 calls.

Note: The switch can not edit the CGN of the 911 call because the operating company did not datafill the CLI selector.

- If the operating company does not datafill the RN selector in table LTDATA for an NI-PRI interface, then RN screening of non-911 calls does not occur. If the operating company datafills option E911DN, then the switch screens the RNs for 911 calls.

  Note: The switch can not edit the RN of the 911 call because the operating company did not datafill the RN selector.

Interactions

E911 Preferred DN does not interact with other functionalities.

Activation and deactivation by the user

E911 Preferred DN does not require activation or deactivation by the user.

Billing

The E911 Preferred DN feature does not prevent the generation of billing records. If an end user makes a 911 call and the operating company does not specify E911 Preferred DN, then the switch does generate a billing record. If the operating company does indicate feature E911 Preferred DN the switch continue to generates a billing record.

Note: The E911 Preferred DN feature does not apply normal billing number determination when an end user makes a 911 call. The switch sets the billing number to the validated CGN or the default DN.

Station Message Detail Recording

E911 Preferred DN does not require Station Message Detail Recording.

Office parameters used by E911 Preferred DN

E911 Preferred DN does not generate office parameters.

E911 Preferred DN (end)

Datafill sequence

The table that follows lists the table that requires datafill to put E911 Preferred DN into operation.

Datafill requirements for E911 Preferred DN

Table	Purpose of table
LTDATA	Table Logical Terminal Data contains service-related data associated with the logical terminal identifier (LTID).

Datafill related to E911 Preferred DN for table LTDATA

The table that follows provides the datafill related to E911 Preferred DN for table LTDATA. This table includes only that field that applies directly to E911 Preferred DN.

Datafill related to table LTDATA

Field	Subfield	Entry	Explanation and action
	Option	E911DN	Option. Enter option E911DN to provide the CGN or the default DN for incoming 911 calls.

Datafill example for table LTDATA

The figure that follows shows sample datafill for table LTDATA.

MAP example for table LTDATA

```
LTDKEY                                          LTDRSLT
------------------------------------------------------
ISDN 108 DN DN   613 722 9999 E911DN CGN $
ISDN 108 DN DN   613 722 9999 E911DN DEFAULT $
```

Translation verification tools

E911 Preferred DN does not use translation verification tools.

SERVORD

E911 Preferred DN does not use the Service Order System (SERVORD).

SERVORD limitations and restrictions

E911 Preferred DN has no SERVORD limitations or restrictions.

14 Introduction to ISDN DWS

Understanding ISDN DWS translations

Dialable Wideband Service (DWS) is Northern Telecom's multirate ISDN product. It provides flexible, wideband connectivity in the public-switched telephone network (PSTN). It offers a dialable, real-time switched service that allows the end user to establish network connections with rates from 128 kbit/s to 1.536 Mbit/s in 64-kbit/s increments.

With DWS, an end user can transmit digital information through the network without having physically hardwired and dedicated resources devoted to the user. The end user simply dials a directory number to establish the wideband connection across the PSTN to any other bandwidth-compatible DWS subscriber. The bandwidth rate is selectable for each call.

DWS is particularly useful for applications that require large continuous bandwidth for a short period of time (minutes or hours); however, the end user is also able to establish connections which are maintained for hours, days or months. For further information on ISDN DWS translations, refer to *Dialable Wideband Service Services Guide*, 297-2663-110.

