DMS-100 Family

E800 SSP Toll-free Numbers

Service Guide

NØRTEL

NORTHERN TELECOM

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E800 SSP Toll-free Numbers
Service Guide

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Standard 01.01   First release of this document for NA006.

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About this document

This document describes the E800 toll-free numbers implementation on the SSP. It includes the following information:

- a description of the service

- datafill requirements for the service

- monitoring of the service

- maintenance for the service

- examples of TRAVER outputs that are relevant to the service

How to check the version and issue of this document

This document indicates its version and issue by numbers, for example, 01.01.

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

The second two digits indicate the issue. The issue number increases each time the writer revises and rereleases the document in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in the *Product Documentation Directory*, 297-8991-001.

References in this document

This document references the following Northern Telecom publications:

- *DMS-100 Advanced Intelligent Network Service Enablers Service Implementation Guide*, 297-5161-022

- *DMS-100 Advanced Intelligent Network Essentials Service Implementation Guide*, 297-5161-021

- *DMS-100 Family Glossary of Terms and Abbreviations Reference Manual*, 297-1001-825

- *DMS-100 Family Local Routing Number-Local Number Portability Service Implementation Guide*, 297-8981-021

- *Log Report Reference Manual*

- *Meridian Digital Centrex Simplified Message Desk Interface Set-up and Operation*, 297-2051-104

- *Office Parameters Reference Manual*

- *Operational Measurements Reference Manual*

- *SERVORD Reference Manual*

- *Translations Guide*

What precautionary messages mean

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

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

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

ATTENTION

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

CAUTION   Possibility of service interruption or degradation

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

WARNING   Possibility of equipment damage

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

DANGER   Possibility of personal injury

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

How commands, parameters, and responses are represented

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

Input prompt (>)

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

```
>BSY
```

Commands and fixed parameters

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

```
>BSY   CTRL   ctrl_no
```

Variables

Variables are shown in lowercase letters:

```
>BSY   CTRL   ctrl_no
```

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

Responses

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

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

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

Step   Action

1   Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no

and pressing the Enter key.

where

ctrl_nois the number of the CTRL (0 or 1)

Example of a MAP response:

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

Chapter 1: Understanding toll-free number services

Use the information provided in this chapter to understand how basic toll-free number service works and how Enhanced 800 (E800) software interacts with other features.

This chapter includes the following sections:

*   "What is toll-free number service?," on page 16

    — provides a brief description of toll-free number service.

*   "Basic toll-free number service architecture," on page 17

    — explains the network architecture that provides toll-free services.

*   "Caller access to toll-free services," on page 18

    — describes how a caller accesses toll-free services.

*   "Toll-free service capabilities," on page 19

    — explains the various add-on capabilities that are available in conjunction with the basic toll-free service feature.

*   "Billing," on page 20

    — explains how billing for toll-free calls occurs.

*   "Sample toll-free number service calls," on page 21

    — explains how toll-free calls are screened during call translation with samples of typical toll-free number service calls.

*   "E800 agent interworking," on page 41

    — illustrates which agents have special interworking considerations with toll-free numbers service when the agents are operating on the same service switching point (SSP).

*   "E800 feature interactions," on page 44

    — describes the feature interactions that are supported by E800.

1.1 What is toll-free number service?

Toll-free calls are a number service code (NSC) feature that enables service signaling point (SSP) offices to interface with operating company databases. Toll-free number service calls are identified by the first three digits that indicate the call requires special translations treatment. All of the digits are matched against a database entry indicating the routing digits to be used for call setup.

Toll-free calls can be routed to specific carriers or to routes within the operating company's network itself depending on the arrangement made between the toll-free subscriber and the carriers. Such arrangements can include routing that is based on the time of day, day of week, and location at which the call originates. A toll-free call is billed to the E800 subscriber, and not the originator.

The functions of the SSP are as follows:

- provides the service control point (SCP) with calling and called directory numbers (DN)

- routes the calls to the destination DNs or treatment based on the response from the SCP

- provides network management at the request of the SCP through automatic call gapping (AGC)

- generates a billing record for the call

- generates termination notification requests

Available features for E800 toll-free number service include ten-digit routing, comfort tones, and four-digit carrier identification codes. The Nortel E800 toll-free number service was tested and based on Bellcore specification TR-TSY-000533, Issue 2.

Because of the success of toll-free number service, the national database using the special code 800 ran out of available numbers. To add numbers to support this service, the Industry Numbering Committee, made 8XX available for E800 toll-free service codes. The XX numbers must be identical. Under this agreement, 888 is the first code to be used, leaving 822, 833, 844, 855, 866 and 877 on reserve for future expansion. The numbers 811 and 899 are not available.

1.2 Basic toll-free number service architecture

The toll-free number service uses operating company databases in a signaling system 7 (SS7) network architecture to determine the call destination (See Figure 1). Offices in the network that communicate with these databases are configured as SSPs. An SSP communicates with an operating company database at an SCP using SS7. Thus, in an SS7 network the SSP is a node that launches queries to a database by way of a signaling transfer point (STP).

Toll-free number service calls can route from the originating end office (EO) to an access tandem (AT) office equipped as an SSP.

Usually, the switch doing the SSP function is an EO. Because the equal access plan (EAP) makes use of the ATs to concentrate inter-LATA traffic, these types of offices are also convenient points to concentrate number services such as toll-free service.

In most operating networks, the first SSP that a call reaches in the network launches a toll-free database query to the SCP, although this is not a requirement. It is possible to install the toll-free/SSP package in an equal access end office (EAEO) and to redirect the toll-free calls to a remote SCP database.

In a TOPS SSP, if an operator enters a toll-free number, the call routes using toll-free number. A toll-free database query is not launched for these calls.

Figure 1   Toll-free number service SS7 network architecture
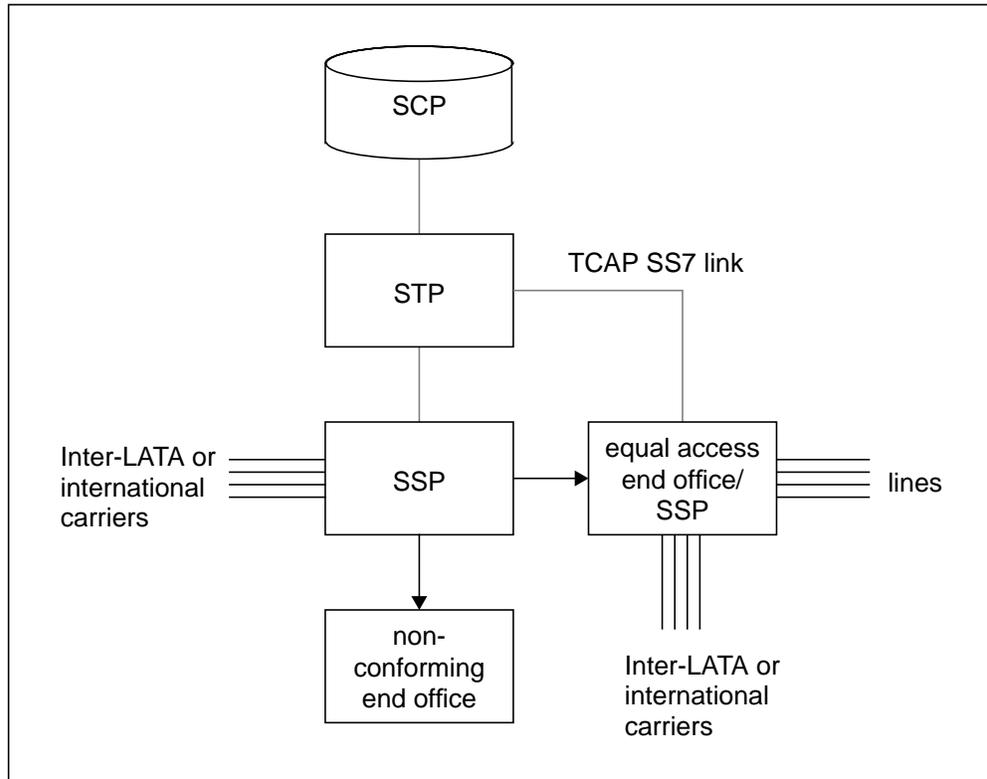
1.2.1 Principle call routes for toll-free traffic

In a fully operational network, there are four common ways for a toll-free call to access an SCP database for routing information:

- The call originates on an EAEO/SSP.

- The call originates on a combined EO/AT SSP.

- The call routes from an EAEO to an AT SSP or a TOPS SSP.

- The call routes from a nonconforming EO to an AT SSP or a TOPS SSP.

1.3 Caller access to toll-free services

A caller places a toll-free call by dialing a ten-digit number. The first three digits are a number services code and may be preceded with a "1" prefix, depending on local dialing arrangements. For example, toll-free services can be accessed by dialing leading digits 1-800 or 0-800. The digits dialed depend on the translation and numbering plan that is configured by the operating company administration. The call is recognized as a toll-free call during its translations stage.

1.4 Toll-free service capabilities

The basic toll-free service has a number of options. These options are configured in table NSCDEFS.

1.4.1 Ten-digit routing

Under normal circumstances, if the numbering plan area (NPA) of the routing number that is returned by the SCP is the same as the NPA of the incoming agent, then the NPA is removed from the routing number before retranslation. Under some circumstances, it is desirable to retranslate the full ten-digit routing number. This is accomplished by adding the ten-digit routing option to the E800 tuple in table NSCDEFS.

The ten-digit routing option applies to all toll-free calls in an office.

1.4.2 Comfort tones

Comfort tones are generated to indicate to the calling party that call processing is being carried out. This is used especially with MF signaling. Call set-up may take a few seconds. To prevent the subscriber going on-hook and re-dialing, tones are generated that are used to indicate to the subscriber that the call is progressing. The COMFORT option is set in table NSCDEFS.

Comfort tones are only applicable for non-ISDN user part (ISUP) signaling.

1.4.3 Four-digit carrier identification codes

In the United States, there are a large number of independent carriers and the number is approaching the limit that can be coded with a three-digit carrier identification code (CIC). The toll-free software has a built-in option that allows the administration to process four-digit CICs as required.

The four-digit CIC is set using option 4DGTCIC in table NSCDEFS.

After adding or removing the four-digit CIC option, the E800 subsystem is busied and returned to service.

CAUTION
Possible loss of service
Adding or removing CIC codes and busying the subsystem brings down E800 toll-free traffic only. It does not bring down AIN toll-free service.

1.4.4 Automatic call gapping

Automatic call gapping (ACG) provides a form of network management. An SSP may have to reduce the number of queries sent to the SCP at the request of the SCP. The request from the SCP comes in the form of an ACG component appended to a response message. The ACG component is sent

from an SCP number services application when the application is overloaded, detects mass calling to a number services destination, or receives a manual control initiation from a Service Management System (SMS).

1.4.5 Termination notification

Termination notification (TN) supplies the SCP with information from the SSP about how and when an E800 call ended. If the SCP needs this information for a given call, the SCP sends a Send_Notification component in the response message to the SSP. When the call is over, the SSP sends a TN message to the SCP, which contains the following:

- information about the call that has ended
- an indication if the ACG control list has overflowed

1.4.6 Payphone Specific Coding Digits

The Payphone Specific Coding Digits for Toll Free Service feature provides a way to identify the originator as a payphone when an E800 call terminates to a POTS translated number. ANI ii digits are used to identify a call.

ANI ii digit code "25" is used to indicate to the receiver when an E800 call originates from a payphone. If the response from the SCP returns a POTS number and indicates an equal access (EA) call then ANI ii digit code "25" is transmitted if the originator is a payphone. A call is EA if the carrier id returned in the response is not equal to the SSP_NSC_CARRIER_ID parameter in the OFCENG table.

For non-payphone originators, such as COIN, MOTEL, or PRISON phone, ANI ii digit code "24" is transmitted.

1.5 Billing

An SSP automatic message accounting (AMA) billing record is generated on every answered SSP toll-free call at termination. When a toll-free number services call is dialed at a non-SSP office, the call is routed to an appropriate AT/SSP. An AMA record for access charge billing and possibly customer billing is made at the AT/SSP.

The call code used for the Number Services AMA record is indicated by the response message received from the SCP. The AMA call type in the response message contains the AMA call code.

Each billing record contains the dialed number, the number returned from the SCP database, and the calling number.

> *Note:* It is possible to generate billing records for unanswered calls through tables BCCODES and AMAOPTS. Refer to the data schema section of the *Translations Guide* for a description of these tables.

1.6 Sample toll-free number service calls

The following sections describe the sequence of steps for a representative sample of typical toll-free number service calls:

1. inter-LATA call from an equal access end office
2. inter-LATA call from an access tandem
3. intra-LATA call from an access tandem
4. intra-LATA call from an EAEO with automatic call gapping
5. call with ACG applied from an AT SSP
6. call with termination notification–inter-LATA from an EAEO
7. international call from an EAEO.
8. 0- call to TOPS SSP

1.6.1 Scenario 1: Inter-LATA call from an equal access end office

In this example, a caller dials a toll-free number from a line that is connected to an EAEO with SSP capabilities. The toll-free number routes out of this LATA to an inter-LATA carrier. See Figure 2.

Figure 2   Inter-LATA call from an equal access end office
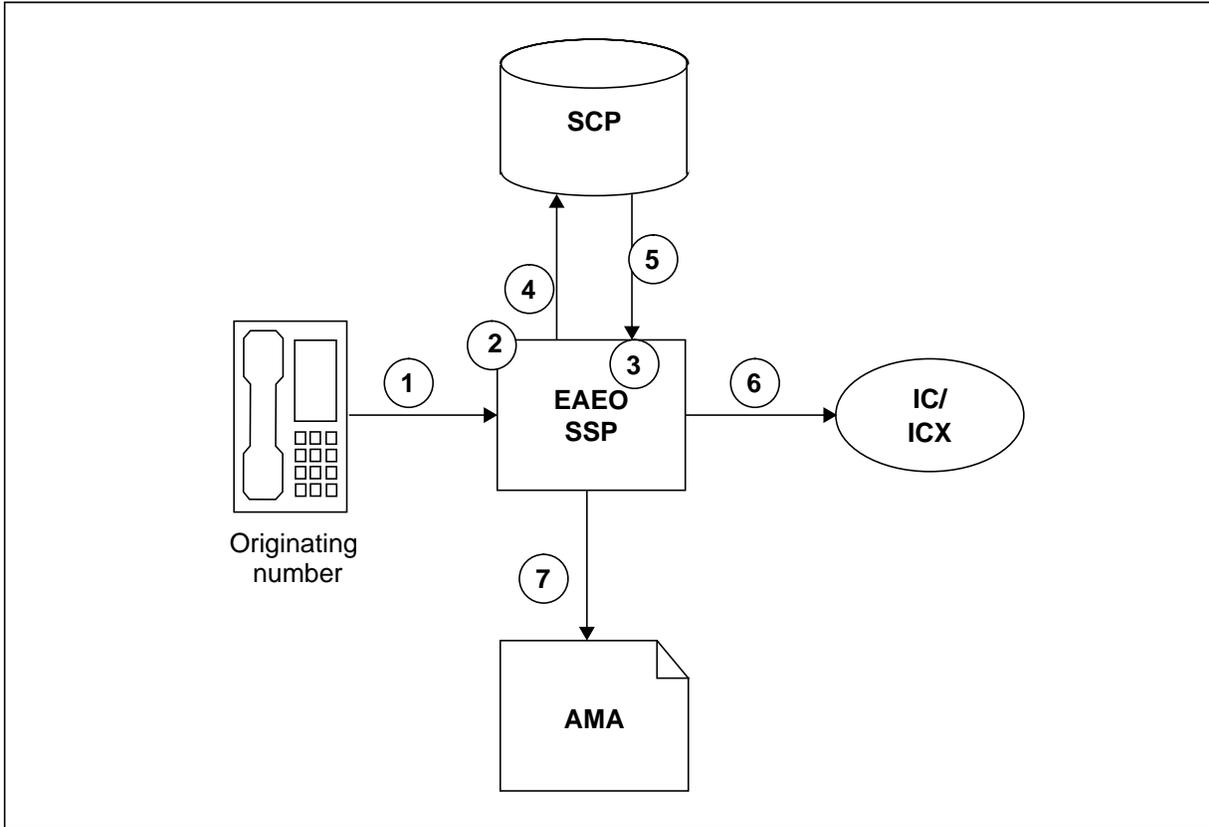
Note: The numbers in the figure relate to the call steps in the following description.

The following common sequence occurs for this type of toll-free call.

1   The caller dials 1-8XX-NXX-XXXX.

2   Within the SSP, the NSC selector is detected during translations, indicating that the call is subject to E800 processing.

3   The automatic call gapping (ACG) control list is checked for an entry that matches the first six or ten digits of the dialed number. If such an entry does not exist, or if its duration has expired, or if its gap has expired, the query is sent.

4   The SSP launches a query with permission TCAP message that contains the following mandatory information:

   a. dialed number (toll-free number)

   b. charge number

   c. LATA

    d. originating station type

5 The SCP executes routing logic and sends to the SSP a TCAP response message that contains the

    a. routing number

    b. billing indicators

    c. call code

    d. carrier ID

6 Based on the SCP response, the call is routed to the inter-LATA carrier (IC or IXC) over an access to carrier (ATC) trunk, or an inter-toll (IT) trunk. The call is determined to be inter-LATA since the carrier ID is not the same as the office parameter SSP_NSC_CARRIER_ID in table OFCENG. The following information is sent:

    a. routing number

    b. charge number

    c. ANI information digits (or OLI for ISUP)

Note: For ISUP connections, the calling party address and the originating line indicator are also sent.

7 After the call is answered, billing generates the AMA record with the following parameters:

    a. call code 141

    b. structure code 360

1.6.2 **Scenario 2: Inter-LATA call from an access tandem**

In this example, a caller dials a toll-free number from a line that is connected to an EAEO. The EO goes to an AT with SSP capabilities. The toll-free number routes out of this LATA to an inter-LATA carrier (IC). See Figure 3.

Figure 3   Inter-LATA call from an access tandem
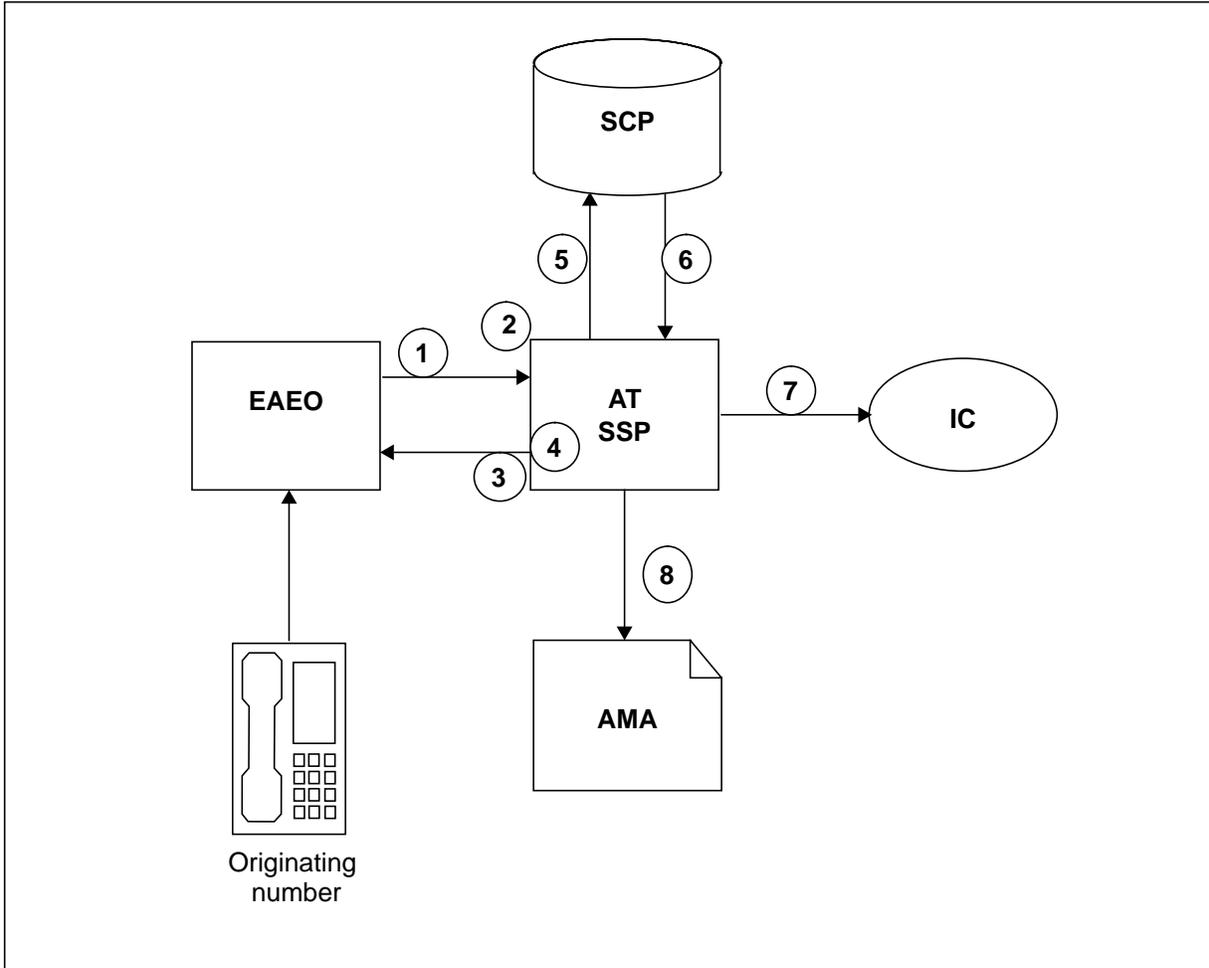
Note: The numbers in the figure relate to the call steps that are indicated in the following description.

The common sequence that occurs for this type of toll-free call is as follows.

1 The caller dials 1-8XX-NXX-XXXX. The EO routes the call to the AT. The following information is forwarded to the AT:

a. dialed digits (toll-free number)

b. charge number

c. ANI information (or OLI if ISUP)

d. 0ZZ 0110 in the ISUP parameter

Note: The 0110 carrier code is datafilled in the SSP in table OFCENG in the tuple SSP_NSC_CARRIER_ID. The value is usually 0110.

2 Within the AT SSP, the NSC selector is detected in translations, meaning that the call is to be handled by E800 processing. This selector is in table STDPRTCT. If the NSC selector is encountered, the call may involve interworking with Advanced Intelligent Network (AIN). In AT/SSPs that support AIN, if the NSC selector is detected, refer to the E800 feature interactions section of this document.

Note: TOPS SSP does not support AIN.

3 If the EAEO is connected to the AT through ISUP, then an EXM message is sent to the EAEO. If the EAEO is connected by an MF trunk, then the 0ZZ 0110 is received at the AT. A wink is sent to the EAEO to send the charge number, ANI information, and the dialed number.

4 The automatic call gapping (ACG) control list is checked for an entry that matches the first six or ten digits of the dialed number. If such an entry does not exist, or if its duration has expired, or if its gap has expired, the query is sent.

5 The SSP launches a query with permission TCAP message that contains the following mandatory information:

a. dialed number (toll-free number)

b. charge number

c. LATA

d. originating station type

Note: If no charge number is supplied by the end office, the SSP constructs the NPA from datafill in table TRKGRP. The NXX office code can also be obtained from table SSPTKINF. Refer to "Datafilling table SSPTKINF," on page 83.

6 The SCP executes routing logic and sends to the SSP a TCAP response message that contains the

    a. routing number

    b. billing indicators

    c. carrier ID

7 Based on the SCP response, the call is routed to the IC over an ATC or IT trunk. The call is determined to be inter-LATA since the carrier ID is not the same as the office parameter SSP_NSC_CARRIER_ID in table OFCENG. The following information is sent:

    a. routing number

    b. charge number

    c. ANI information digits (or OLI for ISUP)

Note: For ISUP connections, the calling party address and the originating line indicator are also sent.

8 After the call is answered, billing generates the AMA record with the following parameters:

    a. call code 141

    b. structure code 360

1.6.3 Scenario 3: Intra-LATA call from an access tandem

In this example, a caller dials a toll-free number from a line that is connected to an EAEO. The end office goes to an AT with SSP capabilities. The toll-free number routes to a termination number inside the LATA. See Figure 4.

Figure 4   Intra-LATA call from an access tandem
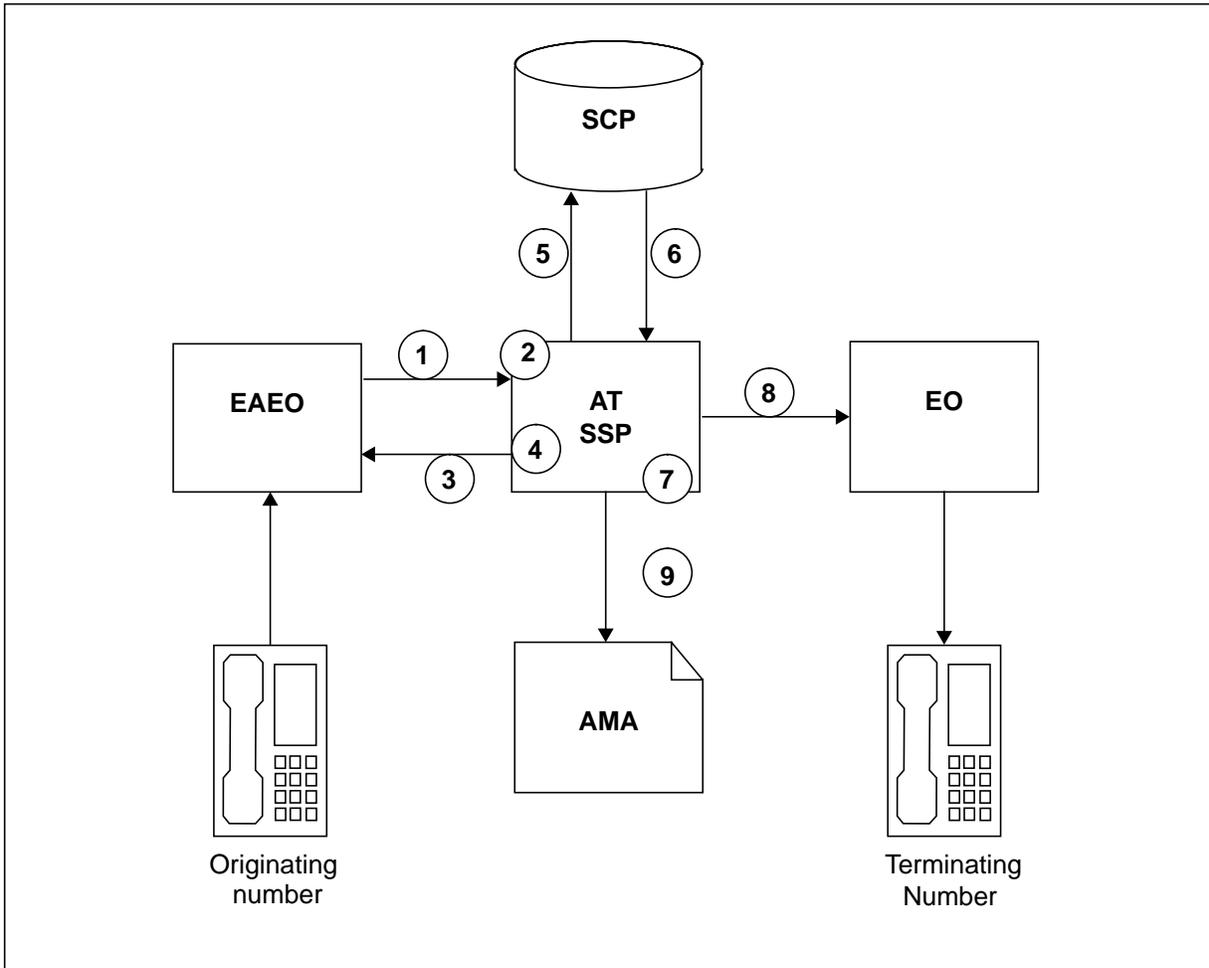
Note: The numbers in the figure relate to the call steps that are indicated in the following description.

The common sequence that occurs for this type of toll-free call is as follows.

1   The caller dials 1-8XX-NXX-XXXX. EO routes call to the access tandem. The following information is forwarded to the access tandem:

   a. dialed digits (toll-free number)

   b. charge number

   c. ANI information (or OLI if ISUP)

   d. 0ZZ 0110 in the ISUP parameter

   e. calling party number (optional)

   Note: If no charge number is supplied by the end office, the SSP constructs the NPA from datafill in table TRKGRP. The NXX office code can also be obtained from table SSPTKINF. Refer to "Datafilling table SSPTKINF," on page 83.

   Note: The 0110 carrier code is datafilled in the SSP in table OFCENG in the tuple SSP_NSC_CARRIER_ID. The value is usually 0110.

2   Within the AT/SSP, the NSC selector is detected in translations, meaning that the call is to be handled by E800 processing. This selector is in table STDPRTCT. If the NSC selector is encountered, the call may involve interworking with Advanced Intelligent Network (AIN). In AT/SSPs that support AIN, if the SSP selector is detected, refer to "E800 feature interactions," on page 44.

   Note: The NSC selector must appear in table TFSSCRN to make the call subject to AIN toll-free processing.

3   If the EAEO is connected to the AT through ISUP, then an EXM message is sent to the EAEO. If the EAEO is connected over an MF trunk, then the 0ZZ 0110 is received at the AT. A wink is sent to the EAEO to send the charge number, ANI information, and the dialed number.

4   The automatic call gapping (ACG) control list is checked for an entry that matches the first six or ten digits of the dialed number. If such an entry does not exist, or if its duration has expired, or if its gap has expired, the query is sent.

5 The SSP launches a query with permission TCAP message that contains the following mandatory information:

   a. dialed number (toll-free number)

    b. charge number

    c. LATA

    d. originating station type

    Note: If no charge number is supplied by the end office, the SSP constructs the NPA from datafill in table TRKGRP. The NXX office code can also be obtained from table SSPTKINF. Refer to "Datafilling table SSPTKINF," on page 83.

6 The SCP executes a routing logic and sends to the SSP a TCAP response message that contains the

    a. routing number

    b. billing indicators

    c. carrier ID=0110

7 The call is determined to be intra-LATA since the carrier ID is the same as the office parameter SSP_NSC_CARRIER_ID in table OFCENG.

8 Based on the SCP response, the call is routed locally or through a local end office by way of an IT trunk. A routing number is sent.

9 After the call is answered, billing generates the AMA record with the following parameters:

    a. call code 142

    b. structure code 364

1.6.4 Scenario 4: Inter-LATA call from an EAEO with automatic call gapping

In this example, a caller dials a toll-free number from a line connected to an EAEO with SSP capabilities. The toll-free number routes out of this LATA to an inter-LATA Carrier. See Figure 5.

Figure 5   Inter-LATA call from an EAEO with automatic call gapping
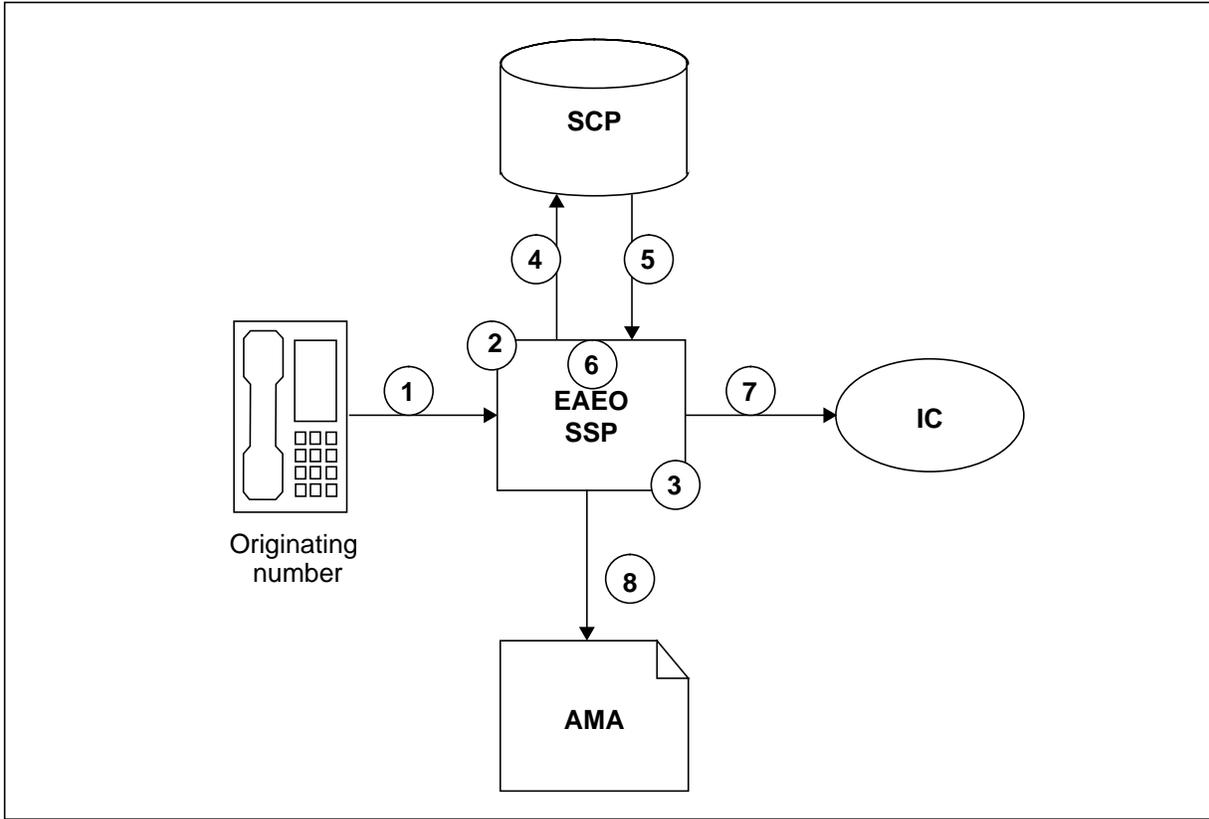
This call also contains ACG control information that is encoded on the response from the SCP. ACG is a network traffic management scheme that alleviates network congestion.

Note: The numbers in the figure relate to the call steps that are indicated in the following description.

The common sequence that occurs for this type of toll-free call is as follows.

1 The caller dials 1-8XX-NXX-XXXX.

2 Within the AT/SSP, the NSC selector is detected in translations, meaning that the call is to be handled by E800 processing. This selector is in table STDPRTCT. If the NSC selector is encountered, the call may involve interworking with Advanced Intelligent Network (AIN). In AT/SSPs that support AIN, if the SSP selector is detected, refer to "E800 feature interactions," on page 44.

3 The automatic call gapping (ACG) control list is checked for an entry that matches the first six or ten digits of the dialed number. If the ACG duration has expired on the ACG control list, the gapping is blocked, and all queries are sent. If the entry is on the ACG control list, and the gap duration has expired, the query is sent, and the gap duration timer is reset. If the entry is not on the ACG control list, the query is sent without observing the gap duration.

4 The SSP launches a query with permission TCAP message, that contains the following mandatory information:

a. dialed number (toll-free number)

b. charge number

c. LATA

d. originating station type

Note: If no charge number is supplied by the end office, the SSP constructs the NPA from datafill in table TRKGRP. The NXX office code can also be obtained from table SSPTKINF. Refer to "Datafilling table SSPTKINF," on page 83.

5   The SCP executes routing logic and sends to the SSP a TCAP response message that contains the

   a.   routing number (usually, the same toll-free number)

   b.   billing indicators

   c.   carrier ID

   d.   the duration and gap of ACG operational control for the identified number service code

   e.   the reason code for invoking ACG

6   ACG is applied to subsequent calls matching the criteria specified in the ACG component.

7   Based on the SCP response, the call is routed to the inter-LATA carrier over an ATC trunk. The call is determined to be inter-LATA since the carrier ID is not the same as the office parameter SSP_NSC_CARRIER_ID in table OFCENG. The following information is sent:

   a.   routing number

   b.   charge number

   c.   ANI information digits (or OLI for ISUP)

   Note: For ISUP connections, the calling party address and the originating line indicator are also sent.

8   After the call is answered, billing generates the AMA record with the following parameters:

   a.   call code 142

   b.   structure code 364

1.6.5 Scenario 5: Call with ACG applied from an AT/SSP

In this example, a caller dials a toll-free number from a line that is connected to an EAEO. The end office goes to an AT with SSP capabilities. See Figure 6.

Figure 6   Call with ACG applied from an AT/SSP
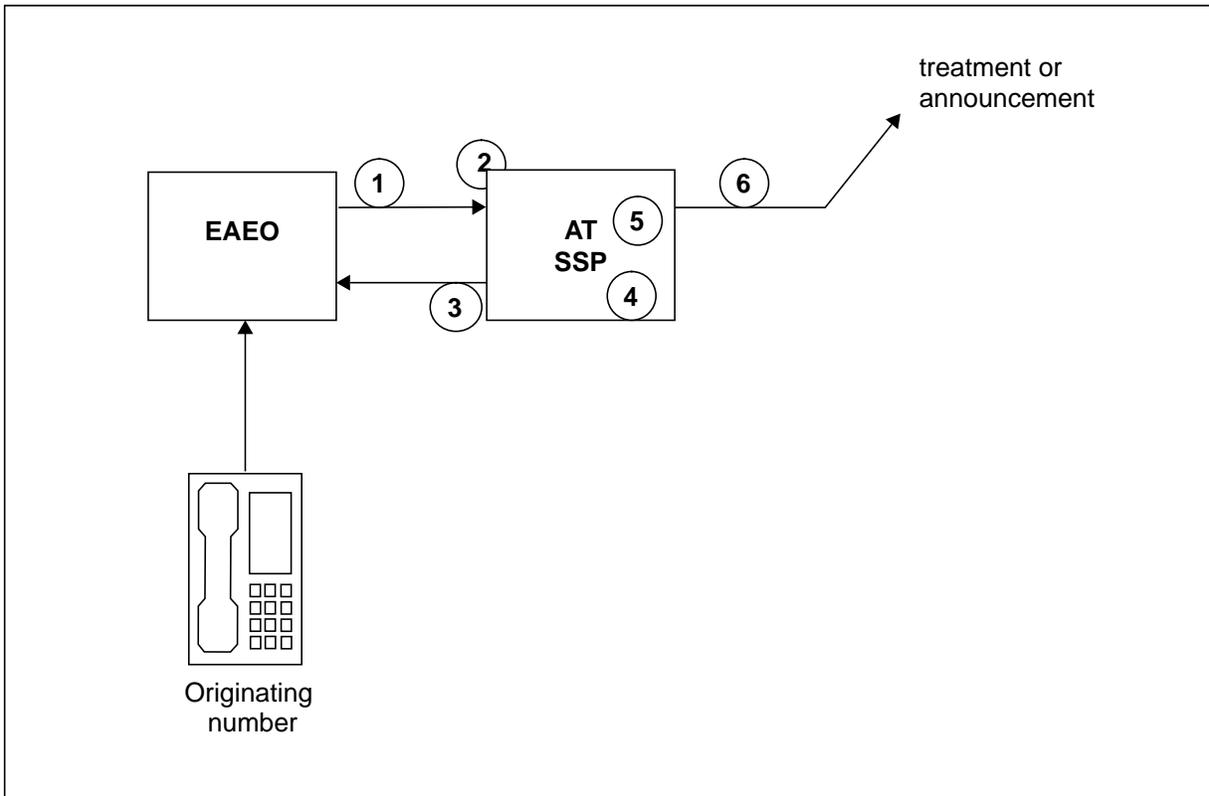
With ACG active for this toll-free number in the SSP, the call is routed by ACG controls in the switch to a treatment or an announcement.

Note: The numbers in the figure relate to the call steps that are indicated in the following description.

The common sequence that occurs for this type of toll-free call is as follows.

1   The caller dials 1-8XX-NXX-XXXX. EAEO routes the call to the access tandem. The following information is forwarded to the access tandem:

   a. dialed digits (toll-free number)

   b. charge number

   c. ANI information (or OLI if ISUP)

   d. 0ZZ 0110

   e. calling party number (optional)

   Note: This carrier code is datafilled in the SSP in table OFCENG in the tuple SSP_NSC_CARRIER_ID. The value is usually 0110.

2   Within the AT/SSP, the NSC selector is detected in translations, meaning that the call is to be handled by E800 processing. This selector is in table STDPRTCT. If the NSC selector is encountered, the call may involve interworking with Advanced Intelligent Network (AIN). In AT/SSPs that support AIN, if the NSC selector is detected, refer to the E800 feature interactions section of this document.

   Note: The SSP selector must appear in table TFSSCRN to make the call subject to AIN toll-free processing.

3   If the EAEO is connected to the AT through ISUP, then an EXM message is sent to the EAEO. If the EAEO is connected over an MF trunk, then the 0ZZ 0110 is received at the AT. A wink is sent to the EAEO to send the charge number, ANI information, and the dialed number.

4   The automatic call gapping (ACG) control lis is checked for an entry that matches the first six or ten digits of the dialed number. If such an entry does exist, and its duration an gap have not expired, the query is blocked.

5   The SSP routes the call either to a treatment or to an announcement that is indicated by the previously received ACG component from the SCP

1.6.6 Scenario 6: Call with termination notification—Inter-LATA from an EAEO

In this example, a caller dials a toll-free number from a line that is connected to an EAEO with SSP capabilities. The toll-free number routes out of this LATA to an inter-LATA carrier. See Figure 7.