Signaling for ISDN DWS

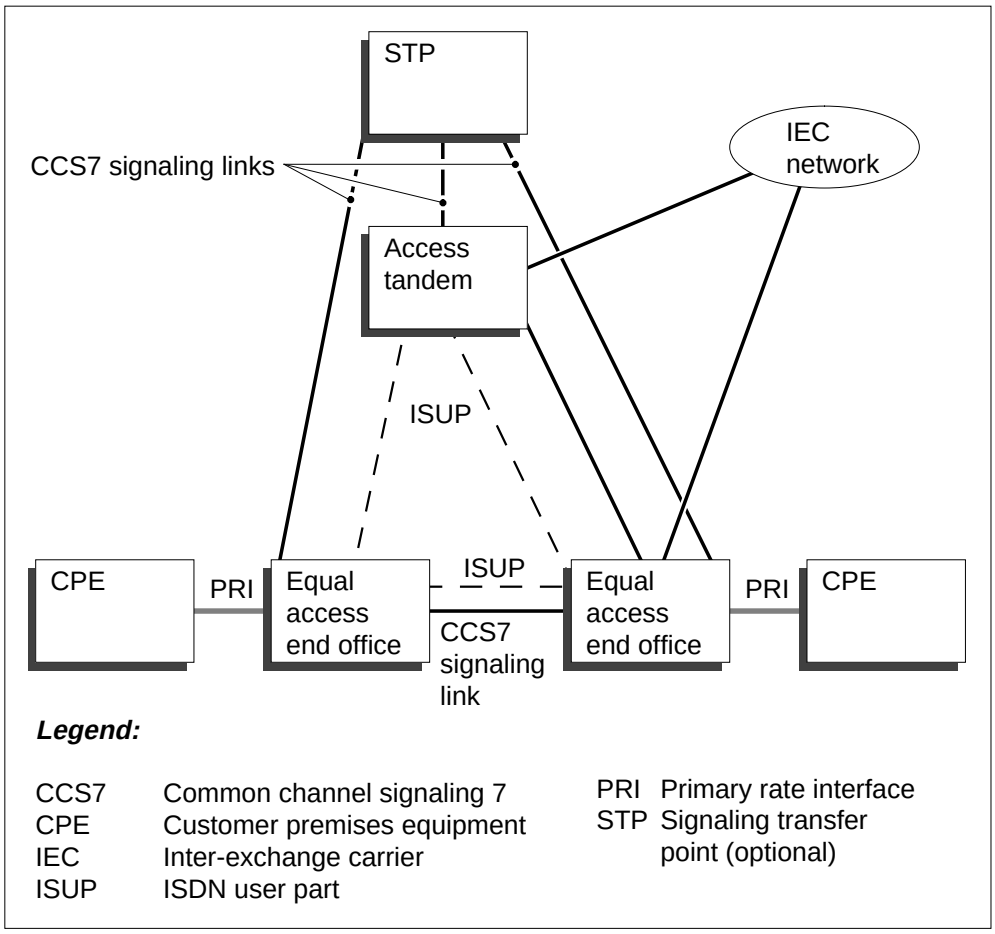
DWS provides local exchange carriers (LEC) with intra-LATA, fractional DS-1 connectivity using CCS7 ISDN user part (ISUP) trunking, and access to customer premise equipment (CPE) through ISDN primary rate interface (PRI). The PRI link uses an extension of standard Q.931 ISDN signaling.

DWS uses ISDN primary rate interface (PRI) signaling to establish the user-to-network interface (UNI). PRI extensions are documented in *BCS35 ISDN Primary Rate UNI Specification (NIS A211-1)*. Extensions to Signaling System 7 (SS7) for DWS are aligned with ANSI T1 extensions proposed in letter ballot *T1S1/LB92-08 addendum for multi-rate circuit mode bearer service in T1.113.2, 3 and 4 (Signaling System 7—ISDN User Part).*

Signaling internal to the network is based on Common Channel Signaling 7 (CCS7), allowing interoffice DWS connectivity. The following figure shows

DWS signaling protocols and illustrates a typical DWS network configuration, with optional STP.

Figure 14-1 DWS network configuration



Preparing to datafill ISDN DWS

The following tables must be datafilled for ISDN DWS:

1. CRSFMT
2. LTCINV
3. CARRMTC
4. LTCPSINV
5. TRKGRP
6. TRKSGRP

For specific information on datafilling ISDN DWS, refer to *Dialable Wideband Service Services Guide*, 297-2663-110.

Functional groups for DWS

The DWS functional group requires the DMS SuperNode Platform—BASE0001, TEL00001, and BAS00003. The following paragraph provides the functional group name, ordering code and an additional prerequisite for DWS.