Figure 7   Call with termination notification—inter-LATA from an EAEO
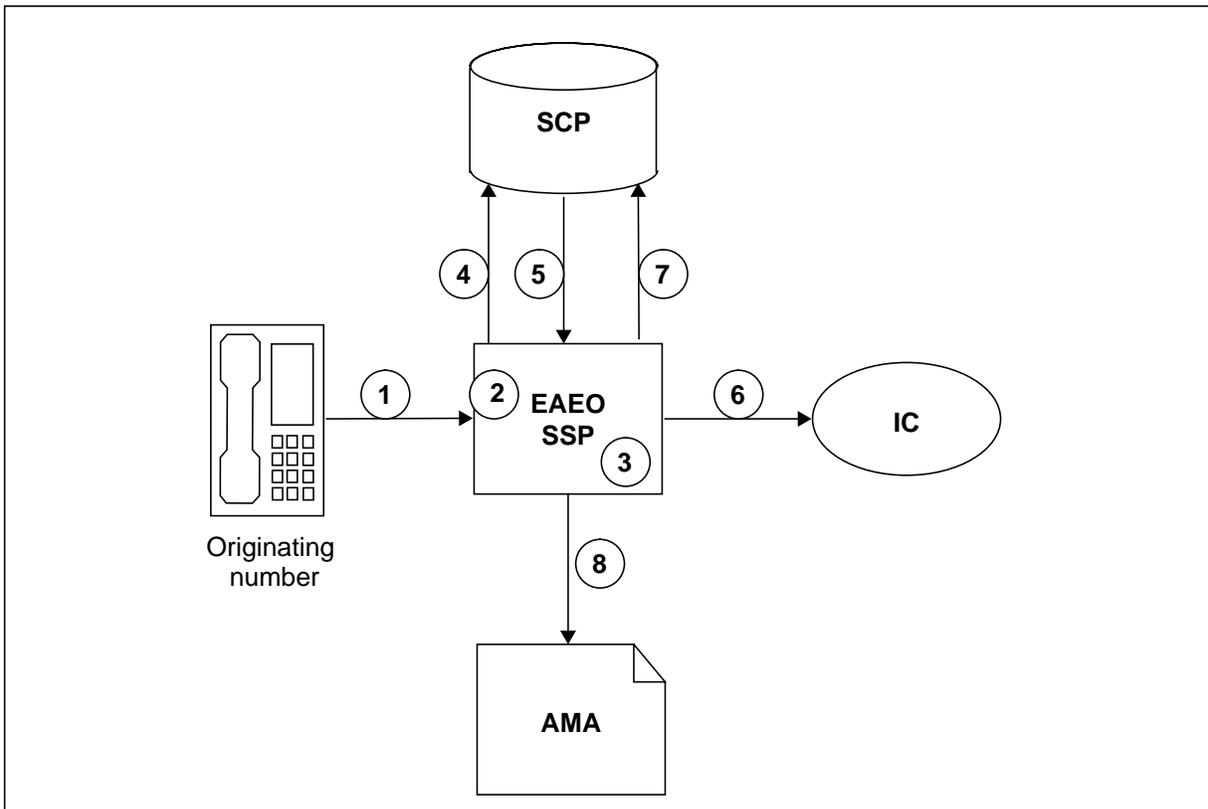
This call also contains a send notification component that is encoded in the response from the SCP. This code instructs the SSP to send back a termination notification message to the SCP once the call has completed. The termination notification indicates whether the ACG control list is full and if the majority of calls are successfully terminated and answered.

Note: The numbers in the figure relate to the call steps that are indicated in the following description.

The common sequence that occurs for this type of toll-free call is as follows.

1 The caller dials 1-8XX-NXX-XXXX.

2 Within the EAEO SSP, the NSC selector is detected in translations, meaning that the call is to be handled by E800 processing. In AT/SSPs that support AIN, if the SSP selector is detected, refer to "E800 feature interactions," on page 44.

   Note: The SSP selector must appear in table TFSSCRN to make the call subject to AIN toll-free processing.

3 The automatic call gapping (ACG) control list is checked for an entry that matches the first six or ten digits of the dialed number. If such an entry does not exist, or if its duration has expired, or if its gap has expired, the query is sent.

4 The SSP launches a query with permission TCAP message, that contains the following mandatory information:

   a. dialed number (toll-free number)

   b. charge number

   c. LATA

   d. originating station type

5 The SCP executes routing logic and sends to the SSP a TCAP response message that contains the

   a. routing number

   b. billing indicators

   c. carrier ID

   d. send notification (component)

6 Based on the SCP response, the call is routed to the inter-LATA carrier over an automatic time and charges (ATC) or an inter-toll (IC) trunk. The call is determined to be inter-LATA since the carrier ID is not the same as the office parameter SSP_NSC_CARRIER_ID in table OFCENG. The following information is sent:

   a. routing number

   b. charge number

   c. ANI information digits (or OLI for ISUP)

   d. For ISUP connections, the calling party address and the originating line indicator are also sent.

7   If the call cannot complete, or if it was answered and then completed, a termination notification message is sent from the SSP to the SCP. The message indicates the termination status of the call and any possible overflow of ACG tables.

8   After the call is answered, billing generates the AMA record with the following parameters:

a. call code 142

b. structure code 364

1.6.7 Scenario 7: International call from an EAEO

In this example, a caller dials a toll-free number from a line that is connected to an EAEO with SSP capabilities. The toll-free number routes out of this LATA to an international carrier (INC). See Figure 8.

Figure 8   International calls from an EAEO
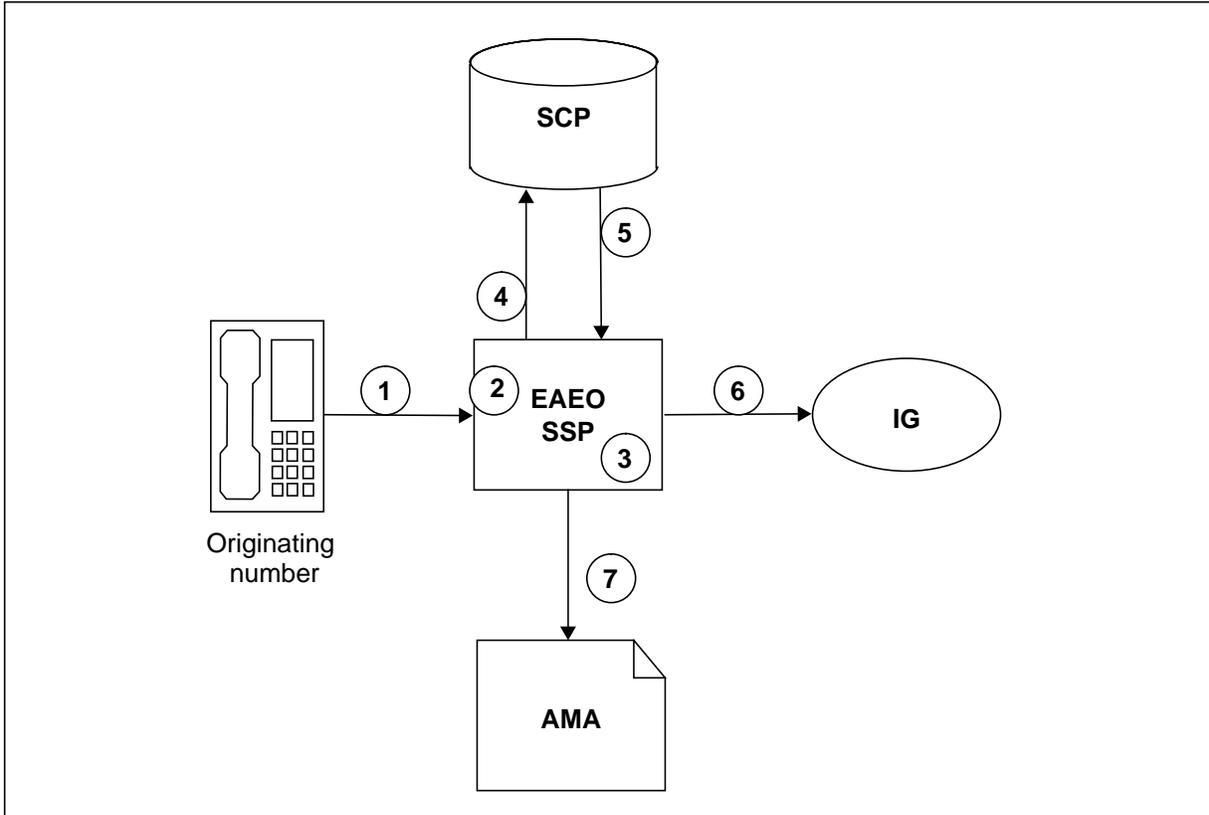
There are a number of differences between routing to an inter-LATA carrier and an international carrier in terms of signaling and the way the call is processed.

Note: The numbers in the figure relate to the call steps that are indicated in the following description.

The common sequence that occurs for this type of toll-free call is as follows.

1   The caller dials 1-8XX-NXX-XXXX.

2   Within the EAEO SSP, the NSC selector is detected in translations, meaning that the call is to be handled by E800 processing. In AT/SSPs that support AIN, if the SSP selector is detected, refer to "E800 feature interactions," on page 44.

    Note: The SSP selector must appear in table TFSSCRN to make the call subject to AIN toll-free processing.

3   The automatic call gapping (ACG) control list is checked for an entry that matches the first six or ten digits of the dialed number. If such an entry does not exist, or if its duration has expired, or if its gap has expired, the query is sent.

4   The SSP launches a toll-free query with permission TCAP message that contains the following mandatory information:

    a. dialed number (toll-free number)

    b. charge number

    c. LATA

    d. originating station type

**5**   The SCP executes routing logic and sends to the SSP a TCAP response message contains the

    a. routing number (international number)

    b. billing indicators

    c. international carrier ID

6 Based on the SCP response, the call is routed to the inter-LATA carrier over an ATC or IT trunk. The following information is sent:

a. 1NX XXX CCC (1NX indicates international routing, XXX is the international carrier, CCC is the pseudo country code) for MF

b. XXX (in the TNS ISUP parameter)

c. routing number (which contains the country code)

d. charge number

e. ANI information digits (or OLI for ISUP)

7 After the call is answered, billing generates the AMA record with the following parameters:

a. call code 142

b. structure code 364

1.6.8 0- call to TOPS SSP

In this example, a caller dials 0. The call routes to a TOPS SSP, where the operator enters a toll-free number and an SCP query is launched.

Figure 9   Call that uses TOPS position
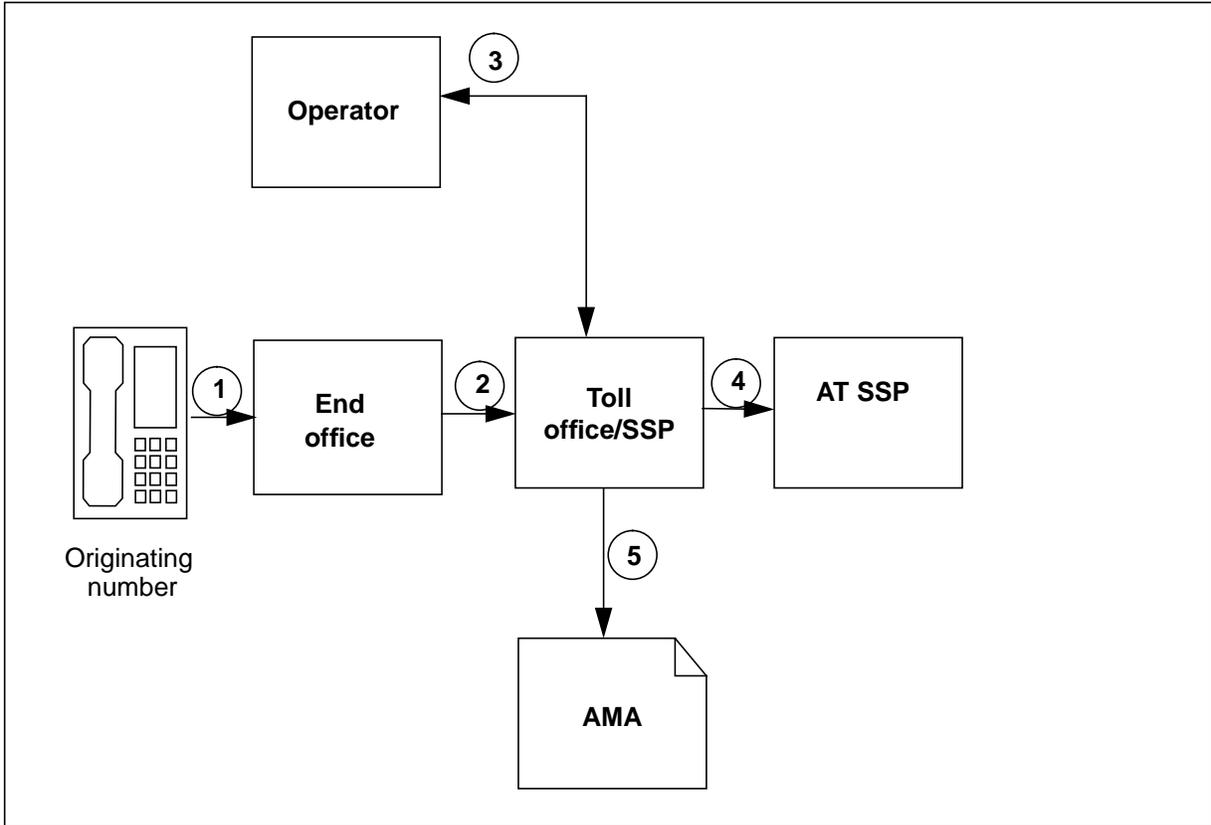
Note: The numbers in the figure relate to the call steps that are indicated in the description that follows.

1 The caller dials 0.

2 The call is routed to a TOPS SSP and arrives at an operator position.

3 The operator enters 8XX-NXX-XXX.

4 The call routes on the toll-free number to an SSP.

5 After the call is answered, billing generates the AMA record with the following parameters:

   a. call code 192

   b. structure code 752

1.7 E800 agent interworking

Table 1 and Table 2 show the interworking between originating and terminating agents. Numbers indicate the number of the associated node.

Table 1   E800 agent interworking matrix (part 1)

Originating agents	Terminating agents										
	ATC ISUP FGD	ATC MF FGD	ATC MF INC	ATC ISUP INC	ATC MF FGC	ATC ISUP FGC	IT-MF FGC	IT ISUP TR394	ITC ISUP TR317	PX	P2
ISUP IT TR317 FGC	X	X	X	X	X	X	X	X	X	X	X
MF IT FGC, NO ANI	X	X	X	X	X	X	X	X	X	X	X
SC FGC + ANI	X	X	X	X	X	X	X	X	X	X	X
TOPS FGD	X			X	X	X	X	X	X		
TOPS FGC + ANI	X			X	X	X	X	X	X		
ISUP IT TR394 FGD	X	X	X	X	X	X	X	X	X	X	X
MF IT FGD + ANI	X	X	X	X	X	X	X	X	X	X	X
SC FGD + ANI	X	X	X	X	X	X	X	X	X	X	X
FGB CFW	X	X			X	X					
CELLULAR TRUNKS	X	X			X	X					
P2 CFW	X	X	X	X	X	X	X	X	X	X	X

Table 1   E800 agent interworking matrix (part 1) (continued)

Originating agents	Terminating agents										
	ATC ISUP FGD	ATC MF FGD	ATC MF INC	ATC ISUP INC	ATC MF FGC	ATC ISUP FGC	IT-MF FGC	IT ISUP TR394	ITC ISUP TR317	PX	P2
PRI	X	X	X	X	X	X	X	X	X	X	X
PX	X	X	X	X	X	X	X	X	X	X	X
1FR - HOT/MOT	X	X	X	X	X	X	X	X	X	X	X
1FR PBX - HOT/MOT	X	X	X	X	X	X	X	X	X	X	X
1MR	X	X	X	X	X	X	X	X	X	X	X
2FR, 4FR, 8FR	X	X	X	X	X	X	X	X	X	X	X
CLASS/RES	X	X	X	X	X	X	X	X	X	X	X
COIN-CDF, CCF, CSP	X	X	X	X	X	X	X	X	X	X	X
EBS, IBN, CENTREX	X	X	X	X	X	X	X	X	X	X	X
BRI - FUNC, MFT	X	X	X	X	X	X	X	X	X	X	X
T1, T2 CFW	X	X	X	X	X	X	X	X	X	X	X
IBNTI, IBNT2, CFW	X	X	X	X	X	X	X	X	X	X	X
ATT. CONSOLE	X	X	X	X	X	X	X	X	X	X	X

Table 2   E800 agent interworking matrix (part 2)

Originating agents	Terminating agents									
	PRI	T0/T2 - MF	T0/T2I SUP TR317	ISUP IBN T0/T2	MF IBN T0/T2	1FR, 1MR	2FR, 4FR, 8FR	CLASS /RES CEN	ATT. CON.	BRI FUNC, MFT
ISUP IT TR317 FGC	X	X	X	X	X	X	X	X	X	X
MF IT FGC, NO ANI	X	X	X	X	X	X	X	X	X	X
SC FGC + ANI	X	X	X	X	X	X	X	X	X	X
TOPS FGD	X	X	X	X	X	X	X	X	X	X
TOPS FGC + ANI	X	X	X	X	X	X	X	X	X	X

Table 2   E800 agent interworking matrix (part 2) (continued)

Originating agents	Terminating agents									
	PRI	T0/T2 - MF	T0/T2I SUP TR317	ISUP IBN T0/T2	MF IBN T0/T2	1FR, 1MR	2FR, 4FR, 8FR	CLASS /RES CEN	ATT. CON.	BRI FUNC, MFT
ISUP IT TR394 FGD	X	X	X	X	X	X	X	X	X	X
MF IT FGD + ANI	X	X	X	X	X	X	X	X	X	X
SC FGD + ANI	X	X	X	X	X	X	X	X	X	X
FGB CFW										
CELLULAR TRUNKS										
P2 CFW	X	X	X	X	X	X	X	X	X	X
PRI	X	X	X	X	X	X	X	X		X
PX	X	X	X	X	X	X	X	X	X	X
1FR - HOT/MOT	X	X	X	X	X	X	X	X	X	X
1FR PBX - HOT/MOT	X	X	X	X	X	X	X	X	X	X
1MR	X	X	X	X	X	X	X	X	X	X
2FR, 4FR, 8FR	X	X	X	X	X	X	X	X	X	X
CLASS/RES	X	X	X	X	X	X	X	X	X	X
COIN-CDF, CCF, CSP	X	X	X	X	X	X	X	X	X	X
EBS, IBN, CENTREX	X	X	X	X	X	X	X	X	X	X
BRI - FUNC, MFT	X	X	X	X	X	X	X	X	X	X
T1, T2 CFW	X	X	X	X	X	X	X	X	X	X
IBNTI, IBNT2, CFW (See Note)	X	X	X	X	X	X	X	X	X	X
ATT. CONSOLE	X	X	X	X	X	X	X	X	X	X
Note: Call Forward the trunk to a supported agent that can launch the E800 query.										

1.8 E800 feature interactions

The following features have special interworking considerations with toll-free number service when they are both on the same SSP:

- call forwarding
- remote call forwarding
- three-way calling
- virtual facility group (POTS)
- attendant console
- automatic call distribution and hunt club overflows
- AIN Primer interactions
- AIN interactions
- LNP interactions
- AIN toll-free service (TFS) interactions
- PRI interworking

1.8.1 Call forwarding

Toll-free number service interworks with all types of call forwarding offered with the DMS-100 switch. Toll-free number service supports both toll-free to call forwarding and call forwarding to toll-free interworking.

The most common interworkings are in the following situations:

- Terminal A dials a POTS number that is call forwarded to a toll-free number
- Terminal A dials a toll-free number that is call forwarded to a POTS line
- Terminal A dials a toll-free number that is call forwarded to another toll-free number

1.8.2 DISA

E800 does not work with Direct Inward System Access (DISA). When a user dials in DISA and then performs an 800 call, at the initial stage the translation for the 800 number is carried out using NCOS of the customer group of the DISA DN. But the response from the SCP for the 800 number is translated using the characteristics of the trunk which originated the call. Since DISA has reset the NCOS to the pretranslator of the originator (trunk pretranslator), DISA is not a redirectional feature. Therefore, any feature invoked after DISA should support the originator.

1.8.2.1 POTS number is call forwarded to a toll-free number

Called digits are translated at the originating switch for the call and a billing record can be generated. When the call reaches terminal B (the POTS number),

the call is forwarded to a toll-free number. After the toll-free number call is translated and a routing number is obtained from the SCP, the call is routed to the called terminal (terminal C). Terminal A is charged for the call between itself and terminal B. Terminal C is charged for the toll-free leg of the call with terminal B as the originator.

1.8.2.2 Toll-free number is call forwarded to a POTS line

Toll-free digits are translated at the SSP that is associated with originating terminal A and a billing record is generated for the call. When the call arrives at terminal B, it is forwarded to a regular POTS line. The forwarded call is retranslated and is routed to terminal C. A second billing record can be generated depending on billing datafill. The toll-free subscriber (terminal B) is charged for the toll-free leg of the call and also for the call forwarded part of the call, from B to C.

1.8.2.3 Toll-free number is call forwarded to another toll-free number

Toll-free digits are translated at the SSP that is associated with the originating terminal A and a billing record is generated for the call. When the call arrives at terminal B, the call is forwarded to a second toll-free number, a second database query is carried out and the call is forwarded to the new terminal C. A second billing record is generated. Terminal B is charged for the first leg of the call (with terminal A as the originator) and terminal C is charged for the second leg of the call (with terminal B as the originator).

1.8.3 Remote call forwarding

In remote call forwarding, the subscriber dials a directory number that is not connected to a terminal, and the call is forwarded to a second directory number. Remote call forwarding enables the subscriber to have callers place calls, but the caller is only charged for the first leg of the call.

Generally, remote call forwarding is set up so that the client phones a number in the local area code, and therefore does not pay for the call.

With remote call forwarding, a local call is forwarded to a toll-free number for a database query. Therefore, the terminating DN is varied based on the SCP services available, for instance, time-of-day routing.

Similarly, the client could dial a toll-free number that is remote call forwarded to a regular POTS number or to another toll-free number.

1.8.4 Three-way calling

When a toll-free call is initiated, the originator of the call is blocked from starting a three-way call until the database response is received.

1.8.5 Virtual facility group (POTS only)

Virtual facility groups (VFG) are used to change the appearance of an agent by putting the call through a facility that effectively changes the characteristics of

a call. When the calling party makes a toll-free call on a terminal through a VFG, the line attributes used by translations are those of the VFG, not those of the actual terminal.

For toll-free service to work in a VFG, the originating terminal must be one of the allowable line class codes used by VFG. Only POTS VFG can originate an E800 call.

Note: Calls to or from a VFG are not supported by a TOPS SSP.

1.8.6 Attendant console (POTS and VFG only)

For normal calls, the attendant console dials the call for a caller and as soon as dialing is complete, the call is handed off. For a toll-free call, the attendant console cannot be released until the database query is complete and the call has been routed to the called party.

For an attendant console that is both the destination for toll-free number service and has been placed into night service, the toll-free subscriber (attendant console) is charged for both the first and second legs of the toll-free call, if applicable. Two billing records are generated for the first and second legs of the call. For attendant console, the night service cannot be a toll-free number.

1.8.7 Automatic call distribution and hunt group overflows

For automatic call distribution (ACD) and hunt groups that are the destination for toll-free number service and experience overflows, the toll-free subscriber (that is, the ACD or hunt group) is charged for the first leg of the toll-free call. A second billing record is generated for the second leg of the call. The terminal at the overflow destination is charged for the second leg of the call.

1.8.8 AIN Primer interactions

Most AIN Primer responses can route calls to an E800 number and E800 responses can route calls to AIN Primer. For information on behavior and limitations, refer to the *Translations Guide*.

Note: This functionality is not supported by a TOPS SSP.

1.8.9 AIN interactions

AIN Essentials responses can route calls to an E800 number and E800 responses can route calls to AIN Essentials. For information on behavior and limitations, refer to the "Feature Interactions" section of the *DMS-100 Family Advanced Intelligent Network Essentials Service Implementation Guide,* 297-5161-021.

AIN Service Enablers responses can route calls to an E800 number and E800 responses can route calls to AIN Essentials. For information on behavior and limitations, refer to the "Feature Interactions" section of the *DMS-100 Family,*

Advanced Intelligent Network Service Enablers Service Implementation Guide, NTP 297-5161-022.

Note: This functionality is not supported by a TOPS SSP.

1.8.10 LNP interactions

An E800 response can route a call to a ported number when the call encounters E800 toll-free service. For more information, refer to the *DMS-100 Family, Advanced Intelligent Network Service Enablers Service Implementation Guide*, NTP 297-5161-022.

Note: A toll-free number entered by an operator at a TOPS SSP will no receive toll-free or LNP processing.

1.8.11 AIN toll-free service

An E800 response can route a call to an AIN TFS destination when the call encounters E800 toll-free service. For more information, refer to the "Toll-free service" section of the *Local Routing Number - Local Number Portability Service Implementation Guide*, 297-8981-021.

Note: This functionality is not supported by a TOPS SSP.

1.8.12 PRI interworking

Calls originating on PRI trunks that use any of the NTNAPRI protocol variants, as specified in table LTDEF, can interwork directly with 800 services. U449PRI (used when connecting ATT 4ESS) and U459PRI (used when connecting ATT 5ESS) are not supported.

Note: This functionality is not supported by a TOPS SSP.

1.9 Engineering requirements

This section provides information on the office parameters and data schema tables that are required to operate toll-free number services.

1.9.1 BC recording units

The BC recording units are the primary recording units for billing all call processing and frame relay calls. If recording units are not provisioned, then calls cannot be billed.

To provision BC recording units, use the following formula:

```
CRS_PRU_POOL2_SIZE =
existing provisioned number + NUM_OF_NSC_EXT_BLK
```

CRS_PRU_POOL2_SIZE is an office parameter in table OFCENG. Refer to the *Office Parameters Reference Manual* for more information.

1.9.2 Northam_Tollfree_Variant office parameter

This office parameter combines E800 for the U.S. market and 800P for the Canadian market in the same Product Computing Module Load (PCL) in NA006 and subsequent releases.

This parameter is set in one of two situations:

1   On a newly commissioned office, Nortel personnel set this parameter to either CANADIAN_SERVICE or US_SERVICE, before release to the customer.

   Set the value of this parameter to CANADIAN_SERVICE for all loads destined to Canadian offices. Set the value of this parameter to US_SERVICE for all loads destined to U.S. offices.

2   In loads used to upgrade existing offices, set the value to NIL_SERVICE. A one-night process (ONP) from an NA004 or NA005 load results in NORTHAM_TOLLFREE_VARIANT being automatically set to the correct value. ONPs from offices above NA005 will transfer the value of NORTHAM_TOLLFREE_VARIANT from the active side.

The value of this parameter can be changed only once. Further changes using table editor commands are disabled. This change can occur between NIL_SERVICE and CANADIAN_SERVICE or between NIL_SERVICE and US_SERVICE, but not between the two variants. The default value for this parameter is NIL_SERVICE.

CAUTION
Possible loss of service
Any attempt by the operating company to change this parameter may result in loss of service. Only Nortel can change this parameter during manufacturing.

NORTHAM_TOLLFREE_VARIANT is an office parameter in table OFCOPT. Refer to the *Office Parameters Reference Manual*.

1.9.3 Number of NSC extension blocks

To determine the number of NSC extension blocks that are required, use the following formula:

```
NUM_OF_NSC_EXT_BLK =
(number of toll-free/SSP calls per second)  x
(mean toll-free/SSP call holding time)
```

NUM_OF_NSC_EXT_BLK is an office parameter in table OFCENG. Refer to the *Office Parameters Reference Manual*.

If insufficient blocks are provided, all calls that do not get through are routed to "No software resources" treatment.

1.9.4 Number of transaction identifiers

The Toll-free service software uses the IDPL (identifier pools) interface for TRID (transaction identifier) management.

In IDPL, the Toll-free service application specifies a group size parameter. The TRID class manager initially allocates one group of TRIDs. If 70% of the initial group of TRIDs is used up, the TRID class manager allocates another group until the maximum number of TRIDs allowable is reached. For the Toll-free service application, the group size parameter is set to 32 TRIDs.

For the NA012 release, the FREEPHONE entry in table TCAPTRID is not used.

Chapter 2: Introduction to E800 datafill

This chapter describes the datafill needed to support toll-free number service. Read this entire section carefully before proceeding with datafill. For further information on translations, refer to the *Translations Guide*.

- "Understanding translations," on page 51 provides a brief description of the translations process.

- "Preparing to datafill toll-free number service," on page 52 explains the order in which toll-free number service data tables must be datafilled.

- "Overview of E800 translation tables," on page 53 explains the order in which toll-free number service data tables must be datafilled.

Details on datafilling E800 office parameters are in Chapter 3, "Datafilling office parameters for E800".

2.1 Understanding translations

Translations is the process in which information that is stored in data tables is accessed by the DMS system, and processed to support toll-free number service. You must datafill certain tables in a specific sequence to ensure full and efficient operation of the service.

2.1.1 Components of the translations system

The translations system consists of data, and the facilities for accessing and manipulating that data. The translations system includes the following elements:

- the translations database

- the hardware on which the database resides

- the table editor (that is, the software that controls data entry, storage, and retrieval)

Entries, deletions, and modifications to the translations database are made to these tables through the table editor or a dump-and-restore process.

2.1.2 Translations database

To perform translations, the switch must access data stored in the central control memory, called the translations database.

The translations database contains data tables. Each table has a specific purpose and contains a certain type of data. Every table has a name. (Table names are written in capital letters.) A table consists of horizontal rows and vertical columns of data. Each row contains one record of data, and is called a tuple. Each column is called a field.

For further information, refer to the *Translations Guide*.

2.1.3 How the translations system reads tables

Each table used by the translations system has a specific function. Translations typically access a combination of tables to obtain all the information needed to translate and route a call.

Certain key fields in each table index the next table or set of tables. Any fields in the table can be used to key other tables.

Toll-free number service translations involves reading specific tuples in designated data tables to determine the path that a call takes to its destination. 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.

Translations starts after call processing, which uses the trunk group tables, by analyzing the information provided by the incoming trunk. Information in the trunk group tables indexes one of the translations tables. Each translations table in turn indexes another until the call is fully translated, and can be routed.

2.1.4 How translations tables are datafilled

The process for datafilling translations tables differs depending on whether the switch is being datafilled for the first time, a PCL update is being applied, or routine modifications are being made to certain tables. For further information on general translation procedures, refer to the *Translations Guide*.

2.2 Preparing to datafill toll-free number service

Datafill tables for the following functional groups in the following order:

- NTS00005
- NTS00016 for access tandem, or NTS00023 for end office

Refer to the *Translations Guide* for a description of any fields not shown here. (This guide discusses only those tables and fields that have direct impact on

toll-free number service.) For End Office Display (EOD), refer to Chapter 3, "Datafilling office parameters for E800".

2.2.1 Package name
NT00005

2.2.2 Package numbers
NTS00005 (E800 service)

2.2.3 Feature numbers
The NTS00005 feature package consists of the following functions.

Table 3   NTS00006 functions

Function number	Function name
NTS00012	Extended capability
NTS00016	888 Expansion

2.2.4 PCL applicability
NA008 and up

2.2.5 Description
The E800 package resides on the SSP. The Enhanced 800 (E800)—United States software package provides support for toll-free number service on the SSP. The SSP communicates with operating company databases by launching an SS7 query to the SCP, where the database is kept. The SSP routes the toll-free number service call using information received in response to its query from the SCP.

Due to the success and popularity of the 800 service, the toll-free database ran out of available numbers. To add new numbers to support the service, the Industry Numbering Committee agreed to open 8XX (where the set is two matching digits) for toll-free number service codes. Under this agreement, 888 is the first code, and the following codes are reserved for future expansion: 877, 866, 855, 844, 833, and 822. Tables that previously scanned the NPA for 800 were modified to screen the new 8XX service access codes (SAC).

The NTS00016 (for Access tandem SSPs) and NTS00023 (for end offices without SSP functionality) software provide the 888 toll-free number service functionality. Software to support each of the remaining 8XX codes will be offered under separate order codes.

2.3 Overview of E800 translation tables
This section describes NTS00005 translation tables. The flows in which these tables are encountered on different types of calls are illustrated in Figure 9 on page 54.

- Table STDPRTCT, subtable STDPRT provides standard pretranslator definitions used to determine whether a call is toll-free number service call.
- Table LATANAME lists all defined names of the LATA served by the switch.
- Table LATAXLA defines the LATA and state attributes of domestic calls in order to select an appropriate carrier.
- Table CCTR contains country codes and pseudo country codes for international calls.
- Table OCCINFO table defines the attributes for carriers serving the DMS and screens calls for carrier compatibility.
- Table OCCRDIG defines the regional code to outpulse to the AT/SSP or international line (INC) for calls to NPAs in world zone 1 but outside the continental U.S.
- Table EASAC defines the three-digit codes that are to be treated as service access codes (SAC)
- Table HNPACONT determines whether the SSP toll-free number service method (database query) should be used for toll-free translations.
- Table C7LOCSSN provides the subsystem number for toll-free number service.
- Table TFSSCRN identifies ranges of toll-free numbers subject to AIN toll-free processing. Toll-free numbers not identified by TFSSCRN are processed by E800.
- Table NSCSCRN provides six-digit screening for SSP number service code (NSC) calls.
- Table SSPTKINF defines all incoming and two-way toll trunks that support SSP NSC calls.
- Table NSCSNPA maps special routing codes to the originating numbering plan area (NPA).
- Table C7GTTYPE defines the profile of a global title and associates the E800 application resident on the switch with its particular profile.
- Table C7GTT maps global titles for particular translation types to SS7 network addresses. This table determines whether a point code, or point code and SSN is sent in the message.
- Table C7NETSSN provides the set of remote point codes (PC) and subsystems, at remote PCs, where messages are routed by the signaling connection control part (SCCP).
- Table C7RTESET obtains the numeric values for the destination point code (DPC) and determines which route sets can be used.
- Table C7LKSET determines the characteristics of a linkset.

- Table C7LINK associates the physical aspects of a link with the logical view of the link as a member of a set of links, known as a linkset.

- Table NSCDEFS defines the number service code (NSC) calls that require access to operating company databases.

- Table OFRT provides a route reference index for calls that originate in the switch.

- Table TRKGRP provides data associated with incoming and outgoing trunk groups.

- Table CLII contains codes that identify announcements, tones, and trunk groups used by DMS-100 calls.

   Note: For offices that require billings for unanswered E800 calls, ensure that call code 142 is datafilled against field UNANS_TOLL in table AMAOPTS.

The MTP and SCCP tables listed below are detailed in the *Translations Guide*:

- Table C7LOCSSN

- Table C7GTTYPE

- Table C7GTT

- Table C7NETSSN

- Table C7RTESET

- Table C7LKSET

- Table C7LINK

The following flowchart illustrates the SSP toll-free number service translation process.

   Note: E800 response translations does not use table CLSVSCRC nor table LCASCRCN.

   Note: A toll-free number entered by an operator at a TOPS SSP will not receive toll-free processing. The call is routed using the toll-free number.

Figure 10   Table flow for NTS00006

translate 8XX-NXX-XXXX

1 Table
   STDPRTCT

3 Tables
   HNPACONT

4 Table
5 NSCSCRN
6 NSCNPA
   SSPTKINF

7 Tables
8 C7LOCSSN
9 C7GTTYPE
10 C7GTT
11 C7NETSSN
   C7RTESET

12 Tables
13 C7LKSET
   C7LINK

14 Table
15 NSCDEFS
   NSCCARR

translate DN returned from database

1 Table
   STDPRTCT

National calls   International calls

3 Tables   2 Table
   HNPACONT   CCTR

16 Tables
17 OFRT
   TRKGRP
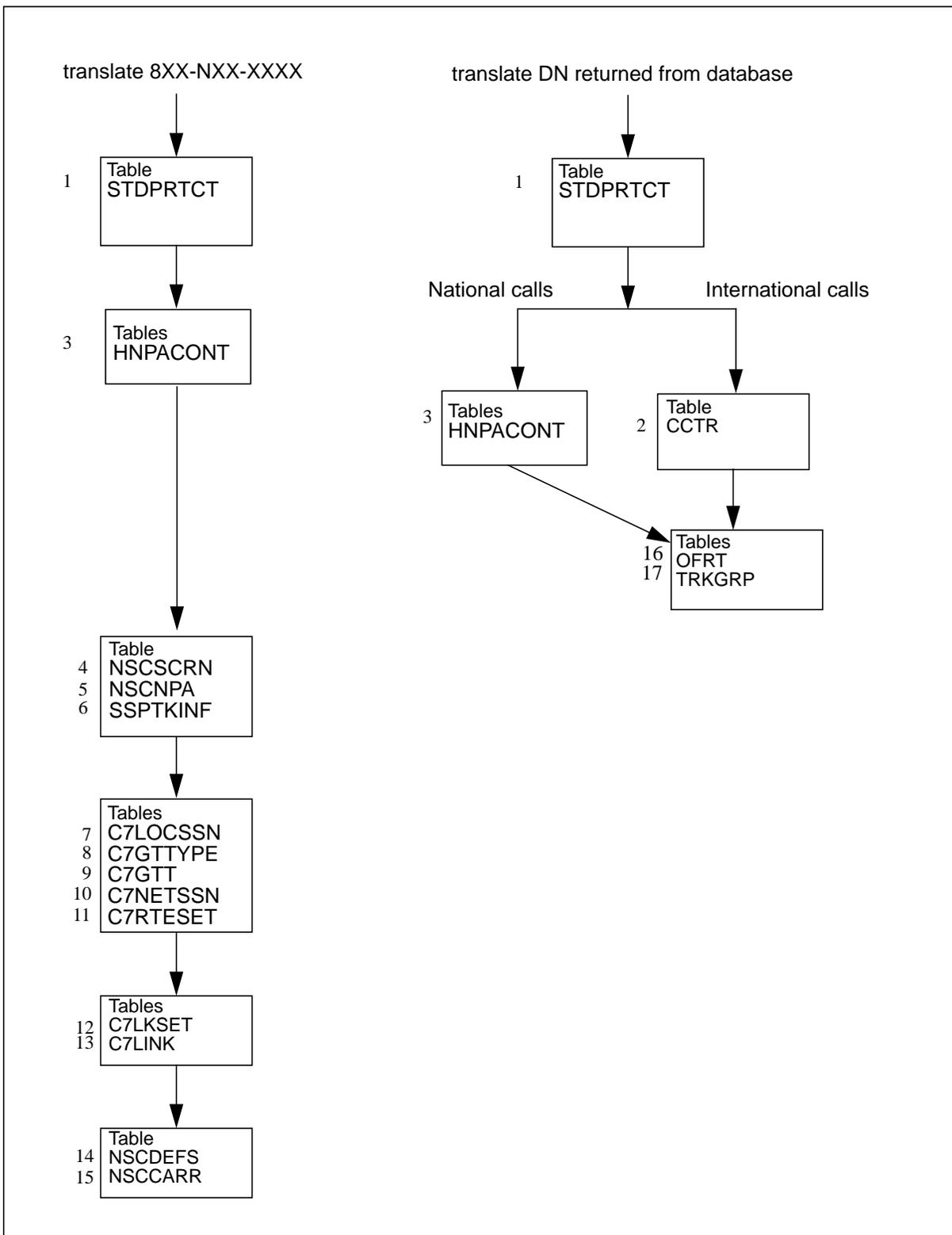
2.3.1 Package limitations and restrictions

The following limitations and restrictions apply to the 800 Expansion—8XX Code software package:

- Only toll-free numbers of the form 8XX-NXX-XXXX are supported.

- E800 BOC calls that return a toll-free SAC are routed to reorder, but if the number is for AIN toll-free service, the call is handled by AIN TFS processing.

- 800-to-00Y and 00Y-to-800 conversion is supported for the SAC 800 only.

- The feature does not interact with the line information database (LIDB).

2.3.2 Feature interactions

Not applicable.

2.3.3 Activation/deactivation by end user

Not applicable.

2.3.4 Billing

For E800, for interlata calls, the call code is 142. For all other calls, the call code is 141, with the exception of intralata calls. For intralata calls the call code is 142. The automated message accounting (AMA) record format for E800 only supports the Bellcore AMA standard.

2.3.5 Station Message Detailed Recording

Not applicable.

Chapter 3: Datafilling office parameters for E800

This chapter describes table specifics for E800 datafill. Read this entire section carefully before proceeding with datafill. For further information on translations, refer to the *North American DMS-100 Translations Guide*, 297-8003-350.

The sections in this document are:

- "Datafilling subtable STDPRTCT.STDPRT," on page 60
- "Datafilling table LATAXLA," on page 63
- "Datafilling table CCTR," on page 65
- "Datafilling table OCCINFO," on page 67
- "Datafilling table OCCRDIG," on page 74
- "Datafilling table EASAC," on page 76
- "Datafilling subtable HNPACONT.HNPACODE," on page 76
- "Ambiguous 8XX international calls and seven-digit toll calls," on page 81
- "Datafilling table NSCSCRN," on page 81
- "Datafilling table SSPTKINF," on page 83
- "Datafilling table NSCSNPA," on page 85
- "Datafilling table NSCDEFS," on page 87
- "Billing suppression for 8XX calls," on page 90
- "Datafilling subtable STDPRTCT.AMAPRT," on page 92

An introduction to E800 translation tables is in Chapter 2, "Introduction to E800 datafill".

The SSP uses several office parameters for the E800 software package. Refer to the *North American DMS-100 Office Parameters Reference Manual*, for more information on office parameters.

Table 4   Office parameters used by SSP

Parameter	Explanation
OFCENG NUM_OF_NSC_EXT_BLK	This parameter only appears in local or Access Tandems that have SSP capabilities. It specifies the quantity of number service call extension blocks that are required for toll-free calls. An NSC_EXT_BLK, which is used to store the number services call information, is attached to each toll-free call.
OFCENG SSP_EA_ACKWINK_DELAY_TIME	This parameter only appears in offices with SSP capabilities. The time entered in this field is the time that the access tandem (AT) or equal access end office (EAEO) waits before sending an acknowledgment wink back to the called number. The AT/SSP should wait between 200 to 1000 microseconds (ms) before sending an acknowledgment wink back to the EAEO. Default value is 20. Range is 10 through 100. Each unit equals 10ms. Thus the real time range is between 100ms and 1000ms.
OFCENG SSP_NSC_CARRIER_ID	This parameter only applies in toll offices with SSP capabilities. This parameter is set to the special XXX pseudo-carrier code, usually 0110. The signalling sequence KP+0ZZ+XXX+ST that allows the SSP to recognize that the call is a number services call. This number is returned from the SCP so that the SSP recognizes that the call is an intra-LATA toll-free call.