NI0 DWS, NI00004

To operate, NI0 DWS requires NI0 NI-1 PRI, NI000011

15 DMS-100 and Meridian 1 Options 11-81 datafill correlation

This chapter provides the datafill correlations for the DMS-100 to Meridian 1 Options 11-81 (SL-1 system) PRI interface. The DMS-100 datafill is assigned from the MAP by means of tables, fields, and values. Meridian 1 Options 11, 21, 21E, 51, 61, 71, and 81 datafill is assigned using overlay program loads (LD), prompts, and responses.

Meridian 1 Options 11-81 datafill

Refer to “Datafill correlation" section for information on responses that must be coordinated with the DMS-100 switch. The following information outlines the Release 19 prompts and responses.

LD14—trunk administration

This overlay is used to configure the PRI trunk (B-channel).

The following prompts apply to PRI:

- RTMB—ISA route number (0 to 511)
- TN—PRI loop number (0 to 158)
- TYPE—trunk type; enter ISA.

LD15—customer data block

Meridian 1 Options 11-81 can be partitioned for multiple customers. This overlay allows customer options to be created or modified.

The following prompts apply to PRI:

- HLOC—home location code (100 to 9999)
- HNPA—area code for the Meridian 1 Options 11-81 (100 to 999)
- HNXX—area code for the DMS-100 central office (100 to 999)

- ISDN—ISDN option; enter YES.
- LDN0, LDN1, LDN2, LDN3—listed directory numbers (up to seven digits) in the public directory for DID calls. They are mapped to the attendant console.

LD16—trunk route administration

This overlay is used to configure the PRI trunk route.

The following prompts apply to PRI:

- IFC—interface typeEnter D100.
- ISAR—integrated services access (ISA) routeEnter YES.
- ISDN—ISDN optionEnter YES.
- ROUT—route number (0 to 31)
- SID—service identifier (0 to 511)It is used to poll switches for traffic, ACD, or CDR reports. Allows the network specific facilities to be enabled.
- SRCH— outgoing trunk (B-channel) search methodEnter LIN for linear to start with the highest member trunk (used for two-way trunks). Enter RRB for round robin to start with the next lower trunk than the last one seized (outgoing trunks).
- TKTP— trunk typeEnter ISA.

LD17—configuration record

This overlay establishes relationships between the D-channel handler interface (DCHI) and the following elements:

- clock
- D-channel on the PRI card
- D-channel transmission rate
- frame format
- interface connectivity
- line code method
- yellow alarm method

The following prompts apply to PRI:

ADAN

Enter NEW, CHG, MOV, or OUT followed by DCH or BDCH followed by a number (0 to 63).

BCHL
Backup D-channel loop number (0 to 158). Loop numbers can be deleted (X0 to X158).

CLOK
D-channel clock type. Enter EXT.

DCHL
DCHI loop number (0 to 158). Loop numbers can be deleted (X0 to X158).

DLOP
DS-1 channel (PRI loop). Enter the loop number (0 to 158), number of data calls (0 to 24), and frame format (D3, D4, or ESF).

DRAT
D-channel rate. Enter 56K or 64KC.

IFC
Interface type. Enter D100.

LCMT
Line encoding method. Enter B8S or AMI. Use B8S when subfield ZLG is B8ZS. Use AMI when subfield ZLG is ZCS.

MODE
Digital loop card type. Enter PRI.

RCVP
Recovery to primary D-channel option. Enter YES.

SIDE
Node type. Enter USR for slave to the controller.

YALM
Yellow alarm method. Enter DG2 when prompt DLOP frame format is D3 or D4. Enter FDL when prompt DLOP frame format is ESF.

LD60—digital trunk/primary rate interface diagnostic

This overlay is used to test and enable the DCHI.

The following prompts apply to PRI:

- DSYL *lll*—disable the yellow alarm for the PRI loop (*lll* is the loop number 0 to 158).
- ENLL *lll*-enable the PRI loop (*lll* is the loop number 0 to 158).