3.1 Datafilling subtable STDPRTCT.STDPRT

The PRETRTE field in table STDPRTCT subtable STDPRT is used in an access tandem service switching point (SSP) to detect number service code (NSC) calls from an equal access end office (EAEO) using equal access signaling.

The EAEO outpulses the sequence KP+0ZZ+XXXX+ST with a special code XXXX, to indicate the call is an NSC call. The XXXX must be equal to table OFCENG parameter SSP_NSC_CARRIER_ID. The default value for SSP_NSC_CARRIER_ID is 0110.

Table 5 shows the datafill procedure for table STDPRTCT subtable STDPRT. This procedure contains only those fields that apply to toll-free service. Refer

to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 5   Datafilling subtable STDPRTCT.STDPRT

Field	Subfield	Entry	Explanation and action
FROMDIGS		numeric	From digits
			Enter the six or seven digits outpulsed from the equal access end office. (Format is 0ZZXXXX. XXXX must equal the value of the SSP_NSC_CARRIER_ID office parameter in table OFCENG.)
TODIGS		numeric	To digits
			Enter the same value entered in the FROMDIGS field.
PRETRTE			Pretranslation route
			This field consists of subfield PRERTSEL and its refinements. See the appropriate subfield for its definition.
	PRERTSEL		Pretranslator route selector
			Enter NSC if AIN interworking is not required. Enter SSP if AIN/E800 interworking is required for calls originated from FGD trunks.
	TYPCALL		Type of call
			Enter DD for an AT/SSP office. Enter NP for an AT/SSP TOPS office.
	MINDIGS		Minimum digits received
			Enter 7.
	MAXDIGS		Maximum digits received
			Enter 7.
	NSCCODE		NSC code
			Enter E800.
NSC_TRAN			NSC translation system
			Enter NA.

3.1.1 Datafill example for table STDPRTCT.STDPRT

The following example shows sample datafill in subtable STDPRT. In the example, the code type is E800 Datafilling Table LATANAME.

Figure 11   Datafill example for table STDPRTCT.STDPRT

```
FROMDIGS      TODIG           PRETRTE
--------------------------------------------------------
0990110       0990110     NSC DD 7 7 E800
```

Table LATANAME lets you assign LATA numbers to LATA names used at the SSP.

The table below shows the datafill procedure for table LATANAME. This contains only those fields that apply to toll-free number service. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 6   Datafilling table LATANAME

Field	Subfield	Entry	Explanation and action
LATANAME			LATA name Enter a LATA name used in the office.
LATANUM			LATA number Enter a LATA number for the LATA name.

3.1.2 Datafill example for table LATANAME

The following example shows sample datafill in table LATANAME.

Figure 12   Datafill example for table LATANAME

```
LATANAME    LATANUM
--------------------------------------------------------
LATA1       111
LATA2       112
```

3.2 Datafilling table LATAXLA

Table LATAXLA lets you assign LATA numbers to LATA names used at the SSP.

The table below shows the datafill procedure for table LATAXLA. This contains only those fields that apply to toll-free number service. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 7   Datafilling table LATAXLA

Field	Subfield	Entry	Explanation and action
LATACODE	see subfields		LATA code This field is the key into table LATAXLA, and consists of sub-fields LATANM and DIGITS.
LATANM	LATANM		Calling LATA name Enter the LATA name as defined in table LATA name.
(Sheet 1 of 2)			

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Table 7   Datafilling table LATAXLA

Field	Subfield	Entry	Explanation and action
DIGITS	DIALLED DIGITS		Enter the digits (NPA or NPANXX dialed by the originator of the call. Enter only those digits for which one of the following sets of attributes applies: Intra-LATA, interstate Inter-LATA, interstate Inter-LATA, intrastate *Note*: These attributes are defined in the LATA and STATE fields. Codes that are interLATA and intra-NPA must be input using NPANXXX. The DMS assumes that any NPA or NPANXX code not defined in the DIGITS field has the attributes intra-LATA, intra-state (default). The DIGITS field allows the DMS to distinguish between number plan areas and ambiguous codes, while determining the call attributes for carrier screening.
	LATA	INTER or INTRA	LATA CALL ATTRIBUTE Enter INTER or INTRA to define the NPA or NPANXX code as either inter-LATA or intra-LATA.
	STATE	INTER or INTRA	STATE CALL ATTRIBUTE
	EATYPE	STD CORRIDOR PRIVILEGE or NON-EA	EQUAL ACCESS CALL TYPE Enter the appropriate EA call type to identify the call as standard (STD), CORRIDOR, PRIVILEGE, or NON-EA. Only inter-LATA calls can be identified as CORRIDOR or PRIVILEGE. Only intra-LATA calls can be identified as NON-EA.
(Sheet 2 of 2)			

3.2.1 Datafill example for table LATAXLA

The following example shows sample datafill in table LATANAME.

Figure 13   Datafill example for table LATAXLA

```
LATACODE      LATA     STATE     EATYPE
-------------------------------------------------------
LATA2  800     INTER     INTER      STD
```

3.3 Datafilling table CCTR

The country code table (CCTR) is required in local, toll or combined local/toll switching units that are arranged for direct dial overseas routing. All country codes which are not specified are routed to vacant code treatment.

Table CCTR is entered by translation when the standard pretranslator specifies international (translation system equal to IN) for the prefix digits (for example, 011) dialed.

The table below shows the datafill procedure for table CCTR. This procedure contains only those fields that apply to toll-free number service. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 8   Datafilling table CCTR

Field	Subfield	Entry	Explanation and action
CCNAME			Other country code Enter a numeric country code.
GIVENCC			Given country code This field consists of subfield CCSEL and refinements subfield PCC.
	CCSEL		Country code selector Enter T when the code is a true country code. Otherwise, enter P when the code is a pseudo country code.
	PCC		Pseudo country code If subfield CCSEL is set to T and the switching unit is toll or combined local/toll, enter a pseudo country code. If the switching unit is local, enter N.
(Sheet 1 of 3)			

Table 8   Datafilling table CCTR

Field	Subfield	Entry	Explanation and action
MINDIGSR			Minimum digits required including the country code Enter a value between 0 to 18.
MAXDIGSR			Maximum digits required including the country code Enter a value between 0 to 25.
MINDIGSR			Minimum digits required including the country code Enter a value between 0 to 18.
MAXDIGSR			Maximum digits required including the country code Enter a value between 0 to 25.
TMTORRTE			Treatment or route reference Consists of subfield TRSEL and refinement subfields TREAT, TUPID, TABID, KEY and CUSTDIAL.
	TRSEL		Treatment or route selector Enter T where translation is to route to office route table and datafill refinement TUPID. Enter D to route to treatment and datafill refinement TREAT.
	TREAT		Treatment Enter the treatment to which translation is to route.
	TUPID		Treatment or route reference Consists of subfields TABID and KEY.
	TABID		Table name When TRSEL = T, enter OFRT for office route table
(Sheet 2 of 3)			

Table 8   Datafilling table CCTR

Field	Subfield	Entry	Explanation and action
	KEY		Index into the office route table
			Enter a value between 1 to 1023 for the index into the office route table to which treatment is to route.
	CUSTDIAL		Customer dialed
			Enter Y if the customer is allowed to dial the code. Otherwise, enter N to prevent the customer from dialing the code.
			If the call originates from a local source (line, incoming CAMA trunk or local trunk with local source of origination) and refinement CUSTDIAL is set to N, the originator is routed to reorder treatment RODR.

(Sheet 3 of 3)

3.3.1 Datafill example for table CCTR

The following example shows sample datafill in table CCTR.

Figure 14   Datafill example for table CCTR

```
CCNAME              GIVENC  MINDIGSR   MAXDIGSR   TMTORRTE
-----------------------------------------------------------
44 T       044      8          12                 T   OFRT
1022 Y
```

3.4 Datafilling table OCCINFO

The OCCINFO table defines the attributes for carriers serving the DMS and screens calls for carrier compatibility. For example, table OCCINFO permits international traffic to be sent only to carriers capable of handling international traffic.

OCCINFO has a maximum size of 1000 tuples, allowing the attributes for up to 999 carriers to be defined. One tuple is used for NILC.

The table below shows the datafill procedure for table OCCINFO. This procedure contains only those fields that apply to toll-free number service.

Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 9   Datafilling table OCCINFO

Field	Subfield	Entry	Explanation and action
CARRNAME			Carrier name
			Enter a carrier name of 1 to 16 characters as it appears in table OCCNAME.
CARRNUM			Carrier number
			Enter the carrier access code (CAC). The CAC is equal to the XXXX digits in the equal access prefixes (10XXXX or 950YXXXX). The range of XXXX is from 0000 to 9999.
ACCESS			Access arrangement
			Enter NONE for no access, INTERIM for 950YXXXX calls using FGD signaling, EAP for 10XXXX (Equal Access Plan) calls using FGD signaling, OTC for 10XXXX calls using FGD signaling, TRANS for both 950YXXXX and 10XXXX calls using FGD signaling, or FGC for 10XXXX calls using FGC signaling.
ORIGCARR			Original carrier
			Enter Y to define this carrier name as the original carrier. Otherwise, enter N.
			One carrier name must be defined as the original carrier for each unique carrier number. If two or more carrier names are datafilled with the same carrier number, then one (and only one) of the duplicate carriers must be datafilled as the original carrier by datafilling Y in this field.
INTER			Inter-LATA traffic
			Enter Y if the carrier can handle Inter-LATA traffic. Otherwise, enter N if it cannot.
(Sheet 1 of 6)			

Table 9   Datafilling table OCCINFO

Field	Subfield	Entry	Explanation and action
INTNTL			International traffic
			Enter Y if the carrier can handle international traffic. Otherwise, enter N if it cannot.
INTRA			Intra-LATA traffic
			Enter Y if the carrier can handle Intra-LATA traffic. Otherwise, enter N if it cannot.
ANI			Automatic number identification digits
			Enter Y if the carrier requires automatic number identification (ANI) digits to be sent with the called number. Otherwise, enter N if it does not.
FANI			Flexible automatic number identification digits
			Enter Y if the carrier can receive Flexible ANI (FANI) digits in place of ANI information. Otherwise, enter N if it cannot.
ONISCRN			Operator number identification screening
			Enter Y if operator number identification (ONI) traffic requires screening by an operator or centralized automatic message accounting (CAMA) position before outpulsing to the carrier. Otherwise, enter N.
AD1			Abbreviated dialing
			Enter Y if the carrier can be accessed using abbreviated dialing. Otherwise, enter N.
OVERLAP			Overlap pulsing
			Enter Y if the carrier receives digits from the access tandem (AT) or the equal access end office (EAEO) using overlap outpulsing. Otherwise, enter N.
(Sheet 2 of 6)			

Table 9   Datafilling table OCCINFO

Field	Subfield	Entry	Explanation and action
INTERS			Interstate traffic Enter Y if the carrier can handle traffic between states. Otherwise, enter N.
INTRAS			Intrastate traffic Enter Y if the carrier can handle traffic within the same state. Otherwise, enter N.
TERMREC			Terminating access record length Enter the length of the terminating access record produced for the carrier. The selections available are LONG or SHORT. Refer to the applicable automatic message accounting (AMA) reference guide for a detailed description of terminating records.
OCCSEPNO			Other common carrier separation number Enter the other common carrier (OCC) separation number used for the carrier in the traffic separation measurement system.
CONTMARK			Continuation mark Enter + to indicate that additional information for this tuple is contained in the next record.
(Sheet 3 of 6)			

Table 9   Datafilling table OCCINFO

Field	Subfield	Entry	Explanation and action
OPSIG			Operator signaling
			Enter the type of operator signaling provided by the carrier. The availability of this field eliminates the need to establish two carriers with the same access code in table OCCINFO in order to enable transitional or EAP carriers for FGC operator signaling.
			Enter FGRPC for FGD carriers that require FGC operator signaling. Otherwise, enter NONE.
			Note: FGRPD is not supported, and is equivalent to NONE.
PICIND			Presubscription indicator
			Enter Y if the carrier receives the presubscription indicator. Otherwise, enter N. This field must be datafilled for every entry in table OCCINFO.
NOA950			Nature of address indicator
			Enter Y to indicate that the nature of address indicator in the calling party number parameter is set to a binary value of 1111110 (network specific: 950+ call from public station, hotel/motel line, or non-equal access end office (EAEO). Otherwise, enter N. The default value of N causes no change in the existing operation of the switch.
INCCPN			Include calling party number
			Enter N to indicate that the calling party number parameter is removed from any initial address message (IAM) sent to this carrier. Otherwise, enter Y, which is the default value.
(Sheet 4 of 6)			

Table 9   Datafilling table OCCINFO

Field	Subfield	Entry	Explanation and action
DTMFIND			Rotary dial / dual-tone multifrequency indicator
			Enter Y if the carrier is to receive the rotary dial or DTMF indicator on operator services calls routed directly to the carrier. Otherwise, enter N.
OPSERV			Operator services
			Enter Y if the carrier accepts EAOSS and does not want the operating company to process 10XXX+0 and 00 calls to the carrier. Otherwise, enter N.
CACBLOCK			Carrier access code blocking
			Enter Y if the carrier blocks all calls dialed with a carrier access code (CAC). Otherwise, enter N.
CTDOA			Carrier toll deny operator assisted
			Enter Y to block operator assisted (OA) calls to this carrier if the subscriber has the carrier toll denied (CTD) line option enabled for this particular carrier. Otherwise, enter N.
CMCMON			Cellular mobile carrier monitor
			Enter Y to monitor the connection between the cellular mobile carrier (CMC) and inter-LATA carrier or international carrier (IC/INC), and to place the called directory number in the originating IC/INC and terminating CMC billing records. Otherwise, enter N.
SCRNWATS			Enhanced wide area telephone service screening
			Enter Y if the carrier requires band screening performed on digits dialed from an Enhanced WATS line. This option is only applicable when software package NTXA16 is present. Otherwise, enter N.
(Sheet 5 of 6)			

Table 9   Datafilling table OCCINFO

Field	Subfield	Entry	Explanation and action
CRMCRA			Circuit reservation and acknowledgment messages Enter Y if a carrier reservation message (CRM) is sent out from an access tandem (AT) to an interexchange carrier (IXC) on FGD calls outgoing over signaling system 7 (SS7) access-to-carrier (ATC) trunks, and if a subsequent circuit reservation acknowledgment (CRA) message is received at the AT from the IXC on FGD calls incoming to the AT on either multifrequency (MF) intertoll (IT) or SuperCAMA (SC) trunks. Otherwise, enter N.
ATPINCL			Access transport parameter included Enter Y if the access transport parameter (ATP) is included in the outgoing ISDN user part (ISUP) initial address message (IAM). Otherwise, enter N if the ATP is discarded.
INTRAOPR			Intra-LATA operator Enter Y if the carrier is capable of handling 0-intra-LATA operator calls. Otherwise, enter N. The default value for this field is N.
INTRCOIN			Intra-LATA coin Enter Y if the carrier is capable of handling intra-LATA coin calls. Otherwise, enter N.
(Sheet 6 of 6)			

3.4.1 Datafill example for table OCCINFO

The following example shows sample datafill in table OCCINFO.

Figure 15   Datafill example for table OCCINFO

```
CARRNAME CARRNUM ACCESS ORIGCARR INTER INTNTL INTRA ANI FANI
 ONISCRN AD1 OVERLAP INTERS INTRAS TERMREC OCCSEPNO OPSIG
 PICIND NOA950 INCCPN DTMFIND OBSERV CACBLOCK CTDOA CMCMON
 SCRNWATS CRMCRA ATPINCL INTRAOPR INTRCOIN

-----------------------------------------------------------
NBC    0320    EAP       Y     Y      Y     Y   Y    N         N
   N       Y      Y      N    LONG      14 FGRPC  N     N       Y
       N      N       N    N    N      N    N       N      N
          N
```

3.5 Datafilling table OCCRDIG

For calls to a numbering plan area (NPA) within world zone 1, but outside the continental United States, table OCCRDIG provides the regional code to outpulse to the AT/SSP or INC trunk. The regional code is a single digit prefixed by 01. The code, written in the generic form 01R, follows the carrier identification digits during the first stage of the outpulsing sequence.

The possible values for the R digit are listed below.

- 0 reserved NPA

- 3 Canada

- 5 Mexico

- 7 Alaska

- 8 Hawaii

- 9 Caribbean

Table 10   Datafilling table OCCRDIG

Field	Subfield	Entry	Explanation and action
OCCRSNPA		0 to 999	Other common carrier digits serving NPA Enter a valid NPA within world zone 1, but outside the continental United States.
(Sheet 1 of 2)			

Table 10   Datafilling table OCCRDIG

Field	Subfield	Entry	Explanation and action
OCCRDIG		0 to 9	Other common carrier R digit
			Enter the R digit value for the region where the NPA define in the field ODDRSNPA is located. The values correspond to regions as follows.
			0 reserved NPA
			3 Canada
			5 Mexico
			7 Alaska
			8 Hawaii
			9 Caribbean
OUTCNUS		Y or N	Outside continental United States
			Specify whether the region defined in field OCCRDIGH is outside the continental United States. Enter Y (yes) if the NPA defined in field OCCRSNPA is not reserved and is within a specific region that is outside the continental United States. Enter N (no), if the region defined in OCCRSNPA is reserved (700, 800 or 900), and is not within a specific region.

(Sheet 2 of 2)

3.5.1 Datafill example for table OCCRDIG

The following example shows sample datafill in table OCCRDIG.

Figure 16   Datafill example for table OCCRDIG

```
OCCRSNPA      OCCRDIG      OUTCNUS
---------------------------------------------------------
800                        9                        N


```

3.6 Datafilling table EASAC

Table EASAC allows the operating company to specify the three-digit code that is to be treated as a service access code (SAC) in field SAC. Every code that is designated as an SAC must be entered. Codes can be added to or deleted from table EASAC, but no tuples can be changed in table EASAC. By datafilling this table, casual dialling (for example, using a 10XXX prefix) will be blocked.

The table below shows the datafill procedure for table EASAC. This contains only those fields that apply to toll-free number service. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 11   Datafilling table EASAC

Field	Subfield	Entry	Explanation and action
SAC			Service access code This field consists of subfield CODE.
	CODE		Service access code Enter the NXX code, where N has the range 2 through 9, and X has the range 0 through 9.

3.6.1 Datafill example for table EASAC

The following example shows sample datafill in table EASAC.

Figure 17   Datafill example for table EASAC

```
SAC
_____
800
```

3.7 Datafilling subtable HNPACONT.HNPACODE

The NSCCODE field in table HNPACONT subtable HNPACODE indicates that database queries should be used for toll-free translations. If a routing component returned from an SCP includes a special routing indicator (transition number) or the routing component is itself an 800 SAC, then the SCP is not queried again, and regular INWATS routing is used (other 8XX SACs will not work).

This table accesses the toll-free number service database to obtain special routing and call handling instructions for up to one thousand codes within each serving number plan area (SNPA) or service translation scheme (STS) assigned in table HNPACONT.

For toll-free call translation, the number service code must be specified. The NSC code type is used to access the toll-free number service database to obtain special routing and call handling information.

For non-ambiguous E800 the following is the datafill in subtable HNPACONT.HNPACODE:

```
800 800 nsc E800
```

By introducing 8XX as a number service code (NSC), 8XX can be interpreted as an ambiguous code, if it is used as both an NPA and an NXX within a given office. To overcome this issue, the standard method of datafilling ambiguous translations must be used.

In this method, an NSC selector is added to the long route (ten-digits) of the AMBI selector in subtable HNPACONT.HNPACODE. This allows the NXX to be routed using the short route (seven-digits), and it allows the NSC code 8XX to be routed using the long route (ten-digits).

A single line of datafill in subtable HNPACONT.HNPACODE is required. The following is a sample line of datafill showing 888 as an ambiguous code where the timed method (TIM) is used to route the call to either a short route (seven-digits) of NPA 613 and NXX 888, or a long route (ten-digits) as an NSC toll-free E800 call.

```
888 888 AMBI TIM DN 613 888 NSC E800
```

Note: In addition to the TIM selector, the PFX and OPF selectors can be used in subtable HNPACONT.HNPACODE. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the selectors available.

The table below shows the datafill procedure for table HNPACONT subtable HNPACODE. This procedure contains only those fields that apply to toll-free

number service. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 12   Datafilling subtable HPNACONT:HPNACODE

Field	Subfield	Entry	Explanation and action
FROMDIGS			From digits
			Enter a string if the leading three digits represent an office code within the home numbering plan area (HNPA). This number represents either a single code or the first in a block of consecutive codes that have the same input data.
			Enter 888 as the ambiguous number. This number represents either a single code or the first in a block of consecutive codes that have the same input data.OUTSIDE CONTINENTAL UNITED STATES
			Specify whether the region defined in field OCCRDIGH is outside the continental United States. Enter Y (yes) if the NPA defined in field OCCRSNPA is not reserved and is within a specific region that is outside the continental United States. Enter N (no), if the region defined in OCCRSNPA is reserved (700, 800 or 900), and is not within a specific region.
TODIGS			To digits
			If field FROMDIGS represents a single code, enter the same single code as in field FROMDIGS. If field FROMDIGS represents the first number in a block of consecutive numbers, enter the last number in the block.
CDRRTMT			Code type, route reference and treatment
			This field consists of subfield CD and its refinements. See the appropriate subfield for its definition.
(Sheet 1 of 3)			

Table 12 Datafilling subtable HPNACONT:HPNACODE

Field	Subfield	Entry	Explanation and action
	CD		Code type
			Enter AMBI for ambiguous codes and then datafill the refinements METHOD, SHORTRTE, LONGRTE, and CONTMARK.
			Enter NSC for unambiguous codes and datafill the refinements with E800 for toll-free number service. The entry in this subfield must correspond to the entry in the NSCCODE field of table NSCDEFS.
	METHOD		Method
			Enter one of the three selectors available: PFX, TIM, or OPF. As these are complicated selectors, refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a complete description of the selectors.
	SHORTRTE		Short route
			This subfield consists of refinements CD, SNPA and NXX. See the appropriate refinement for its definition.
			CD—Code Type
			Enter any valid code type.
			SNPA—Terminating serving number plan area
			Enter the serving number plan area (SNPA) of the called terminating line directory number. If the operating company uses screening to intra-switch SNPAs, translation of the dialed digits proceeds to table OFCNAME using SNPA and NXX as the key.
			NXX—Terminating NXX
			Enter 888.
(Sheet 2 of 3)			

Table 12   Datafilling subtable HPNACONT:HPNACODE

Field	Subfield	Entry	Explanation and action
	LONGRTE		Long route
			This subfield consists of refinements CD and NSCCODE. See the appropriate refinement for its definition.
			CD—Code Type
			Enter NSC.
			NSCCODE—Number service code
			Enter E800 for toll-free number service. This subfield must correspond to the entry in the NSCCODE field in table NCSDEFS. This parameter is used to index into table NCSSCRN to perform six-digit translation of toll-free calls.
(Sheet 3 of 3)			

Note: If an ambiguous code has been either added or deleted from subtable HNPACONT.HNPACODE, then the NOAMBIGC field in table HNPACONT must be incremented or decremented to reflect the changes that have been made. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the fields in table HNPACONT.

3.7.1 Ambiguous datafill example for subtable HNPACONT: HNPACODE

The following example shows sample datafill for the E800 toll-free number service in subtable HNPACODE. In the example, the code type is NSC.

Figure 18   Ambiguous datafill example for table HPNACONT:HPNACODE

```
FROMDIGS   TODIGS
          CDR    RTMT   METHOD SHORTRTE   LONGRTE
--------------------------------------------------------
               888    888
                 AMBI    TIM    DN 613 888NSC E800
```

3.8 Ambiguous 8XX international calls and seven-digit toll calls

The introduction of the 8XX codes (that is, 888, 877, 866, 855, 844, 833 and 822) creates ambiguity not only with existing office codes, but also with existing country codes used in international dialing.

Specifically, the ambiguity between international calls and toll-free calls occurs when the DMS line feature Toll Deny (TDN) is on an originating line. This ambiguity results in calls to countries with a both country code and city code of 8XX (for example, Seoul, Korea—822) not being blocked with TDN subscribed to the line. Thus, making it a toll call, and not a toll-free call.

To accommodate these scenarios and to ensure that the international calls are blocked by TDN, all international call types require that field TRANSYS in subtable STDPRTCT.STDPRT be datafilled as "IN" (international).

The following table provides a summary of system behavior for ambiguous 8XX numbers, the TDN feature and international dialing. For international calls, these examples use the IN selector in subtable STDPRTCT.STDPRT.

Table 13   Ambiguity for 8XX and TDN

If field TRANSYS is	Then
IN	International (IN) TDN calls with an 800 sac are not blocked, but all other 8XX sacs are blocked. 011 international calls must be datafilled with field TRANSYS in table STDPRTCT datafilled as IN and should not be datafilled against selectors that do not specify the TRANSYS, or that currently use a TRANSYS other than IN.
NA or NO	National (NA) or NO TRANSYS (NO). TDN calls are not blocked. In this case, the toll-free check is applicable. Calls are not blocked if the dialed number begins with a toll-free SAC (that is, 8XX). Note that international calls are not blocked by TDN if they are routed through translations with TRANSYS set to NA or NO. TDN calls that only use code types S, T and V are also treated the same way as no TRANSYS (NO).

3.9 Datafilling table NSCSCRN

Table NSCSCRN provides six-digit (NSC-NXX) screening that is used for the pre-BCS21 method of translating toll-free calls.

Toll-free number service call with 800 datafilled in table NSCSCRN are translated using the datafilled translator selector. Number service calls without 800 NXX datafilled in table NSCSCRN are translated using the SSP E800 method.

The table below shows the datafill procedure for table NSCSCRN. This contains only those fields that apply to toll-free number service. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 14   Datafilling table NSCSCRN

Field	Subfield	Entry	Explanation and action
NSCODE			Number service code (NSC)
			The number services code is entered in this field. For toll-free number services, enter E800.
FROMNXX			From three-digit code
			Enter a three-digit code that represents either a single code, or the first in a block of consecutive codes.
TONXX			To three-digit code
			Where field FROMNXX represents a single code, enter the same three-digit code in this field.
			Where field FROMNXX represents the first three-digit code in a block of consecutive three-digit codes, enter the last three-digit code in the block.
XLADATA			Code type route reference
			This field contains subfield NSCCD and its refinements. See the appropriate subfields for definitions.
	NSCCD		Code type
			Enter VCT when call is to be routed to treatment and complete the following field TMT. Otherwise, determine type of call and complete subfield RR following.
			Refer to subtable HNPACONT.HNPACODE for a description of code types.
(Sheet 1 of 2)			

Table 14   Datafilling table NSCSCRN

Field	Subfield	Entry	Explanation and action
	TMT		Treatment
			When NSCCD equals VCT, enter the treatment used to index into the appropriate TMTCNTL subtable.
	RR		Route reference index
			Enter the route reference index of the route list in table HNPACONT subtable RTEREF to which translation is to proceed.
(Sheet 2 of 2)			

3.9.1 Datafill example for table NSCSCRN

The following example shows sample datafill in table NSCSCRN. In the example, the number service code is E800.

Figure 19   Datafill example for table NSCSCRN

```
NSCODE    FROMNXX      TONXXX      LADATA
---------------------------------------------------------
E800                 011                  022        VCT MSCA
 E800                122 123INWO 0
 E800                200 300INWO 0
 E800                400 500INWC 0

```

Note: Once a call is recognized as an NSC call, tables NSCSNPA and SSPTKINF are used to obtain the information required for an SCP query.

3.10 Datafilling table SSPTKINF

Table SSPTKINF provides the operating company with the capability to assign the

- originating LATA number

- NXX (if it is a direct trunk group from an end office)

- coin-traffic type to each incoming or two-way trunk group that carries number service calls

The NXX is used as part of the SSP database query information, and for the SSP AMA records, if calling DN is not available from the incoming trunk.

Any trunk groups that handle NSC traffic must have an entry in table SSPTKINF.

These calls are received over a direct trunk group from an end office with no calling number (for example: ONI/ANI_FAIL calls from SC/TOPS trunks, or calls from IT trunks). Datafill all incoming or two-way trunks that support SSP NSC calls. If the trunk is not datafilled in table SSPTKINF, calls receive vacant code treatment.

The table below shows the datafill procedure for table SSPTKINF. This contains only those fields that apply to toll-free number service. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 15   Datafilling table SSPTKINF

Field	Subfield	Entry	Explanation and action
SSPTK			SSP trunk CLLI
			Enter the common language location identifier (CLLI) of the trunk group handling NSC calls, incoming or two-way.
ORIGLATA			Originating LATA number
			The originating LATA at the other end of the trunk has a LATA number that is entered here. Mandatory, but not used by E800.
DIRECTTK			Direct trunk
			This field contains subfield DIRECT and refinement NXX.
	DIRECT		Direct
			Enter Y if this is a direct trunk group and complete refinement NXX. Otherwise, enter N.
(Sheet 1 of 2)			

Table 15   Datafilling table SSPTKINF

Field	Subfield	Entry	Explanation and action
	NXX		Originating office code
			When DIRECTTK is Y and the ANI is not available, enter the originating office code (NXX). The existence of this field is dependent on the value of the data in field DIRECTTK. If the value in DIRECTTK is N, this field is unavailable for datafill.
COINTRAF			Trunk traffic type
			Enter COMB if the trunk group carries both coin and non-coin traffic.
			Enter COIN if the trunk group only carries coin traffic.
			Enter NON-COIN if the trunk group carries non-coin traffic only.
(Sheet 2 of 2)			

3.10.1 Datafill example for table SSPTKINF

The following example shows sample datafill in table SSPTKINF. In the example, the originating office code is 621.

Figure 20   Datafill example for table SSPTKINF

```
 SSPTK       ORIGLATA    DIRECTTK  COINTRAF OPTIONS
 ----------------------------------------------------------
 EAIN     000                 Y 621    COMB          $
```

3.11 Datafilling table NSCSNPA

Table NSCSNPA maps special routing codes (SRC), that is 00Y codes, to originating numbering plan area (NPA) codes.

ATTENTION

The only SAC for which 00Y codes work is 800.

A toll office may take calls from several NPAs and forward them to a single SSP. In some cases, no originating DN information is passed to the toll office from the originating office. Thus, the SSP only knows that the calls came from a toll office, it does not know the originating NPA of the call. The SCP needs to know where the call originated because this must be sent to the terminating office for billing purposes. Hence, the toll office inserts a 00Y code in place of an 800 code, since it can determine the originating NPA by noting the trunk that it arrived on.

The corresponding SNPA for the calling office is retrieved from table NSCSNPA. If the 00Y is not found in table NSCSNPA, the 800 number service call receives vacant code treatment.

Under specific circumstances, the 00Y code can be received by the carrier. Those circumstances require all of the following conditions to be met:

- the trunk from the AT to the carrier must be FGC

- the routing number contained in the SCP response message must be 800

- a 00Y code corresponding to the originating NPA must be datafilled in table NSCSNPA

The table below shows the datafill procedure for table NSCSNPA. This contains only those fields that apply to toll-free number service. Refer to the data *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 16   Datafilling table NSCSNPA

Field	Subfield	Entry	Explanation and action
SRC			Special routing code Enter the special routing code that is used by the end office or tandem office to indicate the originating NPA or NSC call is from a coin line. For E800, enter the special routing code in the range of 000 to 009.
SNPA			Originating NPA Enter the originating SNPA. This field has a range of 000 to 999.
(Sheet 1 of 2)			

Table 16   Datafilling table NSCSNPA

Field	Subfield	Entry	Explanation and action
COINCALL			Coin station call
			Enter Y if the special 00Y entered in field SAC indicates that the call is from a coin line. Otherwise, enter N. This has no effect on the call.
(Sheet 2 of 2)			

3.11.1 Datafill example for table NSCSNPA

The following example shows sample datafill for table NSCSNPA.

Figure 21   Datafill example for table NSCSNPA

```
SRC        SNPA     COINCALL
-----------------------------------------------------------
002        613         N
003        416         Y
```

3.12 Datafilling table NSCDEFS

Table NSCDEFS is used to define the types of number services accessible on the node and the options available to those individual services.

Parameter TIMEOUT in this table is used to set the database response time. It has a default value of 3 seconds. If a response is not received within this time, the call is given Reorder (RODR) treatment.

	CAUTION **Possible loss of service** Do not set the parameter TIMEOUT to a value that is greater than 29. A value greater than 29 may cause a SWERR and cause a loss of service to all toll-free calls.

The table below shows the datafill procedure for table NSCDEFS. This contains only those fields that apply to toll-free number service. Refer to the

data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 17   Datafilling table NSCDEFS

Field	Subfield	Entry	Explanation and action
NSCODE			Number service code
			Enter E800 as the number service code. It is referenced from subtables HNPACONT.HNPACODE and STDPRTCT.STDPRT. It is also used in some of the International translation tables. Ensure that when adding or deleting this data element that the same is done for the other tables.
TIMEOUT			SSP database response timeout
			Enter the time, in seconds, to wait for a response from the SCP database. The recommended value for field TIMEOUT is 3 seconds. The range is 0 to 32,767 seconds. If a response is not received within this time, the call is given Reorder (RODR) treatment.
			Note: Do not set this field to a value greater than 29.
OPTIONS			Options
			This field is a vector of up to 12 multiples of subfield OPTION and its refinements. See the appropriate subfields for definitions.
	OPTION		Separate each OPTION with a single space. If less than 12 options are required, end the list with a $ (dollar sign).
			NSCNUM—Three-digit service code number
			Enter NSCNUM for the three-digit service code number option.
			If the entry in subfield OPTION is NSCNUM, datafill this refinement. Enter a three-digit service code number (for all toll-free service, enter 800).
(Sheet 1 of 3)			

Table 17   Datafilling table NSCDEFS

Field	Subfield	Entry	Explanation and action
			NSC0ZZ—Three-digit 0ZZ code
			If the entry in subfield OPTION is NSC0ZZ, datafill this refinement. This refinement allows an operating company to customize the NSC code. Enter a three-digit code starting with 0 (zero). The second and third digits can be any number between 0 and 9.
			NSC0ZZ contains a prefix value that is outpulsed for Southbound calls. 0ZZXXX is used to find the Southbound route in table STDPRTCT after the database query. Tuple 0ZZ (NSC0ZZ0) + XXX in table STDPRTCT must be datafilled with proper route selections that match this table.
			NSCALARM—SCP database response timeout
			If the entry in subfield OPTION is NSCALARM, datafill this refinement. It is used to trigger a Freephone Services major alarm if two queries to the SCP database time out before the time interval in ALARMTIM has elapsed. Datafill to ON to enable. The default is ON.
			ALARMTIM: Enter the number of minutes that must elapse during two SCP queries, in order to trigger the alarm. This time is also used to automatically clear the alarm, if two SCP queries occur without time-outs. The range is 1-1440 minutes. The default is 10.
			COMFORT—Comfort tones capability
			Enter COMFORT if the office has the Comfort Tone feature for the NSC service (field NSCODE is set to E800) to have comfort tone applied to the originating agent during database queries. This is only valid on lines or MF trunks.
(Sheet 2 of 3)			

Table 17   Datafilling table NSCDEFS

Field	Subfield	Entry	Explanation and action
			10DGTRTG—Ten-digit translations capability Enter 10DGTRTG to indicate that ten-digit routing is desired for all E800 calls. If the option 10DGTRTG is not present, then all routing for E800 calls is on a seven-digit basis.
(Sheet 3 of 3)			

3.12.1 Datafill example for table NSCDEFS

The following example shows sample datafill in table NSCDEFS. In the example, the waiting time for a response from the SSP is 3 sec.

Figure 22   Datafill example for table NSCDEFS

```
NSCODE TIMEOUT OPTIONS
---------------------------------------------------------
E800 3 (NSC0ZZ 099) (NSC1NX 199) (NSCNUM 800) (10DGTRTG ) $
```

3.13 Billing suppression for 8XX calls

3.13.1 Feature number

Not applicable

3.13.2 Feature package

Not applicable

3.13.3 Feature package prerequisites

Not applicable

3.13.4 Description

In certain site configurations, 8XX calls can generate double billing. For the North American dialing plan, the dialed digits of 800, 822, 833, 844, 855, 866, 877, 888 and 900 are considered number service codes (NSC).

When a ten-digit number is dialed that begins with these digits, a database query is sent to the service control point (SCP) from the service switching point (SSP) equipped end office that originated the call. The response from this

query tells the SSP end office how the call is to be routed and what kind of billing record to generate.

If the end office where the NSC call originates does not have SSP functionality, then the switching system providing the SSP function can be an access tandem (AT).

In a non-SSP end office when a call originates, the call is routed to the Toll/SSP that will do the database query, the ultimate routing of the call, and the generation of the automatic message accounting (AMA) billing record. An AMA billing record is also generated by the AT SSP office. As a result, two AMA records are generated for one call (one at the AT and one at the non-SSP end office).

The following procedure explains how to suppress the additional AMA record that is created at the non-SSP end office.

3.13.5 Translations table flow
Not applicable.

3.13.6 Feature limitations and restrictions
None.

3.13.7 Feature interactions
Not applicable

3.13.8 Activation/deactivation by the end user
Not applicable.

3.13.9 Billing
Billing suppression for 8XX calls eliminates the additional AMA record that is created at the originating non-SSP end office.

3.13.10 Station message detailed recording
Billing suppression for 8XX calls does not affect Station message detailed recording (SMDR).

3.13.11 Datafilling office parameters
Billing suppression for 8XX calls does not affect office parameters.

3.13.12 Datafill sequence

The following table requires datafill to implement billing suppression for 8XX calls.

Table 18   Table required for billing suppression

Table and subtable	Description
STDPRTCT.AMAPRT	Generates and suppresses Bellcore-formatted AMA records.

3.14 Datafilling subtable STDPRTCT.AMAPRT

Subtable STDPRTCT.AMAPRT is indexed by the same leading digits as received by subtable STDPRTCT.STDPRT. Subtable STDPRTCT.AMAPRT is datafilled when the operating company needs to generate Bellcore-formatted AMA records independent of the fixed translation schemes.

In the office that requires the AMA record for a 1-8XX-NXX-XXXX call to be suppressed, subtable STDPRTCT.AMAPRT must be datafilled with the NONE and OVRDALL options for the translated digit string.

For example, to suppress the record for a 1-888-NXX-XXXX call, the subtable is datafilled as follows:

```
> 1888 1888 NONE OVRDALL N
```

This suppresses any regular toll billing for this call. However, it is not possible to suppress the generation of call code 110 AMA records with this method. This means that the 8XX call must be routed to the Access Tandem/SSP as a direct dialed (DD) call.

Table 19 shows the datafill for table STDPRTCT, subtable AMAPRT. This procedure contains only those fields that apply to billing suppression for

E8XX calls. Refer to the data schema section of the *North American DMS-100 Translations Guide*, 297-8003-350, for a description of the other fields.

Table 19   Datafilling subtable STDPRTCT.AMAPRT

Field	Subfield	Entry	Explanation and action
FROMDIGS			From digits
			Enter the digits to be translated.
			If the entry represents a block of consecutive numbers, enter the first number in the block.
TODIGS			To digits
			If field FROMDIGS represents a block of consecutive numbers, enter the last number in the block.
			Otherwise, the entry is equal to the entry in field FROMDIGs.
AMARSLT			AMA result
			This field consists of subfields CALLCODE and SFPRSNT.
	CALLCODE		Call code
			Enter NONE. This is entered because there is no change being made to the call code generated.
			OVRIDLT — Override non-IC AMA records (local/toll)
			Enter OVRDALL.
	SFPRSNT		Service feature present
			Enter N.

3.14.0.1 Datafill example for subtable STDPRTCT:AMAPRT
The following example shows sample datafill for subtable STDPRTCT.AMAPRT. In the example, all 1-888-NXX-XXXX calls are suppressed from generating AMA records at the local office.

Figure 23   Datafill example for subtable STDPRTCT.AMAPRT

```
FROMDIGS TODIGS   AMARSLT
-----------------------------------------------------------
         1888     1888NONE OVRDALL N
```

Chapter 4: Monitoring toll-free number service

This chapter describes toll-free number service administration procedures. It also contains information that is pertinent to long-range planning, provisioning engineering, and network design.

- "Understanding toll-free number services," on page 95 provides a brief description of routing of toll-free number service calls.

- "Defining administration functions," on page 95 provides an overview of administrative functions.

- "Using OMs to evaluate toll-free number service performance," on page 98 provides a description of the operational measurements (OMs) that can be used to monitor performance of toll-free number services on an SSP.

- "Evaluating toll-free number services performance factors," on page 103 provides information on how to evaluate performance factors.

4.1 Understanding toll-free number services

Toll-free number services use service switching points (SSP) and service control points (SCP) in the signaling system 7 (SS7) network to provide toll-free calling. Toll-free calling allows the called party to pay long distance charges. Businesses using these services can provide callers with convenient, cost-free access to telephone services.

When a caller dials a toll-free number, the SSP at which the call originates sends a query to the SCP for routing information. The SCP retrieves the routing information from its database, and sends this information to the SSP in a response message. The SSP then routes the call accordingly.

4.2 Defining administration functions

This section explains the role of the administrator in monitoring the various performance factors and performance indicators of toll-free number services.

4.2.1 Role of the administrator

The administrator's responsibilities include monitoring the performance of the SSP. Typically, the administrator delivers hardware and software performance

information to the operating company's maintenance and engineering groups. The administrator collects data that is used to calculate provisioning requirements, and provide early indications of system faults.

4.2.2 How administrators monitor service performance

The administrator should use the OMs described in this chapter to monitor the performance and efficiency of toll-free number services on the SSP and its associated components.

4.2.3 Performance factors

Performance factors deal with system performance that affect the efficient operation of toll-free number services. Toll-free number services have several traffic-sensitive areas that can exceed engineered limits. Monitor these areas using the OMs described in this chapter. The system administrator must track congestion, usage, and traffic levels to aid with provisioning decisions. Some performance factors include the following:

- SSP availability

- SCP and database availability

- level of toll-free number services query traffic

- level of SS7 traffic

- SCP query response time

Performance is measured using performance indicators.

4.2.4 Performance indicators

Performance indicators are measurements or records of events that occur during a given period of time or in a time sequence.