- SLFT *lll*—test the PRI card (*lll* is the loop number 0 to 158).
- STAT *lll*—status of the PRI loop and all its channels (*lll* is the loop number 0 to 158).

LD73—digital trunk error thresholds

This overlay is used to set the digital trunk interface (DTI) error thresholds.

The following prompts apply to PRI:

- BIPC—erred second threshold (0 to 128)
- BIPV—bit error rate thresholdsEnter the maintenance threshold (1 to 4) and the out-of-service threshold (1 to 4).
- LFAL—frame bit error thresholdsEnter the maintenance threshold (1 to 10240) and out-of-service threshold (1 to 10240).
- SRNT—slip count thresholdsEnter the maintenance threshold (1 to 1024) and out-of-service threshold (1 to 1024).

LD96—D-channel diagnostic program

This overlay is used to test and enable the D-channel.

The following prompt applies to PRI:

- ENL DCH *x*—enable the DCHI (*x* is the DCHI port number—odd number 1 to 15).
- STAT DCH *x*—status on the DCHI (*x* is the DCHI port number—odd number 1 to 15).

Datafill correlation

This section lists the datafill that must be coordinated between the DMS-100 and Meridian 1 Options 11-81 to ensure that PRI functions properly.

Layer 1 datafill correlation

The following table shows the datafill relationships for layer 1.

Table 15-1 Layer 1 datafill correlation (Sheet 1 of 4)

Description	DMS-100	Meridian 1 Options 11-81
Card type	Table CARRMTC	Overlay LD17
	Subfield CARD	Prompt MODE
	Value NT6X50AB	Response PRI
Inhibit alarm transmit	Table CARRMTC	Overlay LD60
	Subfield IAT	Command DSYL *lll*

Table 15-1 Layer 1 datafill correlation (Sheet 2 of 4)

Description	DMS-100	Meridian 1 Options 11-81
	Value Y or N	*where* *lll* is loop number (0-158)
Frame format	Table CARRMTC	Overlay LD17
	Subfield FF	Prompt DLOP
	Value SF	Response *lll dd* D3 or *lll dd* D4
	Value ESF	Response *lll dd* ESF *where* *lll* is loop number (0-158) *dd* is number of data calls (0-24)
Line encoding	Table CARRMTC	Overlay LD17
	Subfield ZLG	Prompt LCMT
	Value ZCS (when subfield DCHRATE is 56K)	Response AMI
	Value B8ZS (when subfield DCHRATE is 64K)	Response B8S
Bit error rate base	Table CARRMTC	Overlay LD73
	Subfield BERB Value BPV (when field FF is SF) Value CRC (when field FF is ESF)	not applicable—preset to four classes of error rates
Data link	Table CARRMTC	Overlay LD17
	Subfield DLK	Prompt YALM
	Value NILDL	Response DG2 (when prompt DLOP frame format is D3 or D4) Response FDL (when prompt DLOP frame format is ESF)

Table 15-1 Layer 1 datafill correlation (Sheet 3 of 4)

Description	DMS-100	Meridian 1 Options 11-81
Bit error rate maintenance limit	Table CARRMTC	Overlay LD73
	Subfield BERML	Prompt BIPV
	Value 6	Response *x y* *where* *x* is maintenance threshold (1-4); default is 3 *y* is out-of-service threshold (1-4); default is 2
Bit error rate out-of-service limit	Table CARRMTC	Overlay LD73
	Subfield BEROL	Prompt BIPV
	Value 3	Response *x y* *where* *x* is maintenance threshold (1-4); default is 3 *y* is out-of-service threshold (1-4); default is 2
Erred second threshold	Table CARRMTC	Overlay LD73
	Subfield ES	Prompt BIPC
	Value 864	Response 0-128; default is 3
Frame loss maintenance limit	Table CARRMTC	Overlay LD73
	Subfield FRAMEML	Prompt LFAL
	Value 17	Response *xxxxx yyyyy* *where* *xxxxx* is maintenance threshold (1-10240); default is 17 *yyyyy* is out-of-service threshold (1-10240); default is 511
Frame loss out-of-service limit	Table CARRMTC	Overlay LD73