Performance indicators show how well toll-free number services software and signaling fulfill the purpose for which they were designed. Performance indicators measure performance, such as operational measurements and log reports. Performance indicators include the following:

- availability

- performance metrics

- error rates

4.2.5 Operational measurements

Each SSP counts how many times certain key functions occur, using operational measurements (OM). OMs contain data records of events that happen during a given time period, or in a given sequence. They provide information used for service level and maintenance indicators, hardware and software assignment, accounting input, and provisioning decisions. OMs also let you track functional performance levels.

The SSP generates and collects OMs that monitor toll-free number services as part of the ongoing background processes that work in parallel with the other functions of the SSP. Each group serves a specific purpose or describes a specific aspect of service operation.

For further general information about OMs, and complete descriptions of all DMS-100 Family OMs, refer to the *Operational Measurements Reference Manual*.

4.2.6 Log reports

SSPs generate log reports to indicate that an event has occurred in the switch or in one of its peripherals. Log reports include status and activity reports, hardware or software fault reports, reports on test results, and reports on other events or conditions. Complete descriptions of all DMS-100 Family log reports are contained in the *Log Report Reference Manual*. For information on the contents of logs related to E800, refer to Chapter 5, "Maintaining toll-free number service".

4.2.7 Toll-free number services system resources

The uninterrupted functioning of toll-free number services depends on the operation of the SSPs, STPs, and SCPs that act as sources, transfer points, decision-making databases, and destinations of toll-free number service calls.

4.2.8 Toll-free number services component failures and system faults

Key components on SSPs include the following:

- CCS7 link interface units (LIU7) and associated links
- computing module (CM) and supporting equipment
- input/output cabinet (IOC) equipment

Key components on the SSPs can fail, causing toll-free number service degradation or failure. All hardware failures result in alarms or log reports at the MAP terminal. See Table 20 for information on where to check for alarms and logs.

Table 20   Handling service degradation and system failure

Location of trouble	Where to check for logs and alarms
origination SSP	check locally
destination SSP	check locally
across network	at STP and SSPs

The operation of the SSPs that act as sources and destinations of toll-free number service calls are also crucial to the operation of toll-free number

services. The critical areas of SSP capacity relate directly to call processing and CCS7 messaging capacities.

4.3 Using OMs to evaluate toll-free number service performance

This section provides information about the OM groups and registers that are associated with toll-free number services, including basic functions and lists of OM groups and registers.

4.3.1 SSP operational measurements

SSP OM groups help you evaluate the performance and efficiency of your network and toll-free number services. Information is provided on the following OM groups:

- NSC

- NSCACG

- TRMTCM

Table 21 lists OM groups and individual registers in each group, the BCS release when the register was created, and related registers.

Table 21 NSC OM group registers

Group	Register	Information
NSC		**Description:** Number services code (NSC) provides summary information on NSC calls. NSC calls require access to service control point (SCP) databases. The NSC OM group indicates the grade of service provided by a service switching point (SSP)
		Release history: This group was created in BCS 21.
	NSCABNAS	**Description:** NSC call abandon after seizure (E800 only) is incremented when a disconnect message is received from the calling party after an SSP seizes an outgoing trunk, but before the call is answered.
		Release history: This register was created in BCS 21.
	NSCABNBS	**Description:** NSC call abandon before seizure is incremented when a disconnect message is received from the calling party before an SSP seizes an outgoing trunk.
		Release history: This register was created in BCS 21.

Table 21   NSC OM group registers (continued)

Group	Register	Information
NSC (continued)	NSCATIN	**Description:** NSC access tandem trunk incoming counts NSC calls that are received from other offices (trunk calls) in a Toll/SSP system. This count is only incremented for calls originating from toll trunks, for example, Intertoll, Supercama, and TOPS. **Release history:** This register was created in BCS 21.
	NSCDBOVL	**Description:** NSC database overload response is incremented if a database returns the subsystem congestion diagnostic to an SSP, indicating a database overload. **Release history:** This register was created in BCS 22.
	NSCEIGHT	**Description:** NSC 800 number returned is incremented when a toll-free number is returned from the SCP database. The number is retranslated using the INWATS tables. **Release history:** This register was created in BCS 22.
	NSCFLICM	**Description:** NSC failure invalid command message is incremented when the SSP receives an undecipherable response from the SCP. The call is routed to reorder (RODR) treatment. **Release history:** This register was created in BCS 21.
	NSCFLICS	**Description:** NSC failure invalid command sequence is incremented when the SSP receives a response from the SCP that contains incomplete or out-of-sequence commands. The call is routed to reorder (RODR) treatment. **Release history:** This register was created in BCS 21.
	NSCFPRIQ	**Description:** NSC failure prior to query counts calls that fail before a database query is launched, including calls that fail for one of the following reasons: invalid called number digits 800Plus subsystem out of service (OOS) no transaction identifiers (TRIDs) available. **Release history:** This register was created in BCS 22.

Table 21   NSC OM group registers (continued)

Group	Register	Information
NSC (continued)	NSCINVY	**Description:** NSC invalid special routing OOY code is able to count invalid SRC/00Y codes that are received by the SSP from the end office. An end office may substitute an SRC/00Y code for the 800 code in the 800+NXX+XXXX number to indicate the originating numbering plan area to the SSP. The code is considered invalid if it is not datafilled in table NSCSNPA. The call is routed to vacant code treatment. **Release history:** This register was created in BCS 22.
	NSCIVCAR	**Description:** NSC call invalid carrier identification is incremented when the database returns an invalid carrier identification in the response message. A carrier identification is invalid if it is not datafilled in an appropriate data schema table of valid carrier identifications for the number service call service. This register is used by the Southbound feature for U.S. carriers and other common carriers in Canada. The call is routed to SS7 application failure treatment. **Release history:** This register was created in BCS 26.
	NSCNSNPA	**Description:** NSC number of non-subscribed numbering plans area (NPA) responses (NSCNSNPA) is incremented if the database returns out of band (out of zone) as a special routing in the database response. Note: This register is only used by the 800P feature. In an SSP 800Plus office, the NSCNSNPA count is zero. **Release history:** This register was created in BCS 22.
	NSCORIG	**Description:** NSC originated counts NSC calls originated by lines and local trunks that have reached the dialing complete stage. In a DMS-100/200 combined access tandem/SSP office, the count is the total number of NSC calls originated by co-located stations (line calls) plus NSC calls resulting from call redirection. In a DMS-200 access tandem/SSP office, the count is zero. **Release history:** This register was created in BCS 21.
	NSCOUTSV	**Description:** NSC out-of-service responses is incremented if a database returns the subsystem failure diagnostic indicating that the database is unavailable. The call is routed to reorder (RODR) treatment. **Release history:** This register was created in BCS 22.

Table 21   NSC OM group registers (continued)

Group	Register	Information
NSC (continued)	NSCQUERY	**Description:** NSC query counts toll-free database queries that are sent by call processing using the transaction capabilities application part (TCAP). **Release history:** This register was created in BCS 22.
	NSCSFLTO	**Description:** NSC signaling failure time-out is incremented when a reply is not sent back to the SSP from the SCP within the time interval specified in table NSCDEFS. The call is routed to reorder treatment. **Release history:** This register was created in BCS 21.
	NSCST2TO	**Description:** NSC T2 time-out is incremented when the SSP sends a query to the SCP but does not receive a response message from the SCP database within the T2 time interval specified in table NSCDEFS. Note: The T2 time interval is an optional parameter in table NSCDEFS. **Release history:** This register was created in BCS 26.
	NSCTIOVF	**Description:** NSC transaction identifier (TRID) unavailable before initial query is incremented when an SSP NSC call fails because the NSC transaction identification is not available in the SSP. The call is routed to reorder (RODR) treatment. **Release history:** This register was created in BCS 21.
	NSCUNSOR	**Description:** NSC unsolicited responses (NSCUNSOR) counts unsolicited responses that are received by an SSP from an SCP. Unsolicited responses from the database do not have a corresponding query. **Release history:** This register was created in BCS 22.
	NSCVACDR	**Description:** NSC vacant database responses is incremented if the database response indicates a vacant code. The call is routed to vacant code (VACT) treatment. **Release history:** This register was created in BCS 22.

Table 22 lists the registers associated with the NSCACG OM group.

Table 22   NSCACG OM group registers

Group	Register	Information
NSCACG		**Description:** Number services code automatic call gapping (NSCACG) provides information on the effectiveness of automatic call gapping (ACG) for number service code (NSC) calls. ACG is the mechanism used to implement network management controls.
		Release history: This group was created in BCS 21.
	NSCATMPT	**Description:** NSC attempts (NSCATMPT) counts line and trunk originating 800Plus calls that reach the SSP.
		Release history: This register was created in BCS 21.
	NSCBKMCC	**Description:** NSC blocked mass calling controls (NSCBKMCC) counts NSC calls that are blocked by ACG controls for ten-digit mass calling controls. NSC calls blocked for mass calling controls are routed to busy line (BUSY) treatment.
		Release history: This register was created in BCS 21.
	NSCBKSIC	**Description:** NSC blocked by Service Management System (SMS)-initiated controls (NSCBKSIC) counts NSC calls that are blocked by automatic call gapping (ACG) controls. The SMS initiates ACGs and forwards them through an SCP to the appropriate service switching point. NSC calls that are blocked by ACG-initiated controls are routed to reorder (RODR) treatment.
		Release history: This register was created in BCS 21.
	NSCBKSOC	**Description:** NSC blocked service control point (SCP) overload controls (NSCBKSOC) counts NSC calls that are blocked by ACG controls for SCP overloads. NSC calls blocked by SCP overload controls are routed to generalized no circuit (GNCT) treatment.
		Release history: This register was created in BCS 21.
	NSCBKVC	**Description:** NSC blocked vacant (VACT) codes (NSCBKVC) counts calls that are blocked by ACG controls that are applied either because tool many calls are made to VACT codes, or because too many calls are made from numbering plan areas (NPA) that have not been purchased for NSCs.
		Release history: This register was created in BCS 21.

Table 22   NSCACG OM group registers (continued)

Group	Register	Information
NSCACG (continued)	NSCCOMC	**Description:** NSC mass calling control list overflow (NSCCOMC) is incremented when an ACG control cannot be applied to a code that is associated with a toll-free number because the control list is full. **Release history:** This register was created in BCS 21.

Table 23 lists the registers that are associated with the TRMTCM OM group.

Table 23   TRMTCM OM group

Group	Register	Information
TRMTCM		Description: treatment customer mistakes (TRMTCM) counts calls that are routed to a treatment that is attributed to a customer action, but is not related to authorization. Release history: This register was created in BCS 20.
	TCMCHAF	Description: For originating screening offices with 800Plus service, treatment to CHAF (TCMCHAF) counts calls that are routed to CHAF treatment because the response from the operating company database is Changed 800 Number—Treatment 1. The calling subscriber is routed to national directory assistance. Release history: This register was created in BCS 22.
	TCMCHAN	Description: For originating screening offices with 800Plus service, treatment to CHAN (TCMCHAN) counts calls that are routed to CHAN announcement treatment because the response from the operating company database is Changed 800 Number—Treatment 1. The calling subscriber is routed to an announcement stating that the dialed 800 number has changed and should be checked before redialing. Release history: This register was created in BCS 22.

4.4 Evaluating toll-free number services performance factors

This section provides a procedure to monitor switch performance.

4.4.1 Creating a performance monitoring plan

Planning and enabling switch-based measurement activities, including defining the performance factors, is usually the joint responsibility of operating company administration, engineering, and maintenance organizations.

4.4.2 Monitoring toll-free number services performance factors

This section explains how to create and execute a plan to monitor the performance of toll-free number services on an SSP.

4.4.2.1 Creating a toll-free number services performance monitoring plan

1 Select the appropriate performance indicators.

2 Activate the performance indicators in the switch and collect the outputs.

   Note: To define and activate specific log reports, refer to procedures in the *Input/Output System Reference Manual*, 297-1001-129. To set up OMs and route OM reports to output devices, refer to procedures in *Basic Administration Procedures*, 297-1001-300.

3 Analyze the results. Review output associated with the OMs reported in the reporting schedules set up in the previous step by doing the following:

   a. Look for service indications that exceed the established engineering criteria for toll-free number services.

   b. Look for service indicators, such as log reports, that may indicate a maintenance or datafill problem.

   c. Capture the appropriate OM readings that indicate whether more facilities are needed or will be needed to meet engineering criteria.

4 Report the results. Notify the engineering and maintenance organizations of service indications that require their attention.

Chapter 5: Maintaining toll-free number service

Use the information provided in this chapter to perform maintenance procedures and respond to log reports and alarms that are associated with toll-free number services.

- "Overview of maintenance for toll-free number services," on page 105 provides a brief description of toll-free number service maintenance needs.

- "Alarms," on page 106 provides information on how to respond to alarms.

- "Log reports," on page 106 gives a brief description of the log reports that are associated with toll-free number services, and required maintenance responses.

- "Problem detection and trouble clearing," on page 110 provides information about procedures used to detect problems with toll-free number services components, and about clearing toll-free number service database problems.

- "Commands," on page 111 gives brief descriptions of some of the maintenance commands that are of particular interest to personnel maintaining toll-free number services.

5.1 Overview of maintenance for toll-free number services

Maintenance for toll-free number service occurs on the service switching points (SSP) that originate and terminate 800 number calls, and on the SCP that carries the toll-free number services database. Toll-free number services rely on the proper functioning of the network as a whole.

5.1.1 SSP maintenance

No maintenance is specifically required on SSPs to support toll-free number services. SSPs must be able to process calls, including 800 number calls, and must be able to query the SCP for routing information. SSP failures and faults will impact all functions provided by the SSP. For further information, refer to Trouble Locating and Clearing Procedures.

5.2 Alarms

Toll-free number service only generates one alarm—the Freephone Services Alarm—that indicates that queries to the SCP database have timed-out. Congestion or fault conditions on the network, the SCP, or SSPs can also affect toll-free number service. These conditions may raise alarms regarding specific SSP or SCP components.

To clear an alarm on the SCCP local subsystem, SSP or SCP, refer to Alarm and Performance Monitoring Procedures.

If you fail to find the solution to a fault, or if a procedure instructs you to contact Nortel support services, perform the following steps:

1   Make a written record of actions that led up to the problem. Record relevant information such as: pertinent logs messages, operational measurements, and any suspect files that have been saved to tape.

2   Categorize the problem by severity according to the guidelines given in Service Priority Classification Description in Chapter 5.

3   Contact Nortel support services.

You can contact Nortel's technical assistance groups by telephone 24 hours a day. Your sales representative or customer service representatives can supply the telephone numbers for technical assistance.

5.3 Log reports

The system generates and stores system logs to serve as messages whenever a significant event occurs in the switch. For instance, if the machine processes a toll-free number services query, and it detects an error in the data values of one of the tables it accesses, the system generates a log. The administration personnel use the log messages to locate and correct the condition causing the error.

5.3.1 Responding to logs

When a log message appears on the printer, perform the following actions:

1   Look up the message in this section.

Note: If the message cannot be found in this section, see the *Log Report Reference Manual*.

2   Take the action indicated for the message.

5.3.2 Toll-free number services logs

Systems generate the logs described here, under the following conditions:

• toll-free SCP database query delay

- software processing errors

- toll-free number services datafill problems

- changed parameters

- data corruption errors specific to toll-free number service

- operator-handled toll-free number service calls

The logs described here include the following:

- SWER

- NSC100

- CCS

5.3.3 SWER

5.3.3.1 Seriousness
This log is associated with a minor alarm.

5.3.3.2 Explanation
A software error has been detected in the application code.

5.3.3.3 Action
Contact your Nortel representative.

5.3.3.4 Reference
Refer to the *Log Report Reference Manual*.

5.3.4 NSC100

5.3.4.1 Seriousness
This log is not associated with an alarm, but may affect service.

5.3.4.2 Explanation
A received 00Y code cannot be found in table NSCSNPA.

5.3.4.3 Action
Check the datafill in table NSCSNPA.

5.3.4.4 Reference
Refer to the *Log Report Reference Manual*.

5.3.5 CCS250

5.3.5.1 Seriousness
This log is associated with a major alarm, and indicates problems communicating with the SCP database.

5.3.5.2 Explanation

Two queries to the SCP database have timed out after a specified time.

5.3.5.3 Action

Investigate the cause of the communications problems.

5.3.5.4 Reference

Refer to the *Log Report Reference Manual* for log information, and to the *Alarm and Performance Monitoring Procedures* to clear the alarm.

> *Note:* The following logs appear in the order of alarm resolution. CCS231 records the in service trouble state. CCS220 records the return to the in service state. CCS235 signals that the sub-system is available without errors.

5.3.6 CCS231

5.3.6.1 Seriousness

This log contains a record that the local CCS subsystem has entered the In Service Trouble (IsTb) state.

5.3.6.2 Explanation

Two queries to the SCP database have timed out after a specified time, and generated a CCS LSSM Alarm.

5.3.6.3 Action

Check the MAP subsystem at SCCP LOCAL level of the CCS banner.

5.3.6.4 Reference

Refer to the *Log Report Reference Manual* for log information, and to the *Alarm and Performance Monitoring Procedures* to clear the alarm.

5.3.7 CCS220

5.3.7.1 Seriousness

This log is not associated with an alarm.

5.3.7.2 Explanation

The local subsystem has returned to the in service (INSV) state.

5.3.7.3 Action

Check the MAP subsystem at SCCP LOCAL level of the CCS banner.

5.3.7.4 Reference

Refer to the *Log Report Reference Manual*.

5.3.8 CCS235

5.3.8.1 Seriousness
This log is not associated with an alarm.

5.3.8.2 Explanation
The local subsystem is available without errors. This log appears whenever a source of subsystem errors (such as, alarms or IsTb state) has been cleared.

5.3.8.3 Action
No action required.

5.3.8.4 Reference
Refer to the *Log Report Reference Manual*.

5.3.9 IDPL 300

5.3.9.1 Seriousness
This log is not associated with an alarm.

5.3.9.2 Explanation
This log is generated when the IDPL audit facility has found unused reserved identifiers and has cleaned them up. To avoid generating this report at an unnecessary frequency, it will only occur after fifty identifiers have been cleaned up.

5.3.9.3 Action
Nortel should notify the designer that owns the code that defines the specified identifier class that the identifier is being improperly used.

5.3.9.4 Reference
Refer to the *Log Report Reference Manual*.

5.3.10 IDPL 800

5.3.10.1 Seriousness
This log is not associated with an alarm.

5.3.10.2 Explanation
This log is generated when approximately 80% of the maximum number of transaction identifiers are currently is use.

5.3.10.3 Action
Nortel should notify the designer that owns the code that defines the identifier class that the usage of the identifier type has reached critical levels.

5.3.10.4 Reference

Refer to the *Log Report Reference Manual*.

5.3.11 IDPL 801

5.3.11.1 Seriousness

This log is not associated with an alarm.

5.3.11.2 Explanation

This log is generated when all transaction identifiers are currently in use. This means that no further identifiers of this type are available and call processing may be affected.

5.3.11.3 Action

Nortel should notify the designer that owns the code that defines the identifier class that the usage of the identifier type has reached maximum levels.

5.3.11.4 Reference

Refer to the *Log Report Reference Manual*.

5.3.12 IDPL 900

5.3.12.1 Seriousness

This log is not associated with an alarm.

5.3.12.2 Explanation

This log is generated when the IDPL audit facility has found a reserved identifier for which the audit timer has expired.

5.3.12.3 Action

No action required.

5.3.12.4 Reference

Refer to the *Log Report Reference Manual*.

5.4 Problem detection and trouble clearing

Use problem detection and trouble clearing procedures to identify and respond to toll-free number service-affecting problems that are not associated with SSP alarm conditions. Problem detection procedures should be performed periodically to diagnose problems before they become service affecting. Trouble clearing procedures should be used to respond to problems that are detected through routine diagnostics or through customer reports.

For information on clearing trouble conditions on the SSP, refer to *Trouble Locating and Clearing Procedures*.

5.5 Commands

A number of commands are available to maintenance personnel. Commands that are specific to toll-free number services are listed here. For information on other available commands, refer to the *DMS-100 Family Commands Reference Manual*, 297-1001-822.

5.5.1 TESTSS

Use the TESTSS command to test the SCP database without placing an actual call. The TESTSS command verifies that SS7 links are operating and that the toll-free number services database information is valid. You can use the TESTSS command without fully datafilling the switches involved.

Access the TESTSS command from the SCCPLOC level of the MAP display. To reach the SCCPLOC level from the CI level of the MAP display, issue the following command:

```
>MAPCI;MTC;CCS;CCS7;SCCPLOC
```

The format of the TESTSS command is as follows:

```
>TESTSS  E800  cgpa cpga_lata cdpa  {timeout}
```

where

E800	is the name of the subsystem used in the query
cgpa	is the originating DN (NPA-NXX-XXXX) used in the query
<cgpa_lata>	is the originating LATA number
cdpa	is the terminating DN (NPA-NXX-XXXX) used in the query
<timeout>	is an optional timeout period (default 15 s)

5.5.2 E800VER

Use the E800VER command to verify the validity of SS7 messages that are used by toll-free number services. The E800VER command sends a database query without actually initiating a call.

Note: Perform this command on the switch that makes the query.