Table 15-1 Layer 1 datafill correlation (Sheet 4 of 4)

Description	DMS-100	Meridian 1 Options 11-81
	Subfield FRAMEOL	Prompt LFAL
	Value 511	Response *xxxxx yyyyy* *where* *xxxxx* is maintenance threshold (1-10240);default is 17*yyyyy* is out-of-service threshold (1-10240);default is 511
Slip count maintenance limit	Table CARRMTC	Overlay LD73
	Subfield SLIPML	Prompt SRNT
	Value 4	Response *xxxx yyyy* *where* *xxxx* is maintenance threshold (1-1024);default is 15*yyyy* is out-of-service threshold (1-1024);default is 3
Slip count out-of-service limit	Table CARRMTC	Overlay LD73
	Subfield SLIPOL	Prompt SRNT
	Value 255	Response *xxxx yyyy* *wherexxxx* is maintenance threshold (1-1024);default is 15*yyyy* is out-of-service threshold (1-1024);default is 3

Layer 2 datafill correlation

The following table shows the datafill relationship for layer 2.

Table 15-2 Layer 2 data fill correlation (Sheet 1 of 3)

Description	DMS-100	Meridian 1 Options 11-81
D-channel defined	Table TRKSGRP	Overlay LD17
	Subfield DCHNL	
	Subfield PMTYPE	Prompt ADAN

Table 15-2 Layer 2 data fill correlation (Sheet 2 of 3)

Description	DMS-100	Meridian 1 Options 11-81
D-channel defined(continued)	Value DTCI or LTC	Response NEW DCH *xx*
	Subfield DTCINO or LTCNO	*where* *xx* is the D-channel number (0-63)
	Value 0-511	
	Subfield DTCICKTNO or LTCCKTNO	Prompt DCHL
	Value 0-19	Response *lll*
	Subfield DTCICKTTS or LTCCKTTS	*where* *lll* is the loop number (0-158)
	Value 1-24	***Note:*** The D-channel datafilled in table TRKSGRP is the same as the DS-1 end point datafilled in table SPECCONN.
Data rate of D-channel	Table TRKSGRP	Overlay LD17
	Subfield DCHRATE	Prompt DRAT
	Value 64K (when field ZLG is B8ZS)	Response 64KC
	Value 56K (when field ZLG is ZCS)	Response 56K ***Note:*** Data rate is also datafilled in table STINV. PRA is the value in field CONTYPE, and 56K or 64K is the value in field BAUD.

Table 15-2 Layer 2 data fill correlation (Sheet 3 of 3)

Description	DMS-100	Meridian 1 Options 11-81
Backup D-channel	Table TRKSGRP	Overlay LD17
	Subfield DCHBCKUP	
	Subfield PMTYPE	Prompt ADAN
	Value DTCI or LTC	Response NEW BDCH xx, where xx is the backup D-channel number (0-63)
	Subfield DTCINO or LTCNO	
	Value 0-511	
	Subfield DTCICKTNO or LTCCKTTS	Prompt BCHL
	Value 0-19	Response lll, where lll is the loop number (0-158)
	Subfield DTCICKTTS or LTCCKTTS	Prompt RCVP
	Value 1-24	Response YES
		Note: The DMS-100 backup D-channel must be datafilled on a higher span number than the primary D-channel. The backup D-channel datafilled in table TRKSGRP is the same as the DS-1 end point datafilled in table SPECCONN.
Q.921 framing flags	Table TRKSGPP	Not applicable
	Subfield L1FLAGS	Layer 1 flags. L1FLAGS is only valid on TDM/XPMs. This field is used by ISDN PRA trunks. It indicates what may be expected as an idle code when no frames are transmitted on a D-channel, particularly when the NTBX01 (ISP card) is used in the XPM.
	Value N	**Note:** Enter Y when the switching node at the far end is not Nortel maufactured equipment. Y(es) (default) means that the idle code is 7E. Most non-Nortel equipment and Nortel M1 use this value. N(o) means that the idle code can be 7E + other value, such as 7F. This value can be used when connecting to other TDM/XPMs. See NIS-A211-1 (Standard release 08.01, August 1998), section 4.5 and NIS-A233-1 (Standard release 05.01, April, 1999), section 4.5 for more information about the idle codes.

Layer 3 datafill correlation

The following table shows the datafill relationship for layer 3.

Table 15-3 Layer 3 datafill correlation (Sheet 1 of 3)

Description	DMS-100	Meridian 1 Options 11-81
Q.931 interface identifier	Table LTCPSINV	Overlay LD16
	Subfield IID	Prompt ROUT
	Value 0 (for DS-1 link with primary or single D-channel)	Response 0
	Value 1 (for DS-1 link with the backup D-channel)	Response 1
	Value 2-31 (for multiple links)	Response 2-31
		Note: When datafilling multiple DS-1 links per trunk group, use a unique ID for each DS-1. Enter a 1 only if configuring a DS-1 link with a backup D-channel.
User network interface	Table TRKSGRP	Overlay LD17
	Subfield IFCLASS	Prompt SIDE
	Value NETWORK	Response USR
B-channel selection	Table TRKGRP	Overlay LD16
	Subfield SELSEQ	Prompt SRCH
	Value ASEQ	Response LIN
	Value MIDL	Response RRB
		Note: ASEQ and LIN are generally used.

Table 15-3 Layer 3 datafill correlation (Sheet 2 of 3)

Description	DMS-100	Meridian 1 Options 11-81
B-channels defined	Table TRKMEM Field PMTYPE Value DTCI or LTC Subfield DTCINO or LTCNO Value 0-511 Subfield DTCICKTNO or LTCCKTNO Value 0-19 Subfield DTCICKTTS or LTCCKTTS Value 1-24	Overlay LD14 Prompt TN Response *lll ch* *where**lll*** is loop number (0-158) *ch* is channel (1-24)
B-channel glare	Table TRKSGRP Subfield BCHGLARE Value STAND or YIELD	Not applicable ***Note:*** Generally, enter YIELD when the PBX at the switching node at the far end is not Northern Telecom manufactured equipment. However, correlation of data must be made.
Protocol variant	Table LTDEF Subfield LTCLASS Enter PRA Subfield VARIANT Value NTNAPRI Subfield ISSUE Value V1 Subfield PROFNAME Value *profile name* or NIL	Overlays LD16 and LD17 Prompt IFC Response D100

Table 15-3 Layer 3 datafill correlation (Sheet 3 of 3)

Description	DMS-100	Meridian 1 Options 11-81
Service identifier	Table LTCALLS	Overlay LD16
		Prompt NFS
		Response YES
	Field LTID	
	Subfield CALLTYPE	Prompt TKTP
	Value TIE, WATS, FX	Response TIE, WAT, FX
	Subfield LTCOPT	Prompt SID
	Value SIDXLA	Response 0-511
	Subfield RTRNAME	
	Value *router name*	
Q.931 call reference value length	Table TRKSGRP	Not applicable
	Subfield CRLENGTH	
	Value 2	
Q.931 progress indicator location	Table TRKSGRP	Not applicable
	Subfield LOCATION	
	Value USER	

16 Call treatments and cause values for PRI

This chapter contains information on call treatments that occur in TRAVER output. It also shows the corresponding cause values for each call treatment.