The format of the E800VER command for E800 is as follows:

```
>E800VER  cgpa <cgpa_lata> cdpa  <timeout>
```

where

cgpa (calling party address)
	is the originating DN (NPA-NXX-XXXX) used in the query
<cpga_lata>	is the originating LATA number
cdpa	is the terminating DN (NPA-NXX-XXXX) used in the query
<timeout>	is an optional timeout period (default 15 s)

5.5.3 TRAVER

Use the TRAVER command to simulate a telephone call in software, and display the line, trunk, or position to which a call is routed, the translation and routing tables that the call accesses, and any additional tables accessed as a result of call screening enhancements. TRAVER verifies that the translation tables for a given call can be properly accessed.

If a call is being incorrectly routed to treatment, or it is taking the wrong route, TRAVER helps determine what data to change.

TRAVER can display the following:

- the tables used to translate and route a call

- the tables accessed for call screening

- each element of the route list with digits outpulsed

- each alternate conditional route

The E800 toll-free number service benefits from two relevant TRAVERS. The first TRAVER focuses on the service from the originator to the 8XX number.

The second TRAVER focuses on the service from the originator to the routing number returned by the SCP database. These tests can also employ the TESTSS and E800 VER commands.

The format of the TRAVER command is as follows.

```
TRAVER <origtype> <origdigits> <npa> <rteref>
```

where

origtype   is L if a line is the originator
            is TR if an incoming trunk is the originator
            is C if an attendant console is the originator
            is V if a virtual facility group is the originator
            is R if a routing table is the originator

origdigits is the originating DN, when origtype is L
            is the trunk CLLI, when origtype is TR
            is the name of the console, when origtype is C
            is the virtual facility group number, when origtype is V
            is the routing table, when origtype is R

npa   is the numbering plan area code or translator name, when
            origtype is R

rteref   is the route reference sub-table key, when origtype is R

For examples of relevant TRAVERs, please refer to Appendix A, "Example TRAVER outputs".

Appendix A: Example TRAVER outputs

This section includes TRAVER outputs, SCP query responses, and datafill.

Note: TRAVER examples for the second leg of the call are for reference only. TRAVER does not support the second leg of the call because translations for that leg are not always the same between TRAVER and the DMS switch. The DMS switch recognizes that the routing number corresponds to an 800 or a direct-dialed call. TRAVER does not make this recognition.

TRAVER uses the line or trunk, and the called number for the first leg of the call. Operating companies can obtain the routing number from the E800VER command and use the routing number for the second leg of the call.

TRAVER outputs apply to the following typical toll-free call scenarios:

1   An intra-LATA call: line to EAEO/SSP to line

2   An inter-LATA call: line to EAEO/SSP to ATC trunk

3   An inter-LATA call: line to EAEO/SP to IT trunk (FGD) to
     AT/SSP to ATC IXC trunk

4   An intra-LATA call: line to EAEO/SP to IT trunk (FGC)
     (FGC) to EAEO/SSP to line

5   An international call: line to IT trunk (FGC) to
     AT/SSP to ATC INC trunk

6   An AMBI (ambiguous) call: 1 + 8xx + 7 digits, 8xx + 4 digits

7   A TDN (toll-denied) call: 1 + 8xx + 4 digits

For a high level understanding of these scenarios, refer to Chapter 1: "Understanding toll-free number service"

Note: TOPS SSP does not support TRAVER processing.

A.1 Scenario 1— Intra-LATA call: line to EAEO/SSP to line

The following TRAVER outputs apply to toll-free calls that take place within the same LATA.

A.1.1 TRAVER at EAEO/SSP from Line to E800

The following TRAVER output

- traces a call from the origination over a line to an SSP

- establishes the call as a toll-free call

Figure 24   TRAVER at EAEO/SSP from line to E800

```
>TRAVER l 6218923 18007002001 b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
613 621 8923
     (PUBLIC ( NAME 800+_1FR_D) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1800 1800 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N

TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 800 800 NSC E800
TABLE TFSSCRN
TFSSCRN TUPLE NOT FOUND
TABLE NSCSCRN
E800 TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
+++ E800 CALL WILL QUERY SCP DATABASE FOR TRANSLATION INFORMATION
TRAVER NOT AVAILABLE
+++ TRAVER: SUCCESSFUL CALL TRACE +++

+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

A.1.2 SCP response to EAEO/SSP query

The following E800VER command output contains routing and billing
information from an SCP response.

Figure 25   SCP response to EAEO/SSP query

```
>e800ver 6136218923 101 8007002001
THE RESPONSE FROM THE DATABASE TOOK
0 MINUTES, 0 SECONDS, 0 MILLISECONDS
THE FOLLOWING NUMBER IS THE CARRIER NUMBER
THE NUMBER IS 110

THE FOLLOWING NUMBER IS THE ROUTING NUMBER
THE NUMBER IS 6136218921

BILLING INDICATOR CALL TYPE is 142C
BILLING INDICATOR SFI IS 555C

THE FOLLOWING NUMBER IS THE BILLING NUMBER

THE NUMBER IS 6136218999

>
```

A.1.3 TRAVER at EAEO/SSP from line to termination

The following TRAVER output traces call completion from an SSP. The SSP produces AMA records for billing.

Figure 26   TRAVER for call completion (part 1)

```
>TRAVER l 6218923 6136218921 b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . 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
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 6136 6139 HNPA 0
 . 6218 6219 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 8921 L HOST 00 0 00 02
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP00100 SOC Option is IDLE.
LNP Info: Called DN has native NPANXX.
```

Figure 27   TRAVER for call completion (part 2)

```
LNP Info: Called DN is resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
613 L613 ( 3) OPTL N N
 . SUBTABLE LCASCR
 . 613 613
TABLE LCASCRCN
613 L613 ( 3) OPTL N N
 . SUBTABLE LCASCR
 . 621 621
TABLE PFXTREAT
OPTL NP Y NP UNDT
TABLE CLSVSCRC
AIN Info Collected TDP: no subscribed trigger.
Checking AIN SDS Trigger Items as SDS is compatible with current call
AIN Info Analyzed TDP: trigger criteria not met.
AIN Term Attempt TDP: no subscribed trigger.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 LINE                   6136218921          ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 *OFLO
2 LKOUT

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

A.2 Scenario 2— Inter-LATA call to EAEO to ATC trunk

The following TRAVER outputs apply to Inter-LATA calls: line to EAEO/SSP to ATC trunk.

A.2.1 TRAVER at EAEO/SSP from line to E800

The following TRAVER output traces the initiation of a call.

Figure 28   TRAVER at EAEO/SSP from Line to E800

```
>TRAVER l 6218923 18002361096 b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1800 1800 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 800 800 NSC E800
TABLE TFSSCRN
TFSSCRN TUPLE NOT FOUND
TABLE NSCSCRN
E800 TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
+++ E800 CALL WILL QUERY SCP DATABASE FOR TRANSLATION INFORMATION
TRAVER NOT AVAILABLE

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

>
```

A.2.2 SCP response to EAEO/SSP query

The following TRAVER output traces a call with an inter-LATA SCP response of a call.

Figure 29   Inter-LATA SCP response

```
>e800ver 6136218923 101 8002361096

THE RESPONSE FROM THE DATABASE TOOK
0 MINUTES, 0 SECONDS, 0 MILLISECONDS

THE FOLLOWING NUMBER IS THE CARRIER NUMBER

THE NUMBER IS 120

THE FOLLOWING NUMBER IS THE ROUTING NUMBER

THE NUMBER IS 6706218921

BILLING INDICATOR CALL TYPE is 141C
BILLING INDICATOR SFI IS 555C

THE FOLLOWING NUMBER IS THE BILLING NUMBER

THE NUMBER IS 6136219999

>
```

A.2.3 TRAVER at EAEO from line to ATC trunk

The following TRAVER output traces an Inter-LATA call to an ATC trunk.

Figure 30   TRAVER at EAEO from line to ATC trunk (part 1)

```
>TRAVER l 6218923 1012016706218921 b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 10120 10120 EA DD 5 P PEA3 MCI Y OFRT 897 5 20 N
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
 .  . TABLE OFRT
 .  . 897 CND EA INTNL SK 2
 .  .      N D ISUPOGMCI 0 N N
 .  .      CND ALWAYS SK 1
 .  .      N D ISUPOGMCI 0 D179 N
 .  . EXIT TABLE OFRT
 . TABLE STDPRTCT
 . PEA3 ( 1) (65021) 0
 .  . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING. CALL TYPE DEFAULT
IS NP. PLEASE REFER TO DOCUMENTATION.
...1 9 EA DD 1 T NA MCI N
..SUBTABLE AMAPRT.
..KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 930 20 ( 132) ( 1) ( 0) ( 0) 0 $
SUBTABLE HNPACODE
 . 670 671 HNPA 0
 . 6218 6219 DN 613 621
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 8921 L HOST 00 0 00 02
```

Figure 31   TRAVER at EAEO from line to ATC trunk (part 2)

```
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 not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
613 L613 ( 3) OPTL N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL DD N DD UNDT
TABLE CLSVSCRC
EA:Local override does not apply to this call.
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAXLA
LATA1 670 INTER INTER STD
TABLE OCCINFO
MCI 0120 EAP Y Y Y Y Y N N Y Y Y N LONG 14 FGRPC N N N N N N N N N N N N N Y
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT  897 from Pretranslation
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE OFRT
 897 CND EA INTNL SK 2
     N D ISUPOGMCI 0 N N
     CND ALWAYS SK 1
     N D ISUPOGMCI 0 D179 N
CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . . 1 9 EA DD 1 T NA MCI N
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
EXIT TABLE OFRT
+++ TRAVER: SUCCESSFUL CALL TRACE +++
 DIGIT TRANSLATION ROUTES
 1 ISUPOGMCI              6706218921           ST
 TREATMENT ROUTES.   TREATMENT IS: GNCT
1 *OFLO
2 LKOUT
 +++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

A.3 Scenario 3— FGD inter-LATA call

The following TRAVER outputs apply to inter-LATA calls: line to SP to IT trunk (FGD) to AT/SSP to ATC trunk.

A.3.1 TRAVER at SP from line to FGD IT trunk

The following TRAVER output traces call initiation.

Figure 32   TRAVER at SP from line to FGD IT trunk (part 1)

```
>TRAVER l 6218924 18008110204 b
TABLE LINEATTR
853 1FR NONE NT FR01 0 613 EAP2 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP2 ( 1) (65021) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1800811 1800811 F 1 NONE EAP3
EAP3 ( 1) (65021) 2
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 800811 800811 EA DD 1 T NO SSP Y OFRT 902 11 11 N
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 .  .  902 CND EA INTNL SK 2
 . .       N D ISUPITOG 0 D088 N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
LNP00100 SOC Option is IDLE.
EA:Local override does not apply to this call.
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
SSP 0110 EAP Y Y Y Y Y N N Y Y Y N LONG 14 FGRPC Y N Y N Y N N N N N N N N N Y
```

Figure 33   TRAVER at SP from line to FGD IT trunk (part 2)

```
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT  902 from Pretranslation
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP

OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL

Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE OFRT

902 CND EA INTNL SK 2
     N D ISUPITOG 0 D088 N
EXIT TABLE OFRT
. DEFAULT VALUE IS:   NONE OVRNONE  N
 .  . TABLE OFRT

 +++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES
 1 ISUPITOG              D0888008110204     ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO
2 LKOUT

>
```

A.3.2 TRAVER at AT/SSP from FGD IT trunk to E800

The following TRAVER output traces a delivery of an E800 call over an IT trunk.

Figure 34   FGD IT trunk TRAVER

```
>TRAVER tr isupitic 0881108008110204 b
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
E800 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 088110 088110 NSC NP 6 6 E800 NA
+++ E800 CALL WILL QUERY SCP DATABASE FOR TRANSLATION INFORMATION
TRAVER NOT AVAILABLE
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
LNP00100 SOC Option is IDLE.

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

A.3.3 SCP Response to AT/SSP Query

The following E800VER command output traces a call from an SCP response to an E800 query with FGD routing over an ATC trunk.

Figure 35   SCP Response to AT/SSP Query

```
>e800ver 6136218924 101 8008110204
 THE RESPONSE FROM THE DATABASE TOOK
0 MINUTES, 0 SECONDS, 10 MILLISECONDS
 THE FOLLOWING NUMBER IS THE CARRIER NUMBER
 THE NUMBER IS 120
 THE FOLLOWING NUMBER IS THE ROUTING NUMBER
 THE NUMBER IS 6706218921
 BILLING INDICATOR CALL TYPE is 141C
BILLING INDICATOR SFI IS 555C
 THE FOLLOWING NUMBER IS THE BILLING NUMBER
 THE NUMBER IS 6136221234
```

A.3.4 TRAVER at AT/SSP from FGD IT trunk to ATC trunk

The following TRAVER output traces an ATC trunk leg of a call.

Figure 36   Call completion over an ATC trunk

```
>TRAVER tr isupitic 0991206706218921 b
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
E800 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 099120 099120 T NP 6 OFRT 897 6 16 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
 . . TABLE OFRT
 . .  897 CND EA INTNL SK 2
 . .        N D ISUPOGMCI 0 N N
 . .        CND ALWAYS SK 1
 . .        N D ISUPOGMCI 0 D179 N
 . . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
LNP00100 SOC Option is IDLE.
+++ TRAVER: SUCCESSFUL CALL TRACE +++
 DIGIT TRANSLATION ROUTES

1 ISUPOGMCI            6706218921          ST
TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

A.4 Scenario 4— Intra-LATA FGC call

The following TRAVER outputs apply to Intra-LATA calls: line to SP to IT trunk (FGC) to EAEO/ SSP to line

A.4.1 TRAVER at SP from line to FGC IT trunk

The following TRAVER output traces a call origination.

Figure 37   Call origination of FGC call (part 1)

```
>TRAVER  l 6218923 18007112001  b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1800711 1800711 T NP 1 OFR4 711 3 11 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
 .  . TABLE OFR4
 .  .  711 N D ISUPITOG 6 800700 N
 . EXIT TABLE OFR4
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 .  . DEFAULT VALUE IS:   NONE OVRNONE  N
LNP00100 SOC Option is IDLE.
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES
```

Figure 38   Call origination of FGC call (part 2)

```
1 ISUPITOG                 8007002001           ST

DIGIT TRANSLATION ROUTES

1 ISUPITOG                 8007002001           ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 *OFLO
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

A.4.2 TRAVER at EAEO/SSP from FGC IT trunk to E800

The following TRAVER output traces E800 initiation in an SSP.

Figure 39   Call origination of FGC call

```
>TRAVER tr isupitic 8007002001 b
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
E800 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 800 800 N DD 0 NA
 . SUBTABLE AMAPRT
. KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 800 800 NSC E800
TABLE TFSSCRN
TFSSCRN TUPLE NOT FOUND
TABLE NSCSCRN
E800 TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
+++ E800 CALL WILL QUERY SCP DATABASE FOR TRANSLATION INFORMATION
TRAVER NOT AVAILABLE
 +++ TRAVER: SUCCESSFUL CALL TRACE +++

+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

A.4.3 SCP Response to EAEO/SSP query

The following E800VER command output traces a call where,
an SCP reponse to a query lays out a toll-free route.

Figure 40   SCP Response to EAEO/SSP query

```
>e800ver 6136218923 101 8007002001
 THE RESPONSE FROM THE DATABASE TOOK
0 MINUTES, 0 SECONDS, 0 MILLISECONDS
 THE FOLLOWING NUMBER IS THE CARRIER NUMBER
 THE NUMBER IS 110
 THE FOLLOWING NUMBER IS THE ROUTING NUMBER
 THE NUMBER IS 6136218921
 BILLING INDICATOR CALL TYPE is 142C
BILLING INDICATOR SFI IS 555C
THE FOLLOWING NUMBER IS THE BILLING NUMBER
 THE NUMBER IS 6136219999

>
```

A.4.4 TRAVER at EAEO from FGC IT trunk to termination

The following TRAVER output traces call completion.

Figure 41   TRAVER at EAEO from FGC IT trunk to termination

```
>TRAVER tr isupitic 6136218921 b
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
E800 ( 1) (65021) 3
 . 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
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 6136 6139 HNPA 0
 . 6218 6219 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 8921 L HOST 00 0 00 02
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.
DIGIT TRANSLATION ROUTES
1 LINE                   6136218921          ST
TREATMENT ROUTES.   TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++


>
```

A.5 Scenario 5—International call: IT trunk (FGC) to AT/SSP to ATC INC

The following TRAVER outputs apply to international calls (that is, not toll-free)

A.5.1 TRAVER at AT/SSP from FGC IT trunk to E800

The following TRAVER output traces call origination before the call routes internationally.

Figure 42   TRAVER at AT/SSP from FGC IT trunk to E800

```
>TRAVER tr isupitic 8008111211 b
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
E800 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 800 800 N DD 0 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:    NONE OVRNONE  N
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 800 800 NSC E800
TABLE TFSSCRN
TFSSCRN TUPLE NOT FOUND
TABLE NSCSCRN
E800 TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
+++ E800 CALL WILL QUERY SCP DATABASE FOR TRANSLATION INFORMATION
TRAVER NOT AVAILABLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++


+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

A.5.2 SCP response to AT/SSP query

The following E800VER command output traces a call where,
an SCP directs a call to an international gateway.

Figure 43   SCP response to AT/SSP query

```
>e800ver 6136218923 101 8008111211

THE RESPONSE FROM THE DATABASE TOOK
0 MINUTES, 0 SECONDS, 10 MILLISECONDS
THE FOLLOWING NUMBER IS THE CARRIER NUMBER
THE NUMBER IS 120
THE FOLLOWING NUMBER IS AN INTERNATIONAL ROUTING NUMBER
THE NUMBER IS 2346218921
BILLING INDICATOR CALL TYPE is 141C
BILLING INDICATOR SFI IS 555C
THE FOLLOWING NUMBER IS THE BILLING NUMBER
THE NUMBER IS   6136220123
```

A.5.3 TRAVER at AT/SSP from FGC IT trunk to ATC INC trunk

The following TRAVER output traces a call that routes from the SSP to the international (INC) trunk.

Figure 44   Completion of international call

```
>TRAVER tr isupitic 1991202346218921 b
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
E800 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 199120 199120 T NP 6 OFRT 207 6 16 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
 .  . TABLE OFRT
 .  .  207 N D ISUPOGMCI 15 D179 N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
LNP00100 SOC Option is IDLE.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

 DIGIT TRANSLATION ROUTES

1 ISUPOGMCI              D179                ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

A.6 Scenario 6—Ambiguous 8XX: Toll Free and Local Calls

The following TRAVER outputs apply to ambiguous calls, both toll-free and toll.

A.6.1 1+10 Digit Toll Free Call (Ambi)

The following TRAVER output traces a call that could be ambiguous, but is a legitimate toll-free call.

Figure 45   Normal toll-free call with ambiguous NPA

```
>TRAVER l 6218923 18888113456 b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1888 1888 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 888 888 AMBI TIM DN 613 621 NSC E800
TABLE TFSSCRN
TFSSCRN TUPLE NOT FOUND
TABLE NSCSCRN
E800 TUPLE NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
+++ E800 CALL WILL QUERY SCP DATABASE FOR TRANSLATION INFORMATION
TRAVER NOT AVAILABLE
+++ TRAVER: SUCCESSFUL CALL TRACE +++

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

A.6.2 7 Digit Local Call (Ambi)

The following TRAVER traces a call that deals with a local toll call that contains ambiguous numbers.

Figure 46   Toll local AMBI call (part 1)

```
>TRAVER l 6218923 8888946 b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . 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
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 888 888 AMBI TIM DN 613 621 NSC E800
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
TABLE TRIGGRP
OFCTRIG INFOANAL
 . N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 8946 L HOST 00 0 13 02
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.
```

Figure 47   Toll local AMBI call (part 2)

```
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
613 L613 ( 3) OPTL N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL NP N DD UNDT
TABLE CLSVSCRC
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 LINE                    6136218946           ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 *OFLO
2 LKOUT
 +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

A.7 Scenario 7— TDN (toll denied): 1 + 8XX + 4 digits

The following TRAVER outputs apply to toll-denied calls to toll-free numbers.

A.7.1 Line with TDN makes 1 + 7 digits toll call

The following TRAVER output traces a call from a line to the SSP. The SSP blocks the call because the line has the TDN option.

Figure 48   Toll-denied call (Part 1)

```
>TRAVER l 6218923 18888946 b
TABLE LINEATTR
852 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
EAP1 ( 1) (65021) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 1888 1888 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
613 Y 930 20 ( 114) ( 1) ( 0) ( 0) 0
 . SUBTABLE HNPACODE
 . 888 888 AMBI TIM DN 613 621 NSC E800
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
TABLE TRIGGRP
OFCTRIG INFOANAL

. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 8946 L HOST 00 0 13 02
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
```

Figure 49   Toll-denied call (part 2)

```
TABLE DNGRPS
TUPLE NOT FOUND
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
613 L613 ( 3) OPTL N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL DD N DD UNDT
TABLE CLSVSCRC
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD

+++ TRAVER: SUCCESSFUL CALL TRACE +++
 TREATMENT ROUTES.  TREATMENT IS: TDND
1 *OFLO
2 LKOUT
 +++ TRAVER: SUCCESSFUL CALL TRACE +++
```

E800 SSP Toll-free Numbers
Service Guide

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