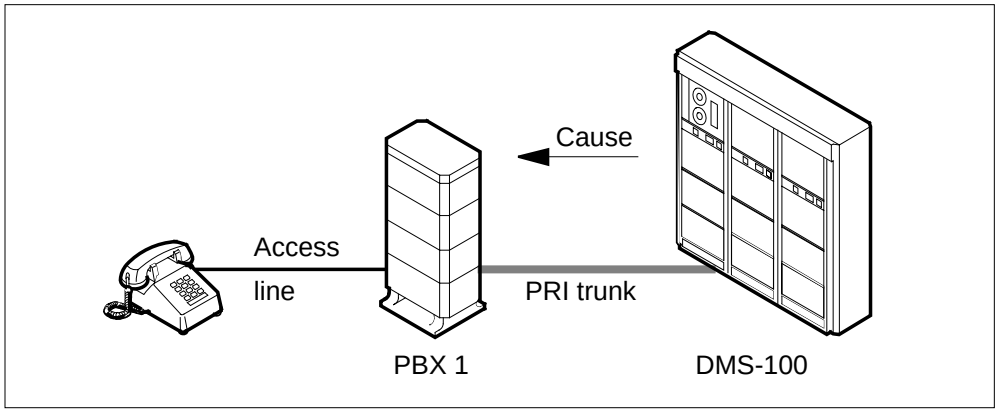
Call treatments to cause values

When the DMS-100 routes a call to treatment, a message with a cause value is sent to the user indicating why the call went to treatment.

More than one call treatment can generate a specific cause value. In addition, only a small number of the existing call treatments map to meaningful cause values. All remaining treatments map to the cause value 127, and the treatment is applied in-band. In-band refers to providing audible treatments over the established B-channel.

The figure below shows the type of calls that invoke the mapping. Refer to the table on the following page for the returned cause values.

Figure 16-1 Configuration of call routes to treatment on a DMS-100 switch



The following table contains the call treatments and the corresponding cause values to which they map. For definitions of the treatments, refer to the *Data Schema Reference Manual*, table TMTCNTL.TREAT..

Table 16-1 Call treatments and corresponding cause values (Sheet 1 of 2)

Call treatment	Cause value
ATBS (attendant busy)	31
BCNI (bearer capability not implemented)	65
BLDN (blank directory number)	1
BUSY (busy line)	17
CACE (carrier access code error)	2
CHNF (channel negotiation failure)	41
CNAC (call not accepted)	88
CONF (confirm tone)	31
CONP (connection not possible)	66
CREJ (call rejected)	21
DNTR (denied termination)	54
FNAL (feature not allowed)	50
GNCT (generalized no circuit)	34
MHLD (music on hold)	31
NACK (feature action not acknowledged)	29
NBLH (network blockage heavy traffic)	42
NBLN (network blockage normal traffic)	34
NCRT (no circuit)	34
NOSC (no service circuit)	34
NOSR (no software resource)	47
NTRS (no terminal responding)	18
PDIL (partial dial)	28
PSIG (permanent signal)	90

Table 16-1 Call treatments and corresponding cause values (Sheet 2 of 2)

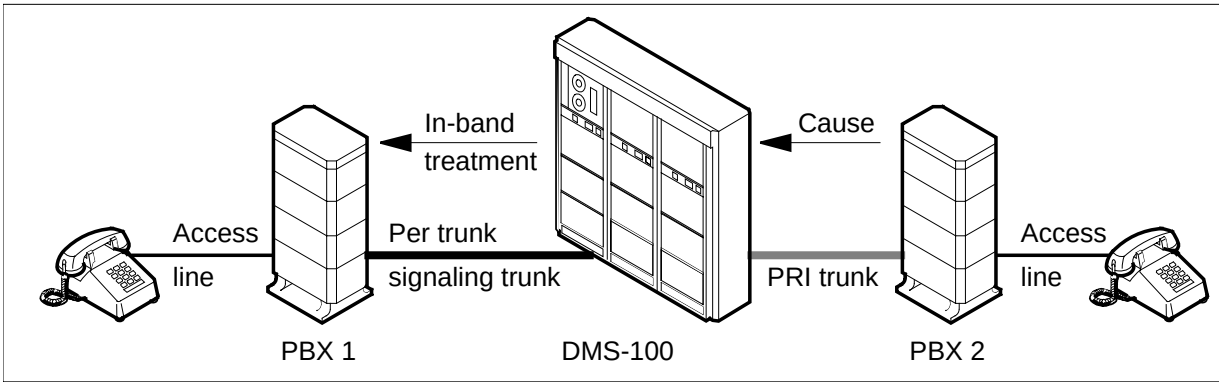
Call treatment	Cause value
RODR (reorder)	28
SYFL (system fail)	41
TRBL (trouble intercept)	27
UNDN (unassigned directory number)	1
VACT (vacant code)	1

Cause values to call treatments

The cause information element describes the reason for generating certain messages, provides diagnostic information in the event of procedural errors, and indicates the location of the cause originator.

The following figure shows the type of calls that invoke this mapping. Refer to the following table for the treatments applied.

Figure 16-2 Configuration of call routes to treatment on a PBX



The following table contains cause values that correspond to DMS-100 in-band treatments. The bracketed number beside the treatment indicates the

type of extended treatments defined in the DMS-100 switch. (Cause values not in the following table are reserved).

Table 16-2 Cause values and corresponding call treatments (Sheet 1 of 3)

Cause value and name	Call treatment
Normal event class	
1. unallocated (unassigned) number	BLDN
2. no route to specified transit network	CACE (79)
3. no route to destination	RODR (25)
6. channel unacceptable	CHNF (160)
16. normal call clearing	none
17. user busy	BUSY (19)
18. no user responding	NTRS (133)
19. user alerting, no answer	RODR (25)
21. call rejected	CREJ (134)
22. number changed	CNAC (113)
26. non-selected user clearing	RODR (25)
27. destination out of order	RODR (25)
28. invalid number format (incomplete address)	PDIL (2)
29. facility rejected	NACK (78)
30. response to STATUS ENQUIRY	CHNF (160)
31. normal, unspecified	RODR (25)
Resource unavailable class	
34. circuit/channel congestion	NCRT (24)
38. network out of order	SYFL (14)
41. temporary failure	CHNF (160)
42. switching equipment congestion	NBLH (9)
Note: "Reroute" generally means that a protocol error has occurred on the selected channel. Another trunk termination is attempted. If the attempt is unsuccessful, call treatment GNCT (34) is applied.	

Table 16-2 Cause values and corresponding call treatments (Sheet 2 of 3)

Cause value and name	Call treatment
43. access information discarded	reroute* to next B-channel
44. requested channel not available	reroute*
45. preempt	CHNF (160)
46. no preempt circuit available	BLPR
47. resources unavailable, unspecified	NOSR (93)
48. preempt reuse	RODR (25)
Service not available class	
50. requested facility not subscribed	FNAL (68)
52. outgoing calls barred	RODR (25)
54. incoming calls barred	DNTR (33)
57. bearer capability not authorized	CNAC (113)
58. bearer capability not presently available	CNAC (113)
63. service or option not available, unspecified	NACK (78)
Service not implemented class	
65. bearer capability not implemented	BCNI (161)
66. channel type not implemented	CONP (98)
70. only restricted digital information bearer capability is available	CNAC (113)
79. service or option not implemented, unspecified	FNAL (68)
Invalid message class	
81. invalid call reference value	CHNF (160)
82. identified channel does not exist	CHNF (160) reroute* if SL-1
88. incompatible destination	CNAC (113)

Note: "Reroute" generally means that a protocol error has occurred on the selected channel. Another trunk termination is attempted. If the attempt is unsuccessful, call treatment GNCT (34) is applied.

Table 16-2 Cause values and corresponding call treatments (Sheet 3 of 3)

Cause value and name	Call treatment
90. destination address missing	CHNF (160)
95. invalid message, unspecified	CHNF (160)
Protocol error class (message not recognized)	
96. mandatory information element is missing	CHNF (160)
97. message type non-existent or not implemented	CHNF (160)
98. message not compatible with call state, or message type non-existent or not implemented	CHNF (160)
99. information element non-existent or not implemented	CHNF (160)
100. invalid information element contents	CHNF (160)
101. message not compatible with call state	CHNF (160)
102. recovery on timer expiry	CHNF (160)
111. protocol error, unspecified	CHNF (160)
Interworking class	
127. interworking, unspecified	none
Note: "Reroute" generally means that a protocol error has occurred on the selected channel. Another trunk termination is attempted. If the attempt is unsuccessful, call treatment GNCT (34) is applied.	

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